UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
CALIFORNIA DESERT DISTRICT

DRAFT ENVIRONMENTAL IMPACT STATEMENT

APPENDICES

JANUARY 2001

Appendix A

PROPOSED NEMO DESERT TORTOISE CONSERVATION STRATEGY

The following Desert Tortoise Conservation Strategy is based on recommendations of a NEMO Desert Tortoise Biological Team.[1] The recommendations were submitted in October 1998. The Team adopted the following goal and objectives as set forth in the Recovery Plan.

GOAL: To meet the recovery criteria for the Desert Tortoise as specified in the Desert Tortoise Recovery Plan (pp. 43-45). A population of Desert Tortoise within a recovery unit may be considered for delisting when all of the following criteria are met:

1. Upward or stationary trend in population for at least 25 years;
2. Sufficient habitat[2] must be managed intensely to ensure long-term tortoise-population viability {at least 1 area of 1000 square miles (640,000 acres) in the recovery unit};
3. Population lambda is at least 1.0[3];
4. Land management commitment sufficient to ensure long-term protection of tortoise populations and its habitat;
5. Management is sufficient without the use of regulatory mechanisms (e.g., formal consultations with U.S. Fish and Wildlife Service) in the Endangered Species Act.

OBJECTIVES: The following objectives are based on the recovery actions specified in the Desert Tortoise Recovery Plan (pp. 45-54):

1. Establish areas where viable Desert Tortoise populations are maintained;
2. Develop and implement management prescriptions for these areas to address threats sufficient to accomplish the goal;
3. Acquire sufficient habitat in these areas to ensure that management strategies are effective;
4. Monitor tortoise populations to assess effectiveness of management prescriptions in meeting recovery goals in these areas;
5. Establish an environmental education program to facilitate understanding of desert tortoise threats and recovery needs, and affect compliance with management strategies in these areas; and
6. Continue research necessary to assess relative importance of threats to the desert tortoise in these areas and to evaluate and improve mechanisms to address these threats.

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[1] NEMO DT biological team: Larry Foreman - BLM (team lead), Ray Bransfield/George Walker - FWS, Carol Crosby - FWS, Mark Depoy - BLM-BFO, Frank Hoover/Becky Jones - CDFG, Mike McGill/Willow Yumiko - BLM-NFO, Tom Egan- BLM-BFO, Joyce Schlachter - BLM-RFO, Edy Seehafer - BLM-BFO.

[2] Habitat must also be of sufficient quality (Desert Tortoise Recovery Plan, USFWS, June 1994, pp. 48-49).

[3] Minimum population density potential for adults is believed to be10/square mile to assure reproductive success (Ibid, in App. C, Section 5, and summarized on p. C53).

A.1 OBJECTIVE 1: ESTABLISH AREAS WHERE VIABLE DESERT TORTOISE POPULATIONS ARE MAINTAINED

An area must meet certain requirements to be considered for management of a viable desert tortoise population. There are basic vegetation, topographical, elevation, climatic, and other habitat requirements that make an area capable of supporting desert tortoises. In addition to these limitations, existing and future habitat fragmentation and sources of mortality must be manageable. An area should meet design requirements for good reserves. A long, linear area, for instance, would be unlikely to maintain a population of desert tortoise due to ease of migration into and out of the area.

In the NEMO Planning Area, four areas generally meet the requirements for viable desert tortoise populations based on the considerations in the previous paragraph. Adjacent areas outside of NEMO that provide viable desert tortoise habitat were also taken into consideration in the analysis of potential tortoise management areas. More specifically, identification of the management areas also considered similar areas in the East Mojave being developed on the Mojave National Preserve and already developed areas in southern Nevada. The management areas under consideration also abut the Northern Colorado Recovery Unit to the south.

A.1.1 BOUNDARIES OF PROPOSED TORTOISE MANAGEMENT UNITS

The U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG) and BLM identified four areas for potential consideration by the BLM for desert tortoise conservation in the NEMO Planning Area. These four areas have had various names, as noted in parentheses, and include the following:

(1) Piute Valley Unit (a.k.a. Piute-Eldorado Critical Habitat Unit): This area is bounded on the west and north by the Mojave National Preserve, on the south by I-40, on the east by the Dead Mountains and on the northeast by the Nevada State line. It consists of approximately 173,850 acres, 80 percent of which (about 139,000 acres) is BLM-managed public lands. This unit together with the tortoise habitat in Fenner and Piute Valleys in the Mojave National Preserve and southern Nevada constitute the Piute-Fenner Desert Wildlife Management Area (DWMA).

(2) Ivanpah Valley Unit (a.k.a. the northeastern portion of the Ivanpah Critical Habitat Unit): This area is bounded on the north by a powerline south of I-15, on the west and south by the Mojave National Preserve (and Nipton Road) and on the east by the Nevada State line. It consists of approximately 37,280 acres, of which about 35,200 acres are BLM-managed public lands.

(3) Shadow Valley Unit (a.k.a. the northwestern portion of the Ivanpah Critical Habitat Unit): This area is bounded on the north by the Kingston Range, on the west by the Shadow Mountains, on the south by I-15, and on the east by the Clark Mountains. It consists of approximately 114,060 acres, of which approximately 101,355 acres is located

east of Turquoise Mountain Road. Of these 101,355 acres, about 95,280 acres are BLM-managed public lands.
(4) Northern Ivanpah Valley Unit: This area is bounded on the west by the eastern extent of the Clark Mountains, on the north by the Nevada State line and on the south and east by I-15. It consists of approximately 29,110 acres, of which about 27,300 acres are BLM-managed public lands.

A.1.2 EVALUATION OF PROPOSED TORTOISE MANAGEMENT UNITS

A.1.2.1 Piute Valley Unit

This area includes examples of the best desert tortoise habitat remaining in the southern portion of the East Mojave Desert. Tortoise densities vary widely, based on local conditions, ranging from about 10 to more than 350 per square mile, with good age-class distribution. There has been some decline over time and recent tortoise die-off from disease in this area. Existing development is patchy and generally low due to the lack of population centers near public lands. Much of the current use is focused further west (within the Mojave National Preserve), north (Lanfair Valley), or south and east of the area along the State line (Needles-Bullhead area). The Piute Valley ACEC is contiguous with lands managed for viable Desert Tortoise populations to the west in Mojave National Preserve and to the east on public lands managed by Las Vegas Field Office of BLM (Las Vegas Resource Management Plan, 1999) and provides critical linkage between these areas. Lands for the adjacent Northern Colorado Recovery Unit are also contiguous on the south, south of Route 66 and I-40. If the barriers of Route 66 and I-40 can be minimized, the Piute Valley ACEC will also provide an excellent linkage to this desert tortoise habitat to the south. This recommendation is consistent with current and proposed strategies for protection of adjacent National Park Service and BLM habitat of the Eastern Mojave population of the desert tortoise and for adjacent BLM habitat of the Northern Colorado Recovery Unit of the desert tortoise.

A.1.2.2 Ivanpah Valley Unit

This area provides high-density desert tortoise habitat in the southwestern most portion of the Northern and Eastern Mojave Recovery Unit, proposed for inclusion in the East Mojave Recovery Unit. This boundary would exclude approximately 3,280 acres originally included in BLM Category I habitat; however, this 3,280 acres is adjacent to I-15 and is largely an unoccupied dry lakebed that is not suitable habitat. This area includes all critical habitat in upper Ivanpah Valley. The valley has good quality desert tortoise habitat, but there has been one incidence of tortoise die-off from unknown causes and some signs of shell disease have been observed in the population in recent years.

Development is generally low due to the lack of population centers near public lands, but development pressures are increasing to the north and east from Stateline and to the west from Molycorp activities. The area is contiguous with lands managed for viable desert tortoise populations to the south and west in Mojave National Preserve and by a corridor to public lands managed by BLM's Las Vegas District and provides critical linkage

between these latter areas. This recommendation is therefore consistent with the strategy for protection of adjacent National Park Service and BLM habitat of the Eastern Mojave Recovery Unit of the desert tortoise.

A.1.2.3 Shadow Valley Unit

The area includes all critical habitat from Bull Springs Wash eastward (Bull Springs Wash is adjacent to Turquoise Mountain Road), until it meets with Turquoise Mountain Road, then follow the Road as boundary. This boundary corresponds closely to the boundaries of BLM Category I tortoise habitat, but excludes critical habitat and Category I habitat west of Bull Springs Wash near Turquoise Mountain Road (approximately 12,705 acres) because tortoise populations are lower and the area has habitat fragmentation from roads and small inactive mines. The wash itself is included because it provides one of the few migration connectors for desert tortoises to habitat south of I-15 through the wash underpass. The Shadow Valley area is contiguous with lands managed for viable desert tortoise populations to the south across I-15 in Mojave National Preserve. This area, in conjunction with areas of the Preserve to the south on the other side of I-15, includes a unique genetic unit within California. However, it would be isolated from other DWMAs by non-habitat features to the west (towards Baker). There is low desert tortoise travel through this topographical area. It is further fragmented by I-15 to the south and by higher elevations further to the south.

The area is not yet undergoing substantial development pressures, consists of an almost continuous block of public lands, includes areas of wilderness in the northern one-quarter of Shadow Valley, and would incorporate the northernmost extent of suitable habitat for the Eastern Mojave population of desert tortoise. Desert tortoise densities in this area currently range from 5 to 50 per square mile; potential densities are not known. There has been moderate and increasing tortoise die-off from disease in this area in recent years. This area is also attractive because of its diverse vegetation types and topography that allow tortoises to respond to climatic variation. This recommendation is consistent with the strategy for protection of desert tortoise in the adjacent Mojave National Preserve.

A.1.2.4 Northern Ivanpah Valley Unit

The area located immediately north and west of State line (or Primm) is designated BLM Category I desert tortoise habitat but was not designated as critical habitat by USFWS. The area would not be included in a DWMA because it is relatively small (29,110 acres), is separated from other desert tortoise populations in the NEMO Planning Area by I-15 and Ivanpah Dry Lake, and is undergoing substantial development pressures particularly adjacent to I-15. This recommendation is also consistent with the strategy for desert tortoise adopted by Federal agencies in Nevada. The Nevada strategy did not identify the northern Ivanpah Valley, as an area to be managed for desert tortoise recovery.

A.1.3 REGIONAL OVERVIEW OF PROPOSED APPROACH

With the above proposed ACECS, overall design of tortoise management areas for the Eastern Recovery Unit would include two DWMAs - the Ivanpah-Shadow DWMA and the Piute Eldorado DWMA.

The Ivanpah-Shadow DWMA would include lands within the Mojave National Preserve and two BLM ACECs. Although virtually all tortoise habitat within the Preserve receives a high degree of protection, desert tortoise critical habitat within the Preserve is about 481,290 acres. Contiguous with the Preserve to the northeast, but separated by Nipton Road, is the proposed Ivanpah Valley ACEC. It is 37,280 acres. Contiguous with the Preserve to the northwest, but separated by I-15, is the proposed Shadow Valley ACEC. It is 101,355 acres. Together these three areas (Ivanpah Critical Habitat Unit on the Preserve and proposed Ivanpah Valley and Shadow Valley ACECS) total 619,925 acres. This is about the minimum size set forth in the Recovery Plan.

The Piute-Eldorado DWMA would include lands within the Mojave National Preserve and two BLM ACECs. Desert tortoise critical habitat within the Preserve is about 279,460 acres. Contiguous with the Preserve to the southeast is the proposed Piute Valley ACEC. It is 173,850 acres. The Piute-Eldorado ACEC in Nevada in the Eastern Mojave Recovery Unit is 277,000 acres. Together these three areas (Piute-Eldorado Critical Habitat Unit on the Preserve and proposed Piute Valley ACEC and designated Piute-Eldorado ACEC in Nevada) total 730,310 acres. This is above the minimum size set forth in the Recovery Plan.

The Ivanpah-Shadow DWMA has two connecting corridors with the Piute-Eldorado DWMA between Ivanpah Valley and Piute and one south of Kelso Valley on the Preserve. The two DWMAs in the Eastern Mojave Recovery Unit (Ivanpah-Shadow DWMA and Piute-Eldorado DWMA) total 1,350,235 acres.

A.2 OBJECTIVE 2: DEVELOP AND IMPLEMENT MANAGEMENT PRESCRIPTIONS FOR THE ACEC'S TO ADDRESS THREATS SUFFICIENT TO ACCOMPLISH THE GOAL

The following proposed prescriptions were developed for desert tortoise and its habitat by the issues as described in Appendix D (Description and Strategy for Addressing Major Desert Tortoise Issues) and the Desert Tortoise Current Management Situation for the NEMO Planing Area (Foreman 1998). The prescriptions were developed by the Biological Team based on the BLM Statewide Desert Tortoise Policy and recommendations in the Recovery Plan.

A.2.1 GENERAL PRESCRIPTIONS FOR ACTIVITIES WITHIN TORTOISE ACEC'S

(1) Authorized ground-disturbing activities shall normally be authorized only between November 1 and March 1. If ground-disturbing activities must be authorized outside this window, an on-site biological monitoring shall be required throughout activities, as well as other stipulations to prevent take.

(2) New surface disturbing projects shall include specific design features (see mitigation measures in Attachment 1) to minimize potential impacts to desert tortoise and desert tortoise habitat. Using the formal consultation procedures of the Endangered Species Act, the BLM shall seek to obtain from USFWS a programmatic biological opinion covering all projects less than 100 acres in size (any size for utilities in utility corridors) that do not require an EIS or do not require amendment of the CDCA Plan. The mitigation measures set forth in Attachment 1 below are proposed by BLM as terms and conditions for the biological opinion.

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(3) Reclamation would be required for activities that result in loss or degradation of desert tortoise habitat within the desert tortoise wildlife management area, to as close to pre-disturbance condition as practicable. Reclamation may include salvage and transplant of cacti or yucca, re-contouring, scarification of soil, soil amendments, seeding, and transplant of shrubs. Seedings will be of native species, from seed collected in the area of the project when feasible. See Appendix G for additional discussion.

(4) Cumulative new surface disturbance on public lands administered by the BLM within any desert tortoise wildlife management area shall be no more than **1 percent** of BLM lands. For the recommended Shadow Valley ACEC, this currently would be approximately **950** acres, for Ivanpah Valley ACEC approximately **350** acres, and for Piute Valley ACEC approximately **1,300**[4] acres. This **1%** limitation would not include needed acreage for expansion of freeways and major highways. The only project identified by CalTrans, in the reasonably foreseeable future, is the widening of Interstate –15 from Victorville, California to Las Vegas, Nevada. See Appendix G for a detailed discussion.

(5) Compensation for disturbances of public lands within the desert tortoise ACECs shall be required at the rate of five acres for each acre disturbed.(Refer to Appendix G for additional Information). Compensation may be in the form of habitat acquisition or off-site habitat improvement or protection projects, at the discretion of the BLM. As ACECs have fewer parcels available for acquisition from willing sellers and/or as the benefit/cost analysis favors habitat enhancement, it will be pursued in connection with or in lieu of acquisition.

A.2.2 MINERAL RESOURCES

All Mining including Locatables

(1) The desert tortoise ACECs shall remain open to mineral entry under the mining laws, subject to cumulative surface disturbance limitations and compensation for new disturbances, outlined above. Unnecessary and undue degradation will be avoided.

[4] This number does not yet reflect recent Wildlands/Catellus/BLM exchange lands.

(2) BLM shall require a plan of operation and appropriate bonding for any activities involving disturbance of perennial vegetation, vehicle use off of designated open roads and trails, or use of mechanized earthmoving equipment or explosives.

(3) BLM shall require the operator to reclaim any site upon completion of mining activity, according to a SMARA and BLM-approved reclamation plan and consistent with adopted BLM Standards.

Leasables

(4) Additionally for oil and gas and geothermal activities, drill pads shall be located on disturbed areas or areas adjacent to designated open or limited routes, if technically feasible (e.g. slant drilling).

Saleables

(5) Development and production, including expansion of existing and new pits may be permitted. Wherever feasible, existing pits shall be utilized to minimize new surface disturbance.

(6) Non-commercial hand-collection of rock may occur anywhere, subject to motorized access limitations: (43CFR 8365.1-5)

A.2.3 GRAZING MANAGEMENT

Utilize Regional Standards and Guidelines for Grazing Management, CDCA Plan, allotment management plans, and terms and conditions from the existing FWS biological opinions. For allotments within the ACECs:

(1) Allow voluntary relinquishment of grazing lease and related authorizations.

(2) Temporary nonrenewable grazing use (perennial) shall not be authorized.

(3) Cattle shall be substantially removed from the ACEC from 3/15 to 11/1 according to an allotment program during years when ephemeral forage production is less than 230 pounds per acre. The allotment program shall be developed within a year and implemented within two years after that. The allotment program shall be a written plan detailing the area of removal, natural cattle movements, existing and potential improvements, and other constraints of cattle management.

(4) Terminate ephemeral allotments and terminate ephemeral authorization for ephemeral/perennial allotment.

(5) Continue to apply stipulations in the existing USFWS biological opinions for cattle grazing. (See Appendix F)

(6) Include additional parameters as needed to discourage the use of range improvements by ravens.

A.2.4 FIRE MANAGEMENT

Fires occurring in ACECs shall be managed in accordance with non-impairment criteria, as identified below with minimal disturbance to resource values within the ACEC.

(1) Before the beginning of each fire season, firefighters and support personnel will be provided with a briefing on tortoises and their habitat. This education program will focus on minimizing take of any listed species, particularly take due to vehicle use.

(2) Wildfires within the tortoise ACECs will be suppressed using a mix of the following methods to avoid impairment:

a. aerial attack;
b. crews using hand tools to create fire breaks;
c. mobile attack engines limited to public roads, designated open routes, and routes authorized for limited-use;
d. use of foam and/or fire retardant;.
e. earth-moving equipment and other tracked vehicles (such as bulldozers) will not be used except in critical situations to protect life, property, or resources.

(3) BLM will assign a Resource Advisor on all wildfires exceeding initial attack.

(4) Use of surface disturbing equipment, such as bulldozers, is restricted due to the sensitive desert environment. Such equipment can be utilized with field manager approval or at the discretion of the Incident Commander, when life and property are threatened. An on-site Resource Advisor, may authorize the limited use of such equipment if, in his or her estimation, the fire is serious enough that direct mortality and loss of habitat to the desert tortoise that would result from the fire is significant and other control means will not effectively prevent spread.

(5) Backfires and burning of unburned fingers and islands would be discouraged and alternatives considered in tortoise ACECs.

(6) On-road travel speeds will be kept low to reduce take of desert tortoise.

(7) Off-road vehicle travel will be restricted to the minimum necessary to suppress wildfires.

(8) Individuals trained to recognize tortoises and their shelter sites will precede any vehicle traveling off-road.

(9) Camps, staging areas, and helispots will be pre-surveyed for tortoises and burrows by the assigned environmental specialist. Camps will be established within previously disturbed areas whenever practicable

(10) Post-suppression mitigation shall include rehabilitation of firebreaks and other ground disturbances and obliteration of vehicle tracks sufficient to discourage future casual use. Hand tools will be used for rehabilitation activities whenever feasible.

A.2.5 VEGETATION RESOURCES

(1) BLM shall not issue permits for live vegetation harvest, except in salvage areas where surface disturbance has been authorized.

(2) No mechanical treatment or type conversion shall be allowed unless it benefits or improves tortoise habitat.

(3) Collection of dead and down wood, with the exception of Joshua trees or yucca species, is allowed for personal camp use.

(4) BLM will reduce the frequency and extent of surface disturbing activities to minimize invasion of weedy plants, whenever possible.

A.2.6 LANDS AND REALTY

(1) Lands shall not be available and shall not be classified or otherwise determined suitable for authorization or entry, under the following authorities:
a. Agricultural Land Laws (e.g., Desert Land Entry, Carey Act, Indian Allotment);
b. Recreation and Public Purposes Act;
c. FLPMA Lease/Sale; Exceptions may be considered for sales of hazardous material sites to Potentially Responsible Parties;
d. Airport Lease/Grant; and
e. Non-protective withdrawals.

Discussion: Certain types of discretionary land authorizations and entries constitute long-term disturbance and/or loss of habitat, which is inconsistent with tortoise conservation and recovery in ACECs.

(2) All new major linear utilities shall be placed in existing, designated utility corridors consistent with the existing CDCA Plan Energy Production and Utility Element. To the extent feasible, existing routes would be utilized to provide access for maintenance of rights-of-way.

(3) The poles and towers of electrical distribution lines shall be designed to discourage raven nesting.

A.2.7 HABITAT ENHANCEMENT

(1) In authorizations for projects that will disturb habitat, the BLM shall apply stipulations requiring rehabilitation of the disturbance. The rehabilitation shall be at least to the point where the topography, soils and vegetation conditions have been established for return to pre-disturbance conditions. This includes such actions as closing access to non-designated roads and restoring non-designated roadbeds to a condition suitable for their natural return to a pre-disturbance state. With regard to tortoise needs, the purpose is to return the habitat to meet the following needs:

a. Lands are suitable for burrowing, if they would have been suitable prior to disturbance. This is characterized by stabilized, non-compacted soils;

b. Lands are adequate for foraging as indicated by sustainable replenishment of annual vegetation utilized by the desert tortoise in the area;

c. Lands provide adequate thermal cover through perennial shrubbery and other natural features utilized by the desert tortoise in the area;

More specific criteria are now under development by the Desert Wide Restoration Taskforce. Site-specific rehabilitation standards will be developed for each site, to be supplemented with guidance provided by that Taskforce. See Appendix G for additional information on this effort.

(2) BLM may use compensation funds for enhancement of tortoise habitat after coordination with CDFG and USFWS. (See A.2.1 Item 5).

A.2.8 TRANSPORTATION/ACCESS

(1) BLM shall designate roads and trails within the DWMAs as "open", "limited use" or "closed". The BLM shall prohibit motorized vehicle activity off of designated open roads and trails, except for official fire suppression, search and rescue, law enforcement, or other similar administrative need (including access to projects such as fences, waters, utilities) or for vehicle-based camping adjacent to open routes. "Limited use" routes are designated for special use (e.g., seasonal closure) or permitted access (e.g., a landowner to private lands). See Chapter 7, Figures 4a, b and c. Biological Parameters to minimize harassment of wildlife or significant disruption of wildlife habitat will be followed during the route designation process, including:
   (a) Washes will be closed unless they provide the major through access in an area and no reasonable alternative exists, or they provide access to a major recreational site and do not result in substantive degradation of habitat;
   (b) The route designation process shall consider fragment size;
   (c) Closure of routes within ¼ mile of any significant bat roost shall be strongly considered;
   (d) Closure of routes within ¼ mile of known prairie falcon or golden eagle eyries (cliff nests) shall be strongly considered;

(e) Closure of routes within ¼ mile of natural or artificial water sources (e.g. springs, seeps, streams, guzzlers) shall be strongly considered;
(f) Closure of "redundant" routes shall be strongly considered.

(2) All DWMA lands bordering Interstate freeways and major highways shall be fenced. Priorities for fencing are the following:

a. Interstate highways abutting or passing through a tortoise ACEC, and
b. Based upon average daily travel exceeding 1,000 vehicles and tortoise density exceeding 50 per square mile, the following highways:

- 23.9 miles along U.S. 95 through Piute Valley from the California border to the intersection with Burlington Northern/Santa Fe Railroad at Arrowhead Junction; and
- 11 miles along Nipton Road between the California border near Nipton to I-15.

(3) Fencing shall meet current specifications concerning mesh size, burial and design standards and shall be placed on both sides of the road. These standards will consider prevention of roadkills to discourage ravens and coyotes.

(4) Closed roads/routes shall be rehabilitated whenever necessary to prevent their continued use and to speed restoration.

(5) Physical maintenance and grading shall be the minimum necessary to maintain the use of the road for its prescribed purposes. Grading shall be conducted consistent with specified standards to prevent trapping desert tortoises within the roadbed, including appropriate standards for road berms.

A.2.9 RECREATION RESOURCES

(1) Restrict vehicle camping to within 100 feet of centerline of designated open roads in previously disturbed areas. BLM shall provide visitor information to encourage visitors to camp in areas that have already been disturbed.

(2) Allow dispersed non-motorized recreational activities in desert tortoise ACECs. Development of new recreational facilities, such as visitor centers, developed campgrounds, new designated non-motorized trails, shall not be allowed in the ACECs if these would create new permanent surface disturbance. Marking of existing non-motorized trails to known visitation sites to encourage use of one identified path is appropriate, if existing use has created an area of disturbance. Installation of interpretive signing and informational kiosks shall be encouraged.

(3) Prohibit competitive speed events in the desert tortoise ACECs. Landsailing permits may be authorized for the Ivanpah lakebed outside of the ACEC, subject to

appropriate terms and conditions. Secondary impacts from such events, such as group campsites, shall also be sited outside of the ACEC.

(4) Restrict dual sport events to designated open routes between November 1 and March 1, continuing the existing ceiling on the number of riders per event (i.e., 500 riders) and any route-specific resource limitations.

(5) Allow hunting according to current State legislation and regulations. Motorized access for hunting shall be limited to designated open or seasonally limited routes.

A.2.10 WILD HORSE AND BURRO

(1) Modify the Clark Mountain Herd Management Area (HMA "F" Map 8 of the CDCA Plan) boundary to exclude that area located within the Shadow Valley ACEC.

(2) Eliminate the herd concentration area (Concentration Area "27" on Map 8 of the CDCA Plan) within the Shadow Valley ACEC.

> **Discussion:** The appropriate management level (AML) for the Clark Mountain HMA would change from 44 burros in the current HMA (all in the Shadow Valley Concentration Area) to 60 burros in the reduced HMA (all in two concentration areas to the east of Shadow Valley and outside of tortoise ACECs) (See Chapter 7, Figure 8). This would be modified later after 5-year carrying capacity analysis, which would be based on the remaining forage provided by the modified HMA, other foragers, range condition, and other factors.

Burros located in the Shadow Valley ACEC would be removed and any potential drift managed through relocation by direct or indirect means to the two remaining herd concentration areas within the reduced Clark Mountain HMA. Terms and conditions would be identified and incorporated into the Clark Mountain HMA Plan. They would include 40%[5] maximum utilization levels on key forage species in desert tortoise habitat in order for burro use to continue in particular areas; as well as strategies to manage drift into the ACEC; areas to be fenced; and other needed range improvements required specifically to promote desert tortoise conservation and recovery (See Appendix G).

(3) Apply stipulations for wild horse and burro management in desert tortoise habitat (See Appendix F).

A.2.11 WILDLIFE

(1) Existing wildlife guzzlers shall be modified to minimize mortality to desert tortoises, and new guzzlers shall incorporate appropriate design features to do the same.

[5] Maximum utilization levels on key forage species would be further limited to 30% until range condition improves to "Good". Current condition of the allotment is "Fair".

(2) The BLM shall identify lands for potential relocation, on a case-by-case basis, in coordination with USFWS, CDFG and private landowners who may wish to relocate desert tortoises from private lands slated for development onto nearby public lands within the tortoise ACECs.

A.2.12 RAVENS

(1) Within DWMAs, the BLM shall work with other agencies to implement a raven management strategy to reduce raven predation on tortoises. This raven management plan is based on the work of biologist Bill Boarman, who has identified the key elements of a successful raven management program. Early priorities for implementation of this phased approach in the NEMO planning area includes the following items:

a. The BLM will work with other agencies to achieve fencing of major highways to minimize road kills as a food source for raven populations;
b. The BLM will remove ravens that are known to prey on tortoises through selective shooting or trapping and euthanasia where there is evidence of raven predation in or within one mile of DWMAs;
c. To the extent possible, the BLM shall eliminate human-caused sources of raven food as identified (e.g., illegal dumps, uncovered trashcans) at specified sources within DWMAs;
d. BLM will work with other agencies to reduce the availability of solid wastes at operating sanitary landfills outside of DWMAs and on overall programs to reduce the availability of organic wastes (related to facilities and methods for trash service, dump stations, and composting practices) unrelated to sanitary landfills;
e. BLM will work with other agencies and local jurisdictions to reduce the availability of unnecessary waters (related to facilities and methods for sewage treatment, pool/pond design, and irrigation);
f. BLM will pursue raven management research as identified by the Desert Tortoise Management Oversight Group, to identify habitat requirements and control methodologies in the settings that the NEMO DWMAs provide, where populations appear to range over larger, less densely inhabited areas with longer commuter distances between major feeding locations. An unknown factor is the amount of habitat being provided by agricultural lands within the DWMAs.
g. Proposed projects on public lands in the planning area which have the potential for increasing raven populations will be reviewed for design and operation features to reduce or eliminate the opportunity for proliferation of ravens.
h. This program will be modified as needed to address the changing threat that ravens may pose in the planning area.

A.2.13. LAW ENFORCEMENT

(1) The law enforcement effort shall be aimed at enforcing wildlife regulations and reducing illegal dumping, littering, arson, cross-country vehicle travel, and vandalism.

A.2.14 OTHER ISSUES

(1) The BLM shall cooperate with other groups and agencies to identify areas where uncontrolled dogs are causing desert tortoise mortality. In the event such a situation is discovered, BLM will encourage San Bernardino County to adopt or enforce ordinances prohibiting uncontrolled dogs in those areas.

(2) The BLM shall cooperate with CDFG, USFWS, and other groups and agencies to identify areas where vandalism (e.g. shooting, collecting) of desert tortoises is occurring and take measures to prevent future occurrences.

A.3 OBJECTIVE 3: ACQUIRE SUFFICIENT HABITAT IN ACEC'S TO ENSURE THAT MANAGEMENT STRATEGIES ARE EFFECTIVE

Habitat fragmentation is a major contributor to population declines (Berry 1984b, Berry & Burge 1984, Berry & Nicholson 1984b and Berry 1984c). Desert tortoises require a great deal of space to survive. Over its lifetime, each desert tortoise may require more that 1.5 square miles of habitat and may make forays of more than 7 miles at a time. In drought years, desert tortoises forage over larger areas and thus have a greater probability of encountering potential sources of mortality. Roads and urban areas form barriers to movement with higher raven densities, and tend to create small, local desert tortoise populations, which are much more susceptible to extinction than large, connected ones (Wilcox & Murphy 1985). Actions to ensure adequate desert tortoise habitat include:

(1) The BLM shall seek to acquire State Lands Commission lands and private lands within ACEC's by exchange, donation, or voluntary purchase. Acquisitions shall include surface and subsurface mineral rights wherever possible. Any lands acquired within tortoise ACECs will be managed in accordance with recovery area prescriptions.

(2) The highest priority parcels for acquisition are a) all lands in Piute Valley ACEC and b) three sections near Nipton Road in Ivanpah Valley.

(3) Compensation funds may be utilized for acquisition or enhancement of tortoise habitat.

(4) BLM shall not dispose of public lands within any tortoise ACEC, unless in the overall interest of desert tortoise conservation and recovery.

A.4 OBJECTIVE 4: MONITOR TORTOISE POPULATIONS TO ASSESS EFFECTIVENESS OF MANAGEMENT PRESCRIPTIONS IN MEETING RECOVERY GOAL IN THESE AREAS

A monitoring program is essential to determine (a) whether actions taken in the ACECs are effective and (b) whether desert tortoise recovery goals are being achieved. To accomplish this the following monitoring program is proposed:

(1) The BLM shall participate with other agencies in a regionwide desert tortoise population trend monitoring program using the distance sampling procedures approved by the Desert Tortoise Management Oversight Group. The Desert Tortoise Program Coordinator will oversee monitoring surveys, data storage, and data analysis.

(2) In addition to the rangewide desert tortoise monitoring effort, the BLM shall continue to monitor Shadow Valley desert tortoise permanent study plot on a four-year cycle to collect data on population size and demographics, direct mortality, vegetative trend, and uses for the area.

(3) The BLM in coordination with CDFG and USFWS shall establish an implementation monitoring strategy. This strategy would include monitoring of burro use and population distribution consistent with public lands health standards, monitoring of guzzlers to assure proper functioning, compliance monitoring for permitted activities and uses, and tracking of cumulative new surface disturbance.

(4) If population declines become evident in any tortoise ACEC, efforts to determine causes of population emigration and/or mortality should be pursued immediately in order to prevent extirpation. Efforts to recolonize the ACEC with wild desert tortoise from the same recovery unit should be undertaken if feasible. Long-term research and monitoring would be necessary to ensure the success of any such recolonization effort. In addition to these actions, emergency closures of cattle allotments or placements of allotments and licenses into non-use categories may be needed in affected areas to reduce stresses and provide additional forage. Land and mineral withdrawals may also be required to prevent impacts to desert tortoise and their habitat until adequate recovery occurs in the affected area.

A.5 OBJECTIVE 5: ESTABLISH AN ENVIRONMENTAL EDUCATION PROGRAM TO FACILITATE UNDERSTANDING OF DESERT TORTOISE THREATS AND RECOVERY NEEDS AND COMPLIANCE WITH MANAGEMENT STRATEGIES IN THESE AREAS

Visitor centers, interpretive sites, guided tours, and campgrounds are all appropriate in towns near desert tortoise wildlife management area units to educate the public about the

status and needs of the desert tortoise and its habitat. In addition, desert tortoise programs should be developed for use in schools, museums, clubs, the media etc. Education efforts should be focused on groups using the desert on a regular basis. In addition, private landowners and other land managers can be encouraged to implement management actions that promote the conservation of other species and biotic communities.

These actions are recommended to increase manageability, establish an enforcement presence, effect an immediate reduction in the threats to desert tortoise populations in desert tortoise ACECs and build local support for the wildlife management area concept. Specific educational programs within the NEMO planning area, in addition to the above, include:

(1) Install informational kiosks at major access points and informational signs at other access points to the desert tortoise wildlife management area units.

(2) Work with CalTrans to design and install separate, freestanding, interpretive kiosks with desert tortoise protection information at Halloran Springs and Fenner Valley rest areas.

(3) Update Desert Access Guides to include desert tortoise information.

(4) Update desert tortoise brochures and informational packets to reflect changes identified for the tortoise ACECs (e.g., camping distance change to 100 feet off routes).

(5) Develop an update to the existing BLM webpage for the desert tortoise recovery planning efforts.

(6) Implement other elements of the Statewide Tortoise Policy Public Outreach Program as funding becomes available.

A.6 OBJECTIVE 6: CONTINUE RESEARCH NECESSARY TO ASSESS RELATIVE IMPORTANCE OF THREATS TO THE DESERT TORTOISE IN THESE AREAS AND TO EVALUATE AND IMPROVE MECHANISMS TO ADDRESS THESE THREATS.

Unlike the situation with many threatened or endangered species, considerable data exists on many aspects of the biology of the desert tortoise. Although there is also much information on the effects of human activities, much of the data has limited usefulness for site specific recovery planning. The magnitude and scope of new research data essential for recovery planning requires an unprecedented level of coordination and cooperation within and among agencies. Biologists and research scientists in the Department of Interior (BLM, NPS, Bureau of Reclamation, and USGS Biological Resources Division), Department of Defense, and other Federal and State agencies must work together to

achieve this goal. No one agency can handle the entire essential research and monitoring. Employing the talents of academic researchers will be essential.

The Desert Tortoise Technical Advisory Group (TAC), which reports directly to the Management Oversight Group MOG), has prepared and periodically updated a list of research priorities. With the large number of researchers involved in desert tortoise issues, many topics on the list and their relative priority change rapidly. In 2000, the TAC prepared a list of research priorities for each Recovery Unit. Although it is expected that these priorities will change, following is the list generated for the MOG in 2000 for the Northern and Eastern Recovery Unit:

Recommended high priority research topics

- Epidemiology of upper respiratory tract disease in wild desert tortoise populations.
- Epidemiology of shell diseases in wild desert tortoise populations.
- Relationship between environmental toxicants and tortoise health.
- Ecological relationship between fire and alien plant invasion and distribution.
- The relationship between tortoise distribution and alien plant invasion and distribution.
- Demography and mortality in desert tortoise populations.

Recommended medium priority research topics

- Validation and refinement of distance-sampling techniques for tortoise monitoring.
- Long-distance movements in and fragmentation of desert tortoise populations.
- Effectiveness of barrier fences and culverts in recovery of a local desert tortoise population.
- Impacts of OHV use on approved routes of travel on tortoise populations and habitat.
- Geographic variation and environmental determinants of reproductive output in the desert tortoise.

Recommended low priority research topics

- Ecology of raven predation on desert tortoises and raven behavior, particularly in more natural landscapes where tortoise predation is occurring.
- Ecology of hatchling and juvenile desert tortoises in Mojave Desert habitats.
- Effects of cattle grazing on desert tortoise populations.
- Restoration and rehabilitation of desert tortoise habitat in the Mojave.

A.7 MANAGEMENT ACTIONS IN DESERT TORTOISE HABITAT OUTSIDE ACECS

(1) Authorized ground-disturbing activities may occur year-round.

(2) Reclamation shall be required for activities that result in loss or degradation of desert tortoise habitat to as close to pre-disturbance condition as practicable. Reclamation may include, but are not limited to, salvage and transplant of cacti or yucca, re-contouring, scarification of soil, soil amendments, seeding, and transplant of shrubs. Seedings shall be of native species, from seed collected in the area of the project when feasible.

(3) There are no cumulative acreage disturbance limitations to desert tortoise habitat outside of the ACECs.

(4) Compensation shall be required by BLM for disturbances of desert tortoise habitat at the rate of 1 acre for each acre disturbed; this is the same as the current requirement in BLM's Desert Tortoise Statewide Management Policy. Funds collected from project proponents shall be directed to habitat enhancement, rehabilitation or acquisition in the Eastern Mojave Recovery Unit. Proponents may also implement enhancement or rehabilitation projects or donate lands directly, at BLM discretion.

(5) New surface disturbing projects shall include specific design features (see mitigation measures section in Attachment 1) to minimize potential impacts to desert tortoise and desert tortoise habitat. Using the formal consultation procedures of the Endangered Species Act, the BLM shall seek to obtain from USFWS a programmatic biological opinion covering all projects less than 100 acres in size (any size for utilities in utility corridors) that do not require an EIS or do not require amendment of the CDCA Plan. The mitigation measures set forth in Attachment 1 below are proposed by BLM as terms and conditions for the biological opinion.

ATTACHMENT 1: DESERT TORTOISE MITIGATION MEASURES

INTRODUCTION

These measures are intended to minimize impacts to the tortoise. In various wordings, they have been included in biological opinions issued by USFWS and in land-use decisions rendered BLM and others on Federal lands.

GENERAL MITIGATION MEASURES

1. Designated Persons

In the following measures, a "qualified biologist" is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. The person must demonstrate an acceptable knowledge of tortoise biology, mitigation techniques, habitat requirements, sign identification techniques, and survey procedures. Evidence of such knowledge may include work as a compliance monitor on a project in desert tortoise habitat, work on desert tortoise trend plot or transect surveys, or other research or field work on desert tortoise. Attendance at a training course endorsed by the agencies (e.g., Desert Tortoise Council tortoise training workshop) is a supporting qualification.

An "authorized biologist" is defined as a wildlife biologist who has been authorized to handle desert tortoises by the USFWS and CDFG for this project. Name(s) of proposed authorized biologist(s) must be submitted to the USFWS and CDFG for approval at least 15 days prior to anticipated need.

A "Field Contact Representative" (FCR) is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with the agency compliance officer. The FCR must be on-site during all project activities. The FCR shall have the authority to halt all project activities that are in violation of these measures. The FCR shall have a copy of all tortoise protective measures when work is being conducted on the site. The FCR may be an agent for the company, the site manager, any other project employee, a biological monitor, or other contracted biologist."

2. Worker Training

All workers, including all participating agency employees, construction and maintenance personnel, and others who implement authorized actions shall be given special instruction. This instruction will include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a class or

video presented by a qualified biologist. It is recommended that workers carry wallet cards with important information while in the field. (See Fig #A-1)

3. Compliance

The FCR shall oversee compliance and coordination with the authorizing agency. Compliance shall include conducting species surveys, proper removal of species from areas being impacted, assurance that a sufficient number of qualified biologists are present during surface disturbance, and that all conditions of the authorization are being met by proponent, contractors, and workers. The FCR shall have the authority to halt activities that are in not in compliance with the authorization.

Any incident occurring during project activities, which is considered by the biological monitor to be in non-compliance with the mitigation plan, shall be documented immediately by the biological monitor. The FCR shall ensure that appropriate corrective action is taken. The monitor shall document corrective actions. The following incidents shall require immediate cessation of the construction activities causing the incident, including:

a. imminent threat of injury or death to a desert tortoise;
b. unauthorized handling of a desert tortoise, regardless of intent;
c. operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads, and
d. conducting any construction activity without a biological monitor where one is required (see Term and Condition 2.1). If the monitor and FCR do not agree, the Federal agency's compliance officer shall be contacted for resolution. All parties may refer the resolution to the Federal agency's authorized officer."

After completion of the project, the participating agency that authorized the project shall conduct a review to determine if the project proponent complied with the conditions of authorization. Corrective actions shall be required of the proponent where conditions have not been met.

4. Compensation

A mitigation fee based on the amount of acreage disturbed shall be required of proponents of new development. Compensation in Category I shall be required at the rate of five acres for each acre disturbed. Compensation in Category III shall be at the rate of one acre for each acre disturbed.

Compensation shall be in the form of habitat acquisition or enhancement or funds to accomplish these.

5. Tortoise Seasonal Restrictions

To the extent possible, activities shall be scheduled when tortoises are inactive (November 1-March 1). Dual-sport (non-speed, trail-ride) events and non-emergency maintenance of roads are restricted to this season in wildlife management area units.

6. Pre-Construction Clearance Surveys

Pre-construction surveys shall be conducted to locate and remove desert tortoises prior to grading or actions which might result in harm to a desert tortoise or which remove tortoise habitat. The survey shall be conducted by an Authorized Biologist within 24 hours of the onset of the surface disturbance unless a tortoise-proof fence has been installed that would prevent re-entry of the animals.

7. Site Fencing and Hazard Removal

During the tortoise active season, March 1 - November 1, no overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) shall left unfenced or uncovered; such hazards shall be eliminated each day prior to the work crew leaving the site.

Large or long-term project areas shall be enclosed with tortoise-proof fencing to keep desert tortoises out of the work area. The fencing shall be wire mesh with a maximum mesh size of 1-inch (horizontal) by 2-inch (vertical) fastened securely to posts. The wire mesh shall extend at least 18 inches above the ground and preferably about 12 inches underground. Where burial is not possible, the lower 12 inches shall be folded outward and fastened to the ground. Any gates or gaps in the fence shall be constructed to prevent entry of tortoises. The fencing shall be removed when restoration of the site is completed.

Temporary fencing shall be required around test sites where trenching or drill holes could trap animals or around other small, short-term projects where tortoises could move into the work area. Occasionally, seasonal restrictions and/or monitoring may be substituted to alleviate the need for fencing. Fenced areas are to be cleared of tortoises by an authorized biologist prior to project activities.

8. Surface Disturbance

All surface disturbing activity shall be limited to the land area essential for the project. In determining these limits, consideration shall be given to topography, public health and safety, placement of facilities, location of burros and vegetation, avoidance of sensitive resources and other limiting factors. Work area boundaries and special habitat features shall be appropriately marked to minimize disturbance. All workers shall strictly limit their activities and vehicles to the areas marked. All workers shall be trained to recognize work area markers and to understand equipment movement restrictions. Where possible,

previously disturbed areas shall be used as worksites and for storage of equipment, supplies, and excavated material.

Blading of work areas shall be minimized to the extent possible. Pre-construction activity, such as removal of vegetation, shall occur in the presence of a Qualified Biologist and if necessary, a qualified archaeologist or data archaeological technician (DAT). Disturbance of shrubs shall be avoided to the extent possible. Where shrubs must be disturbed, they shall be crushed rather than bladed or excavated, unless excavation of an area is specifically authorized. Topsoil shall be set aside and reapplied as part reclamation activities. Surface disturbance activities in areas that may affect properties on or eligible for the National Register of Historic Properties must have a site-specific evaluation prior to disturbance, and appropriate consultation with the CA-SHPO[6] and/or affected tribes. All ground disturbing activities will comply with the Native American Graves Protection and Repatriation Act.

Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking shall be limited to existing disturbed areas wherever possible. Special habitat features, particularly tortoise burrows and archaeological sites (if present) shall be flagged by the Qualified Biologist so that they may be avoided by installation equipment and during placement of poles and anchors.

Cultural or tribal features uncovered during surface disturbance activities will result in cessation of activities in the affected area until the evaluation of the find by a qualified archaeologist can occur. In the case of in advertent finds of Native American human remains the most likely affected tribe or tribes will be notified in addition to the Native American Heritage Commission and the coroner as provided by law.

9. Biological Monitor

For activities conducted between March 1 and November 1 in desert tortoise habitat, construction and operation activities shall be monitored by a qualified biologist approved by BLM. The qualified biologist shall be present during all activities in which encounters with tortoises may occur. The qualified biologist shall watch for tortoises wandering into the construction areas, check under vehicles, examine excavations and other potential pitfalls for entrapped animals, examine exclusion fencing, and conduct other activities necessary to ensure that death or injuries of tortoises is minimized.

10. Refuse Disposal

All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on-site if appropriate.

[6] California State Preservation Office

11. Dogs

For a long-term occupancy, dogs shall be restrained either by enclosure in a kennel or by chaining to a point within the tortoise proof exclosure if one has been constructed for the activity. Dogs must always be under control. Control may be exercised by voice command or by leash.

12. Ravens

Structures which may function as common raven nesting or perching sites are not authorized except as specifically stated in the appropriate BLM document. The proponent shall provide a graphic description of all structures to be erected on the site. Some actions are required to mitigate actual nesting on authorized structures, such as requiring the proponent to secure necessary permits to remove nests and to remove such nests in a timely fashion. USFWS does not (or rarely) authorize nest removal if birds are present in the nest, but does authorize nest removal after birds have left.

13. Motorized Access

Where possible, motor vehicle access shall be limited to maintained roads and designated routes. Where temporary access off a maintained road or designated route is permitted, a Qualified Biologist shall travel with each work crew to ensure that all desert tortoises and their burrows are avoided and that impact to the habitat is minimized. All vehicle tracks that might encourage public use shall be obliterated after temporary use.

Where access from a maintained road or designated route to a project's site is part of the approved development plan, length and location of the route shall be designed to minimize impact to the habitat. The amount of disturbed area shall be subject to the mitigation fee, and the route shall be designated "Limited Use" and not open to the public.

a. **Speed Limits**: Vehicle speed within a project area, along right-of-way maintenance roads and on routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked by the proponent, and workers shall be made aware of these limits.

b. **Tortoises Under Vehicles:** Vehicles parked in desert tortoise habitat shall be inspected immediately prior to being moved. If a tortoise is found beneath a vehicle, the Authorized Biologist shall be contacted to move the animal from harms-way, or the vehicle shall not be moved until the desert tortoise leaves of its own accord. The Authorized Biologist shall be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner is not exposed to temperature extremes, which could be harmful to the animal.

14. Route Maintenance and Surface Restoration

The following mitigation measures shall be implemented during all route maintenance and surface restoration projects:

a. **Heavy Equipment**:

- Operators of heavy equipment (such as roadgraders) shall be accompanied by a biological monitor who is a qualified biologist when working in wildlife management area units during the desert tortoise's active period (March 1 to November 1). The biological monitor shall walk **in front** of the equipment during its operation and shall function as the FCR and have the responsibility and authority to halt all project activity should danger to a desert tortoise arise. Work shall proceed only after hazards to the desert tortoise are removed, the desert tortoise is no longer at risk, or the desert tortoise has been moved from harms way by an Authorized Biologist. This measure does not currently apply to County or Caltrans road work on BLM land.

- During the desert tortoise's inactive period (November 1 to March 1) an on-site monitor is not required, but the equipment operator shall be qualified as described under measure 16d. Otherwise a biological monitor shall accompany the operator. The operator shall watch for desert tortoises while using the equipment and shall have the responsibility for preventing harm to desert tortoises, as described under measure 16a.

- Operators of light equipment used for trail maintenance and project leaders for surface reclamation actions shall watch for desert tortoises during all project activities. They shall have the responsibility for preventing harm to desert tortoises, as described under measure 16

b. **Qualification:** Operators shall be qualified as described in measure 16d.

c. **Injury**: Should any desert tortoise be injured or killed, all activities shall be halted, and the authorized biologist immediately contacted. The biologist shall have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the project proponent, if involved. If the animal recovers, USFWS is to be contacted to determine the final disposition of the animal; few desert tortoises are returned to the wild.

d. **Report**: The equipment operator, or Authorized Biologist shall keep a tally of all desert tortoises seen, moved, injured or killed during the project. Other required elements are rating the effectiveness of required mitigation, a breakdown of actual habitat disturbance, and suggestions for improving mitigation

e. **Water Ditches**: The equipment operator or Qualified Biologist shall inspect water ditches for desert tortoise burrows before moving or shoveling any soil. If a desert

tortoise burrow is present, the water ditch shall be left undisturbed if possible. If the equipment operator inspects water ditches for desert tortoise burrows, he or she shall be adequately trained as described in 16a.

f. **Burrows**: If a burrow is occupied by a desert tortoise and avoidance of the burrow is not possible during road maintenance or reclamation activities, the Authorized Biologist shall make the final determination. Only an Authorized Biologist may excavate the desert tortoise, following established protocols.

g. **Grading**: To avoid building up tall berms that may inhibit desert tortoise movement, the operator shall minimize lowering of the roadbed while grading. Berms higher than 12 inches or a slope greater than 30 degrees shall be pulled back into the roadbed.

h. **Speed Limits**: The equipment operator shall watch for desert tortoises on the road whenever driving, transporting or operating equipment. Driving speeds shall not exceed 20 miles per hour, and operating speeds should not exceed 5 miles per hour to allow for adequate visibility.

SPECIAL MITIGATION FOR SPECIFIC USES IN WILDLIFE MANAGEMENT AREA UNITS

15. Mineral Exploration and Development

In addition to mitigation measures described above for general mitigation, the following special mitigation measures shall apply to small mining operations and minor exploration and test drill holes in which the surface disturbance or area from which desert tortoises are to be removed is less than ten acres. Some of these measures may be applied in desert tortoise habitat outside of wildlife management area units as well.

a. **Compliance**: A Qualified Biologist shall be on-site during the initial construction activities or until the area is fenced and cleared of tortoise.

b. **Explosives**: If explosives are authorized in any desert tortoise habitat, the BLM's field office biologist shall verbally consult with the appropriate USFWS office to determine what measures shall be required to reduce the potential to take desert tortoises. These measures may include:

(1) Seasonal restrictions upon the use of explosives;

(2) Temporary removals of desert tortoises from areas potentially at risk during detonation either directly from the explosion or by thrown materials. All handling and storage of desert tortoises for this purpose shall be conducted as described in measure 3 by an Authorized Biologist.

(3) Covering of desert tortoise burrows to reduce impacts of flying materials.

16. Non-Competitive Recreational Events

The following measures shall apply to all vehicle-oriented, dual-sport, and other non-competitive trail events:

a. **Timing**: Events in wildlife management area units shall be held during the inactive season for desert tortoises, generally considered being between November 1 and March 1. Routes selected shall avoid impacting other special status plants and animal species. Any course flagging or markers shall be placed on the course not more than two weeks prior to the event and shall be removed within one week after conclusion of the event.

b. **Limits**: The event shall be restricted to designated routes and limited to 500 rider participants per event. Participants shall not exceed 30 miles per hour through Category I and II tortoise habitat. They shall be notified of this requirement at the beginning of the event and before the start of the event on any subsequent days. Racing shall be prohibited.

c. **Maps**: A map identifying the course shall be furnished to each entrant. The map shall clearly delineate maximum speed limits, authorized campsites, and desert wildlife management area, and shall include a statement cautioning that motorized travel beyond the edge of the roads into undisturbed habitat is strictly prohibited.

d. **Parking**: Vehicles shall be parked at the side of the road or areas devoid of any perennial vegetation. Any entrants who abandon the event must exit the course on designated routes or public roads.

e. **Camping**: Overnight camping shall be limited to existing campgrounds or designated campsites capable of accommodating a group. Selected camping areas shall be surveyed by a Qualified Biologist prior to the event to determine if desert tortoise burrows or other special status plant or animal species are present**.** Parking associated with vehicle-based camping must occur within 100’ of centerline in wildlife management area units in previously disturbed areas, and within 300’ of centerline in other tortoise habitat

f. **Trash**: Trash and food items shall be removed from and carried out of the area by the participants. The event proponent shall be responsible for assuring that trash and garbage are not left behind.

g. **Injury**: Injured tortoises found on the course shall be transported to an approved veterinarian (list provided to event organizers) at the earliest possible time. The proponent shall be responsible for the cost resulting from treatment of desert tortoises whose injuries resulted from the event.

h. **Clearance**: The entire course within the wildlife management area shall be swept by an Authorized Biologist within an hour before the event, and in other desert tortoise habitat within 3 hours before the event. In addition, an Authorized Biologist shall travel at the front of the event to ensure that the route is cleared of all desert tortoises. Desert tortoises found shall be moved approximately 100 feet off the course by authorized personnel.

17. Utility Pipelines and Underground Cables

For construction and maintenance of all pipelines, fiber-optic lines, and other utilities requiring trenching, the following measures shall apply:

a. **Width**: Construction rights-of-way shall be restricted to the narrowest possible width.

b. **Exceptions**: All project construction and maintenance shall be restricted to the authorized right-of-way. If unforeseen circumstances require expansion beyond the right-of-way, the potential expanded work areas shall be surveyed for desert tortoises.

c. **Access**: Vehicular travel shall be limited to the right-of-way. Access to the right-of-way shall be limited to public roads and designated routes. All temporary disturbances should be reclaimed immediately, as part of the project (see restoration below).

d. **Trenches**: Open trenches shall be regularly inspected by the Authorized Biologist at a minimum of three (3) times per day, and any desert tortoises that are encountered shall be safely removed. For small projects, escape ramps are sometimes required. The length of the trench left open at any given time shall not exceed that distance which will remain open for one week or less in duration. A final inspection of the open trench segment shall be made by the Authorized Biologist immediately prior to backfilling. Arrangements shall be made prior to the onset of maintenance or construction to ensure that desert tortoises can be removed from the trench without violating any requirement of the Occupational Safety and Health Administration.

e. **Maintenance**: Observations of desert tortoises or their sign during maintenance shall be conveyed to the field supervisor and a biological monitor. Employees shall be notified that they are not authorized to handle or otherwise move tortoises encountered on the project site.

f. **Compliance**: Sufficient Authorized and Qualified Biologists shall be present during maintenance or construction activities to assist in the implementation of on-site mitigation measures for the desert tortoise and to monitor compliance. The appropriate number of biologists will depend upon the nature and extent of the work being conducted and shall be stated in the right-of-way grant for each

particular action, after consultation with the specific resource area office authorizing the action.

g. **Final Assessment**: The authorizing agency shall ensure that maintenance or construction activities are confined to the authorized work areas by means of a post-project assessment. The assessment may be conducted by the Authorized Biologist. If maintenance or construction activities have extended beyond the flagged work areas, the BLM shall ensure that the project proponent restores these disturbed areas in an appropriate manner.

h. **Restoration**: The proponent shall be required to restore disturbed areas in a manner that would assist re-establishment of biological values within the disturbed rights-of-way. Methods of restoration shall include, but not be limited to; road closure, the reduction of erosion, re-spreading of the top two to six inches of soil, planting with appropriate native shrubs, and scattering any bladed vegetation and rocks, where appropriate, across the right-of-way.

18. Power Transmission

The following mitigation measures shall be implemented during all construction and maintenance of transmission lines:

a. **Surveys**: When access along the utility corridor already exists, pre-construction surveys for transmission lines shall provide 100 percent coverage for any areas to be disturbed and within a 100-foot buffer around the areas of disturbance. When access along the utility corridor does not already exist, pre-construction surveys for transmission lines shall follow standard protocol for linear projects.

b. **Access**: To the maximum extent possible, access for transmission line construction and maintenance shall occur from public roads and designated routes.

c. **Disturbed Areas**: To the maximum extent possible, transmission pylons and poles, equipment storage areas, and wire-pulling sites shall be sited in a manner that avoids desert tortoise burrows.

d. **Restoration**: Whenever possible, spur and access roads and other disturbed sites created during construction shall be re-contoured and restored.

e. **Ravens:** All transmission lines shall be designed in a manner that would reduce the likelihood of nesting by common ravens. Each transmission line company shall remove any common raven nests that are found on its structures. Transmission line companies must obtain a permit from the USFWS's Division of Law Enforcement to take common ravens or their nests.

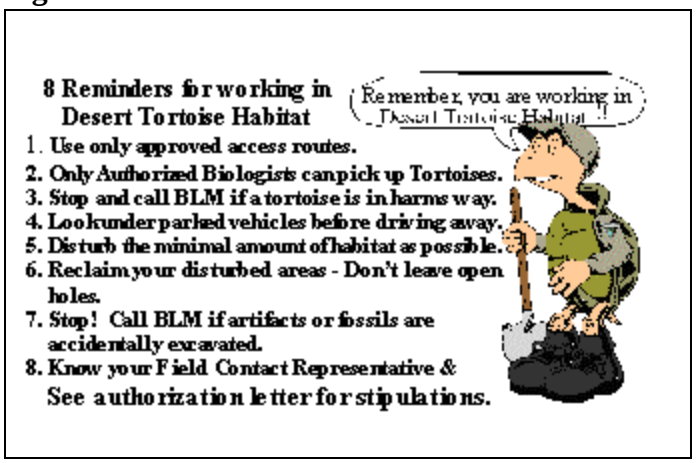
PROJECT REPORTING

For each project on which the consultation is to be applied, the BLM will transmit a reporting form to the appropriate USFWS field office a minimum of 30 days prior to authorizing the activity. If there is no response after 30 days, the project may be approved.

Each Field Office will report to the California Desert District Office the actual acres disturbed, the number of tortoises moved, and the number of tortoises killed within 30 days of the completion of each project covered under this consultation. The California Desert District Office will report annually on these projects to the Ventura and Carlsbad field Offices of USFWS.

The BLM's California Desert District maintains a tabular and GIS record of all compensation acquisitions.

Fig # A-1 Wallet Card



REPORT ON PROPOSED ACTION TO BE COVERED BY THE PROGRAMMATIC CONSULTATION ON ACTIVITIES RESULTING IN SMALL DISTURBANCES OF DESERT TORTOISE HABITAT IN THE CALIFORNIA DESERT

Authorization may not be issued until USFWS has 30 days for review and comment. For actions in Inyo, Kern, Los Angeles, and transmontane San Bernardino Counties, send to USFWS, Field Office Supervisor, 2493 Portola Road, Suite B, Ventura, CA 93003. For actions in Riverside, Imperial, and cismontane San Bernardino Counties, send to USFWS, Carlsbad Field Office Supervisor, 2730 Loker Avenue West, Carlsbad, CA 92008. ** Send a copy to BLM California Desert District T&E Coordinator.

Name of Project: _____BLM Case File No.: _____

Type of Activity: _____

BLM Contact:_____

Date of Preparation:_____

Location of Activity: Base Meridian ___ Township ___ Range ___ Section ___

General locality: _____

BLM Field Office: _____
or other jurisdiction: _____

Tortoise Critical Habitat Unit: _____
Tortoise Recovery Unit: _____
BLM Tortoise Habitat Category (I, II, III): _____

Brief description of project (include site photographs, topographic map of location, and proposed construction dates):

_____
_____
_____

Stipulations to be applied (list specific stipulation numbers from biological opinion):

_____
_____
_____
_____
_____
_____
_____

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Appendix B

Implementation Plan

The purpose of this appendix is to define and clarify immediate and long-term commitments and priorities for plan implementation for the primary cooperating agencies. The array of tasks does not include monitoring tasks, which are addressed in specific species recovery strategies and guidance (Appendix A, Appendix F, Appendix I, Appendix J); nor is it necessarily exhaustive at this time. Tasks which are automatically required through regulation, NEPA review, application processing are not included (e.g., project mitigation, compensation, Section 7 project consultations under state and federal ESAs). Tasks are organized by subjects.

Land Use Planning

Task	Implementing Agency/Interest	Anticipated Timeframe
Amend land use plans	**BLM** – Incorporate plan decisions into the CDCA Plan and update/reprint CDCA Plan	3 years
Complete follow-up activity planning	**BLM/USFWS, CDFG, local and other interests** -- Amargosa vole/River ACEC mgt plan; **Ibid above** -- Amargosa Wild & Scenic River suitability recommendations; **BLM/CNPS, USFWS** -- Carson Slough ACEC mgt plan; **BLM/USFWS, NPS** -- Clark Mtn Burro Herd Mgt Area plan.	3 years
Change tortoise categories	**BLM/USFWS**	At the time of the ROD
Change critical habitat boundaries	**USFWS/BLM**	1 year
Hold implementation progress/action meetings	**BLM,USFWS,CDFG –** Utilize DAC to gather non-agency input	Annually
Incorporate applicable NEMO maps, coverages, and decisions into public maps and brochures and provide info to cooperators	**BLM/USFWS, CDFG, Counties, CalTrans, NPS, DOD et. al**.	1 year

Standards for Public Land Health (relates to monitoring)

Task	Implementing Agency/Interest	Anticipated Timeframe
Define assessment methods	**BLM/ALL**	Rangeland health assessment methodologies completed; Other methodologies will be adapted as needed from these, based on specific program needs and using the ecological principles of rangeland methodologies.
Complete assessments	**BLM, Others with expertise/ALL**	5-8 years

DT Desert Wildlife Management Areas – General

Task	Implementing Agency/Interest	Anticipated Timeframe
Track new surface disturbance using Geographic Info Systems	**BLM**	Annually by action
Develop Programmatic Rehabilitation Threshold Standards	**BLM, USFWS, CDFG/Other interests**	1 year
Assess & Track surface disturbance rehabilitation (add progress as GIS attribute: tracks net change)	**BLM, USFWS, CDFG/Other interests**	Assess by action, Annual tracking by action
Sign/Fence DWMA periphery	**BLM**	As needed
Amend fire management plan	**BLM**	2 years (initiate 1st year)
Implement high priority items of raven control strategy, schedule implementation of other items.	**BLM, USFWS, CDFG/Other interests**	2 years (initiate 1st year)
Transportation Access -Construct highway fencing	**CalTrans**	20 years for 1-15, I-40 (see Appendix A for section priorities). Highway 95 - when upgrade to 4 lanes
Transportation Access - construct bridges, culverts	**CalTrans**	Highway 95 - when upgrade to 4 lanes
Retrofit existing large animal guzzlers to protect tortoise	**CDFG**	Completed
Create public education programs	**BLM**	5 years
Accomplish land tenure	**BLM/USFWS, CDFG, Local Communities**	As opportunities arise, including in conjunction with compensation actions.

DT DWMAs – Cattle Leases

Task	Implementing Agency/Interest	Anticipated Timeframe
Grazing decision to cancel Piute ephemeral allotment	**BLM**	1 year (to initiate), 2 years to complete by regulation
Voluntary relinquishment – remaining allotments with portions within DWMAs: Jean, Kessler Springs, Valley Wells, Valley View allotments	**Private parties**	Standing option
Grazing decision to combine adjacent remaining non-critical habitat allotments	**BLM**	1 year after termination of critical habitat portion of allotment (to initiate), if/when it makes sense, 2 years to complete.
Develop strategy to resolve cattle/ tortoise competition – allotments remaining, within DWMAs	**BLM, USFWS, Lessee**	1 year, allotment-specific.
Implement above forage competition strategy	**BLM, USFWS, Lessee**	2 years
Utilization/Competition Assessments	**BLM**	Annually
Adherence to Standards/Guidelines Assessment on Valley Wells Allotment	**BLM**	Annually, until upward trend established.
Retrofit cattle guards	**BLM**	3 years

DT DWMAs – Burros

Task	Implementing Agency/Interest	Anticipated Timeframe
Write Clark Mountain HMAP (Rewrite of East Mojave HMAP, specific to Clark Mountain HMA, with changes as identified in NEMO DEIS.)	**BLM, USFWS**	1 year
Map modified HMA boundaries with GPS and download on GIS. Groundtruth fencelines and other geographical markers where needed and any clarifications identifed in Clark Mountain HMAP.	**BLM**	1 year
Establish census	**BLM**	Annually in DWMA until "substantial removal" is accomplished, or should standards not be met in an area; Once/2 years until AML achieved, Once/3 years thereafter except if standards are not being met.
Establish monitoring, utilizing public lands assessment process to support gathering excess burros and set final appropriate management level (AML) in Clark Mtns HMA	**BLM, USFWS**	2 years to develop assessment process; Focused implementation effort for 3 years. Regular updates thereafter on approved schedule.
Target date to set final AML	**BLM**	2006
Hold implementation progress/Action meetings	**BLM, USFWS/NPS, Other Interests**	Annual

DT DWMAs – Route Designation

Task	Implementing Agency/Interest	Anticipated Timeframe
Develop route-specific strategies for closed routes (strategies such as signing, barricading, rehabilitation, or combination to exclude access and allow the forces of nature to obliterate them) and limited routes (strategies such as signing, barricading, gating, and level of maintenance) based on specific issues driving closures or limitations.	**BLM, USFWS/All**	2 years
Develop local signing strategies: identify areas to be signed "open" and areas to be signed "closed" and determine how best to implement.	**BLM, USFWS, CDFG/All**	2 years
Implement routes of travel designations	**BLM**	4 years (closures, limited routes, signing, and rehabilitation, as needed not including ongoing maintenance)
Implement closures first (Those that are based on sensitive resource values such as raptor nests and flowing springs.)	**BLM**	Initiate 2nd year for highest priority closures.
Increase ranger/warden patrol during high public-use period	**BLM**	Seasonally as required
Post informational kiosks at major access points to DWMAs depicting access info including area route network, limitations, signing, resource protection info, visitor safety and locations to get more info.	**BLM**	Major access routes within 1 year, of route designation for an area, secondary access routes in 2nd or 3rd year or as funding permits.
Reprint Desert Access Guides (DAGs) and other printed media (brochures, maps) depicting basic recreational access network and area recreational opportunities.	**BLM, Cooperative Mapping Efforts**	Initiate 2nd year, Ongoing.
Create additional outreach programs to enhance knowledge of and reasons for designated route network, and to encourage compliance.	**BLM/ NPS**	5 years
Develop NEMO-specific criteria for route revisions to be evaluated within DWMAs by an interdisciplinary team, consistent with general 43 CFR criteria.	**BLM, USFWS, CDFG/ All Interests**	2 years

Amargosa Watershed Issues and Listed Species – Amargosa vole and Multi-species;

Task	Implementing Agency/Interest	Anticipated Timeframe
Implement Recommended Special Management Actions for Recovery of the Amargosa Vole (Appendix H of the NEMO DEIS)	**BLM/USFWS, CDFG**	Initiate in 1st year . These items will be implemented and/or will provide the foundation for Amargosa vole recovery strategy that will be in Amargosa River ACEC Plan.
Develop Strategy to Track Progress Towards Attaining T&E Recovery Goals	**BLM, USFWS, CDFG**	1 year for Amargosa vole, Other species as inventories dictate and mechanisms are set up
Display GIS map of the Amargosa River surface watershed and utilize existing and developing information of groundwater aquifers to display on GIS and map a model of area aquifer recharge.	**BLM-NARSC/USFWS, NPS, DOE, Other Interested Parties**	As part of 2nd year data collection for Amargosa River Suitability analysis and ACEC planning effort
Integrate Grimshaw Lake and Amargosa Natural Area ACEC Plans into the Amargosa River ACEC Plan, adding Amargosa vole critical habitat and Upper Amargosa source waters, and adopt or modify existing ACEC strategies to develop a watershed approach for the Amargosa River that responds to T&E species conservation and recovery needs and also recognizes the unique recreational values the Amargosa corridor offers.	**BLM Lead/All**	1 year to initiate, 2 years to collect any additional data, gather public input, and modify plan. This includes initiating a Plan Amendment for supplemental route designation.
Develop species inventory and monitoring plans, including identifying key travel corridors	**BLM/USFWS, CDFG, CNPS, Audubon, Others**	2 years for Amargosa vole, federally listed plants and neotropical migratory birds with known/reported nesting locations. As scheduled in Amargosa River ACEC Plan for other species.
Acquire private, SLC lands, as modified or implementing Amargosa River ACEC Plan Land Tenure Strategy and Inyo County policies.	**BLM, Local Communities of Inyo County**	Continue to pursue existing strategy. Upon adoption of the NEMO Plan, pursue modified strategy to be potentially refined in the Amargosa River ACEC Plan
Initiate Amargosa Wild & Scenic River Suitability Determination Analysis	**BLM/Local Inyo County Interests, Friends of the River, NPS, Others**	1 year to initiate, 2 years to collect data and develop suitability recommendations report
Accomplish idenfied Amargosa watershed, riparian restoration, and recreational corridor projects	**BLM**	10 years - Remove upstream and on-site tamarisk, develop additional habitat enhancements for listed and special status birds and fish, construct and upgrade trailheads and recreational trails, and develop interpretive plan.
Acquire water rights on public lands, consistent with the California Desert Protection Act and other utilizable authorities to maintain and reestablish riparian flow.	**BLM**	Initiate process immediately upon NEMO DEIS approval.

Other Listed Species – Carson Slough T&E Plants

Task	Implementing Agency/Interest	Anticipated Timeframe
Implement Recommended Special Management Actions for Recovery of the Ash Meadows Gumplant and Amargosa Niterwort (Ch 2.4.2.2 and App. G of the NEMO DEIS)	**BLM/USFWS, CDFG**	Initiate in 1st year . These items will provide the foundation for T&E plant recovery strategy that will be in Amargosa River ACEC Plan.
Develop species inventory, identify key habitat associations, and develop monitoring plans, including identifying populations at risk.	**BLM/USFWS, CNPS**	Identify highest priority risks immediately; 2 years to complete.
Construct exclosures or develop other appropriate measures to protect populations identified at risk during surveys. All populations above identified risk thresholds will have monitoring program to follow trends and identify need for more aggressive protection strategies if/when passive strategies are used initially.	**BLM/ USFWS, CNPS**	Initiate 1st year.
Develop Strategy to Track Progress Towards Attaining T&E Recovery Goals	**BLM, USFWS, CDFG**	As inventories dictate and mechanisms are set up.
Administratively change the Appropriate Management Level (AML) for wild horses and burros from 28 to 12 horses and 28 to 0 burros.	**BLM**	With the ROD for NEMO DEIS
Acquire water rights on public lands, consistent with the California Desert Protection Act and other utilizable authorities to maintain and reestablish riparian flow.	**BLM**	Initiate process immediately upon plan approval.
Develop/map wetland habitat and soils inventory for Amargosa River ACEC planning effort, such as key ephemeral wetland patches, mesquite bosques, and undisturbed desert pavement areas.	**BLM/USFWS, CDFG, Other Interests**	2 years, use information from T&E species inventory to identify key habitat components on which to refocus efforts.
Designate routes of travel in the Carson Slough area	**BLM/Inyo County, All**	Initiate 1st year. Complete in 3 years (designations and any closures, signing, rehab in conjunction with Amargosa River ACEC planning)
Develop guidelines for road construction and other surface disturbing activities adjacent to T&E plant populations	**BLM, USFWS/Inyo County, Mining Interests, Other Interests**	2 years, Adopt in the Amargosa River ACEC :Plan.

Other BLM-Sensitive Species – Bats

Task	Implementing Agency/Interest	Anticipated Timeframe
Sensitive bat roosts inventory, including identifying key maternity roosts	**BLM**	Initiate in 1st year, 3 years
Implement routes of travel designations in the Silurian Hills area utilizing bat roost data collected.	**BLM/All**	Initiate in 2nd year for at risk maternity roosts. Complete in 5 -8 years (designations and any seasonal or other closures, signing, route rehab).
Construct additional bat gates or other adit access control devices at key bat use sites.	**BLM**	As Needed
Develop programmatic mitigation strategies for active mining operations and reclamation strategies for active and inactive mining operations to preserve potential for bat use.	**BLM/USFWS, Mining Operations**	3 years.
Adapt mining programmatic mitigation strategies for other activities that may impact bats or bat habitat, particularly maternity roosts.	**BLM/USFWS, Mining Operations**	4 years.

DWMAs, Other T&E, Community Expansion, & Wilderness – Land Tenure Adjustment

Task	Implementing Agency/Interest	Anticipated Timeframe
Implement Land Tenure Strategy as outlined in Appendix T of the NEMO DEIS.	**BLM**	Overall long-term, as identified in the NEMO DEIS for T&E species or as specific land tenure requests are received within the overall framework.
Track land tenure requests and progress by method (add progress as GIS attribute: track net change in land tenure for areas identified for acquisition or disposal)	**BLM**	Annually, by action

APPENDIX C

DESCRIPTION AND STRATEGY FOR ADDRESSING MAJOR DESERT TORTOISE ISSUES

The following tables describe 18 issues (listed below) in desert tortoise conservation. These issues are regarded as significant in the range of the tortoise, but many are relatively unimportant at this time in tortoise management in the Northern and Eastern Mojave Planning Area. The issues are generally the result of conflicting human uses (e.g, cattle grazing, mineral extraction, vehicle access), natural processes that have strong human influences (e.g., fire, disease, subsidized predation), and management activities (e.g., monitoring, wildlife management).

For each table there is a description of the current situation; this is largely a summary of information in "Current Desert Tortoise Management Situation in BLM-Administered Lands Portion of Northern and Eastern Mojave Planning Area (Foreman, 1998)". The description applies to only BLM-administered lands in the NEMO Planning Area.

The potential effects of the issue on desert tortoise populations are also described. For conflicting activities the effects focus on those that will influence tortoise population density and distribution.

Lastly, the management strategy developed for the NEMO Planning Area is presented. For brevity, the strategy and rationale reflect only the preferred alternative. A brief summary of the Desert Tortoise Recovery Plan recommendations are presented for comparison. Following is a list of the 18 issues addressed:

- Urbanization and Agricultural Development
- Military Operations
- Cattle Grazing
- Wild Horses and Burros
- Mineral Extraction
- Utilities and Other Rights-of Ways and Permits
- General Recreation
- Recreational Vehicle Riding/Competitive Events
- Vehicle Access
- Vandalism and Collecting
- Vegetation Harvesting
- Wildlife Management
- Subsidized Predation
- Disease
- Fire
- Alien Plants
- Drought
- Monitoring

ISSUE: Urbanization and Agricultural Development

Scope of Issue: This issue includes residential, commercial (e.g., stores and gas stations), industrial (e.g., power plants), and agricultural development.

Current Situation

Current Situation in NEMO Planning Area: Most residential development is focused around the small towns of Needles, Baker, and Kelso; only Kelso is near a current or proposed tortoise DWMA. Commercial development occurs at these towns and at other small service areas such as Essex, Chambliss, Goffs, Ivanpah, Cima, and various Interstate Highway exits; development at these sites is generally limited to a few buildings and a few acres. Housing and services associated with the MolyCorp Mine at Mountain Pass are larger but are above than significant tortoise habitat. Recent development around and near Primm (Stateline), Nevada, has resulted in a golf course and increased recreational use in northern Ivanpah Valley, within BLM Category I tortoise habitat and near critical habitat. There is virtually no agricultural development in or near important tortoise habitat, but interest has been expressed for some development in northern Piute Valley, which is critical habitat.

Effects

Primary Effects: Where it occurs within tortoise habitat, there is a direct loss and alteration of habitat value as plant cover is removed and compaction of soils occurs. Illegal trash dumping (see Issue: Landfills and Waste Sites) around towns and residences as well as agricultural crops and irrigation water also artificially subsidize raven populations (also see Issue: Subsidized Predation).
Other Effects: Tortoises may be killed directly by vehicles or dogs. Developments may promote introduction and spread of alien plants.
Information Needs: There is a need for additional research on the urban/wildland interface and ecological effects there.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Cumulative new surface disturbing projects on BLM lands in each tortoise DWMA would be limited to 1 percent of BLM lands in that area. The size of each project would be minimized, and other mitigation measures would be applied to limit effects. Compensation would assist in accomplishing other tortoise conservation objectives (e.g., land acquisition, habitat rehabilitation). No vegetation harvesting would be allowed in tortoise DWMAs. Land acquisitions in DWMAs would assist in limiting negative effects. Lands will not be available for disposal under various land disposal laws (e.g., agricultural land laws, recreation and public purposes, FLPMA leases and sales, and airports).
Rationale for Selected Strategy: Much of the residential, commercial, industrial, and agricultural development will occur on private inholdings. Therefore, land acquisition efforts in key areas and retention of existing lands may help limit the effects of these activities. Otherwise, control of these activities by BLM is negligible and is primarily limited to mitigation measures applied to local utilities.
Recovery Plan Recommendations: No agricultural clearing would be allowed in tortoise DWMAs. New surface disturbances that diminish tortoise habitat value would be prohibited. Uncontrolled dogs out of vehicles would be prohibited. Fencing would be added around Ivanpah Dry Lake and Stateline to keep vehicles out of the DWMA. DWMA boundaries would be signed around Nipton and other settlements.

ISSUE: Military Operations

Scope of Issue: This issue includes activities on military bases and temporary operations off of bases. Also included are low-level aircraft flyovers.

Current Situation

Current Situation in NEMO Planning Area: There are currently no military installations or bases in the NEMO Planning Area. One alternative for the proposed expansion of Ft. Irwin would be eastward into Silurian Valley. This area is not in critical habitat or in a proposed tortoise DWMA.

Effects

Primary Effects: Tank maneuvers during World War II and in 1964 disturbed significant areas of the desert, including training areas in Piute Valley. The residual effects of crushing of vegetation and the compaction of soil remain after 50 years. However, no new military operations within tortoise DWMAs are expected to occur.

Other Effects: Even though toxic substances are suspected as a causative agent for tortoise shell diseases, the effects of fuel and chemical spills associated with military activities, if any, are unknown

Information Needs: The relationship between shell diseases and various toxic substances, if any, needs to be determined.

Strategy

Strategy in Preferred Alternative for Addressing Issue: No new military activities are expected for the DWMAs.

Rationale for Selected Strategy: Military maneuvers would be incompatible with tortoise conservation.

Recovery Plan Recommendations: Military maneuvers that disturb habitat would be prohibited in tortoise DWMAs.

ISSUE: Cattle Grazing

Scope of Issue: This issue includes only cattle grazing; there is no sheep grazing in the NEMO Planning Area.

Current Situation

Current Situation in NEMO Planning Area: About 114,500 acres of BLM land in the Piute Valley Allotment are in the Piute-El Dorado Critical Habitat Unit. About 137,100 acres of BLM land in the Valley Wells, Jean Lake, Valley View, and Kessler Springs Allotments are in the Ivanpah Critical Habitat Unit. All allotments except Piute Valley are perennial/ephemeral; Piute Valley is ephemeral only. A programmatic biological opinion on cattle grazing in the CDCA specifies interim terms and conditions for mitigating cattle grazing effects on desert tortoise. These measures specify minimum forage utilization levels, limit grazing seasons for Jean Lake and Valley Wells Allotments, and restrict grazing areas in Valley View, and Piute Valley Allotments.

Effects

Primary Effects: In years of low annual plant production, cattle can compete with tortoises for food. There is forage overlap even in years of abundant forage, but there is probably no competition in these years. It is likely that past cattle grazing has altered the perennial plant composition. Cattle can trample and kill or injure tortoises or trample tortoise burrows, destroying the burrow and possibly entombing a live tortoise. The introduction and spread of alien grasses in the Planning Area may be partially due to cattle grazing.

Other Effects: Hoof action may also increase compaction and reduce ground cover resulting in increased erosion and decreased water infiltration; effects are most severe around troughs and corrals and less severe in lightly grazed areas further from water. An overall reduction in perennial plant cover from grazing may reduce tortoise cover sites and may alter soil temperature regimes both for plants and tortoises.

Information Needs: The effect of grazing under varying stocking rates needs further analysis. Additional information on the effects of cattle grazing on cryptogamic crusts is needed.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Grazing allotments would be retired at the request of the lessees (e.g., a conservation buyer). The terms and conditions of the interim biological opinion would be adopted as permanent grazing stipulations. No ephemeral authorizations would be made; ephemeral-only allotments (i.e., Piute Valley) would be deleted. In years of low ephemeral forage production, cattle would be substantially removed from the tortoise DWMAs. No temporary non-renewable perennial authorizations would be made in tortoise DWMAs.

Rationale for Selected Strategy: The strategy continues the strong mitigation measures currently in place. In addition, it allows the elimination of current grazing operations to promote tortoise conservation if a conservation buyer desires it. It also reduces potential competition between cattle and tortoises in dry years.

Recovery Plan Recommendations: The Recovery Plan recommends the complete elimination of cattle grazing in tortoise DWMAs.

ISSUE: Wild Horses and Burros

Scope of Issue: Only burros, and no wild horses, occur in tortoise habitat in the Planning Area.

Current Situation

Current Situation in NEMO Planning Area: The Clark Mountain Herd Management Area was designated in the CDCA Plan for retention of burros. The appropriate management level (AML) was set at 44; current populations are at about 150 burros after a recent removal of about 150. The Clark Mountain HMA includes about 85,000 acres (13%) of the Ivanpah Critical Habitat Unit. The Dead Mountains Herd Management Area as designated for no retention of burros. The AML was set at 0, but about 30 burros occur there now. The Dead Mountains HMA includes about 6,600 acres (1%) of the Piute-El Dorado Critical habitat Unit.

Effects

Primary Effects: Impacts are presumably similar to those described for cattle grazing; however, there are no studies describing the impacts on desert tortoise.
Other Effects: Presumably similar to those described for cattle grazing.
Information Needs: Information on the preferred foods of burros and on potential forage competition with desert tortoise at varying burro stocking rates is needed.

Strategy

Strategy in Preferred Alternative for Addressing Issue: In the Clark Mountain HMA, the burro population would be moved to the eastern part of the HMA out of the tortoise DWMA. The AML would be increased to 60, and habitat would be monitored to adjust the AML in the future. Burros would be removed entirely from the Dead Mountains HMA. A monitoring strategy would be developed to assess burro population distribution.
Rationale for Selected Strategy: Impacts of competition, especially in years of low annual production, and trampling would be eliminated.
Recovery Plan Recommendations: The Recovery Plan recommends the complete elimination of burros from tortoise DWMAs.

ISSUE: Mineral Extraction

Scope of Issue: This issue includes all mineral resource classifications - metallic, industrial, construction, and energy. It includes all mineral disposal classifications - locatable, leasable, and salable.

Current Situation

Current Situation in NEMO Planning Area: Those portions of the Planning Area within wilderness are withdrawn from mineral entry excepting valid existing rights; new leases and sales are not allowed in wilderness. About 44,000 acres of critical habitat in the Planning Area are in five wilderness areas. For mineral exploration and small mining operations under 10 acres, the BLM has received from USFWS a programmatic biological opinion. It gives terms and conditions for mitigating and compensating impacts on desert tortoise. For larger operations, project-specific stipulations are developed through consultation with USFWS. There are currently no active mining claims in critical habitat in the NEMO Planning Area. There are 118 inactive (mostly small and historic) mining operations in critical habitat (16 in Piute-El Dorado and 102 in Ivanpah Critical Habitat Units). Most large mining operations are in mountains (e.g., Mountain Pass Mine, Colosseum Mine, Morning Star Mine), but access may cross critical tortoise habitat. Although there was once some interest in oil and gas exploration in Ivanpah Valley, interest is now very low. Waste spills from Mountain Pass Mine have resulted in habitat loss for clean-up and monitoring well fields.

Effects

Primary Effects: Exploration activities may disturb or crush small amounts of habitat, commonly less than an acre. Mining development commonly disturbs more habitat and results in removal of vegetation and disturbance of soils. Reclamation of modern mine sites is often better than other disturbances due to growing of nursery plants, replacement of topsoil, and irrigating. Vehicles on access roads to mine sites or off-road in exploration may run over and kill or injure tortoises.

Other Effects: In larger operations, residential development may occur (See Issue: Urbanization and Agricultural Development). Access roads may fragment populations. Toxins emitted through fugitive dust or spills may contaminate large areas; the effects are not well understood but are implicated in shell diseases.

Information Needs: The relationship between shell diseases and various toxic substances, if any, needs to be determined. Restoration techniques need refinement.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Cumulative new surface disturbing projects on BLM lands in each tortoise DWMA would be limited to 1 percent of BLM lands in that area. The size of each project would be minimized, and other standard mitigation measures would be applied. Compensation would assist in accomplishing other tortoise conservation objectives (e.g., land acquisition, habitat rehabilitation). No additional withdrawals are proposed. Changes to Class L would necessitate plans of operation even for small mines. Sale of materials at new or expanded pits would be allowed.

Rationale for Selected Strategy: Large-scale mining operations are not anticipated in the DWMAs in the NEMO Planning Area. Small mining operations are small and usually temporary, and existing mitigation techniques are sufficient. Oil and gas development in Ivanpah Valley would be discretionary.

Recovery Plan Recommendations: Ivanpah Valley would be withdrawn from mineral entry and leasing. Mining would be allowed if carefully mitigated. New surface disturbing activities that significantly diminish tortoise habitat value would be prohibited.

ISSUE: Utilities and Other Rights-of-Ways and Permits

Scope of Issue: This issue includes Utility Corridors designated in the CDCA Plan and the resulting transmission facilities and service roads. It includes construction of new facilities and maintenance of existing facilities. Also included are various permitted activities such as filming and apiary sites.

Current Situation

Current Situation in NEMO Planning Area: Utility Corridors D and BB cross the Ivanpah Critical Habitat Unit, and Corridors E and R cross the Piute-El Dorado Critical Habitat Unit. Even though about 112,500 acres of critical habitat are in these corridors, the actual acreage occupied by utilities is much smaller. Each corridor includes electric transmission lines, pipelines, and fiber-optic cables. Some utilities occur outside the corridors, but no additional facilities can be constructed alongside them. All utilities have service roads. Mitigation and compensation measures are applied to both construction and maintenance activities. Restoration has been poor, especially for pipelines. The BLM has programmatic biological opinions covering the maintenance of most utility systems. There is increasing demand for communication sites. Most of these are located on high points outside of critical habitat, and acreage disturbed is small but permanent. There are few requests for other special use permits in the Planning Area.

Effects

Primary Effects: Habitat loss in construction is often severe. Fiber-optic cables have often been placed in or along service roads. Pipeline construction can denude large strips up to 200 feet wide, and habitat restoration is very slow with current methods. Direct mortality during construction can occur and was very high on at least one pipeline project. Direct mortality can also occur in utility inspection and repair.

Other Effects: Service roads increase human access with impacts associated with various legal and illegal activities. Transmission towers create nesting and perhaps foraging perches for ravens that prey on hatchling and juvenile tortoises.

Information Needs: Site restoration techniques need to be improved. The effects of utilities on raven predation and methods for reducing it are not well known.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Existing utility corridors would be retained, and new utilities would be placed within them. Cumulative new surface disturbing projects on BLM lands in each tortoise DWMA would be limited to 1 percent of BLM lands in that area. The size of each project would be minimized, and other standard mitigation measures would be applied to limit effects. Compensation would assist in accomplishing other tortoise conservation objectives (e.g., land acquisition, habitat rehabilitation).

Rationale for Selected Strategy: The effects of utilities on tortoise conservation and other resources would be restricted to existing, discrete locations.

Recovery Plan Recommendations: New access would not be developed in DWMAs. Disturbed areas would be restored to pre-disturbance condition. New surface disturbing activities that diminish tortoise habitat value would be prohibited. Fencing with underpasses would be constructed along the Union Pacific Railroad.

ISSUE: General Recreation

Scope of Issue: This issue includes hunting, shooting, nature study, rock collecting, rock climbing, recreational touring, and other activities. Camping is not included (see Issue: Access), and motorcycle riding and competitive events are not included (see Issue: Riding and Competitive Events).

Current Situation

Current Situation in NEMO Planning Area: Almost all recreation in the desert includes a vehicle as a means of accessing a remote area. BLM lands are generally available for all forms of such destination recreation. Wilderness areas are available only for non-mechanical recreation and activities with low user density and low impacts by foot or horseback. Various public education outreach programs and printed materials have been developed to promote, enhance, and direct recreational opportunities and to gain visitor compliance with conservation of resources. Recreation use in tortoise critical habitat in the Planning Area is relatively low and widely dispersed compared with other desert areas. There are no developed campgrounds in or near critical habitat.

Effects

Primary Effects: Legal recreational activities probably have little or no effect on desert tortoise. Illegal activities such as shooting or collecting tortoises may have seriously reduced populations in some areas (see Issue: Vandalism and Collecting). Evidence for shooting and the low level of recreation use indicate that these illegal activities are not significant in the NEMO Planning Area.
Other Effects: None.
Information Needs: No significant needs.

Strategy

Strategy in Preferred Alternative for Addressing Issue: General recreational activities would be allowed. Public education programs and ranger contacts would be continued and increased.
Rationale for Selected Strategy: Impacts, if any, are not significant. General recreation is widely dispersed and has low impacts usually associated with access.
Recovery Plan Recommendations: General non-consumptive (e.g., hiking, horseback riding) recreational activities would be allowed. Discharge of firearms except for hunting from September through February would be prohibited. New visitor centers, campgrounds, and other visitor facilities would be allowed where appropriate. An environmental education program would be developed.

ISSUE: Recreational Vehicle Riding and Competitive Events

Scope of Issue: This issue include motorcycle riding on routes, organized motorcycle trail-riding events , and competitive speed events.

Current Situation

Current Situation in NEMO Planning Area: Competitive speed events may be allowed on approved routes of travel by permit. In multiple-use class L, only short distances and no start, finish, pit, or spectator areas are allowed. Occasionally, motorcycle trail-riding events have been permitted in critical habitat; the BLM has a programmatic biological opinion from USFWS covering such events. These events are few, and they are permitted only in the winter. The CDCA Plan designated one long-distance, point-to-point, competitive event corridor through what is now critical habitat. This "Barstow-to-Vegas" Corridor passes through the Ivanpah Critical Habitat Unit (in Shadow Valley). No race has been authorized in the Corridor for many years due to the listing of the desert tortoise and issues of competitor and spectator compliance. There are no off-highway vehicle free-play areas in the NEMO Planning Area.

Effects

Primary Effects: Vehicles, especially those in speed events, can run over and kill or injure tortoises. Organized trail rides have stipulations to reduce the likelihood of tortoise mortalities. In speed events, vehicles often leave the traveled portion of the course resulting in route-widening, vegetation loss, crushing of tortoises and burrows, increased compaction, loss of soil and nutrients, and destruction of cryptogamic crusts. Compaction of soils reduces water absorption, increases surface temperatures, and increases the difficulties in digging burrows. Destruction of vegetation reduces tortoise protection from predators and weather and reduces annual plant habitat suitability and productivity. When winds are moderate to high, racers leave the marked course entirely to avoid wind-blown dirt.

Other Effects: The spread of alien plants is aided by surface disturbance and, possibly, fugitive dust along route edges. New disturbance may destroy cryptogamic crusts that are important in reducing erosion, controlling water infiltration, regulating soil temperatures, fixing atmospheric nitrogen, pre-adapting soils for plant growth, and accumulating organic matter.

Information Needs: Additional information is needed on the effects of toxins from vehicle exhaust. The effects of increases in fugitive dust on cryptogamic crust, soil nutrient content, and annual plant production are not known.

Strategy

Strategy in Preferred Alternative for Addressing Issue: No competitive events would be allowed in tortoise DWMAs. Organized trail-riding events would be allowed outside the tortoise season with standard mitigation measures applied. No cross-country travel would be allowed.

Rationale for Selected Strategy: The negative effects of competitive events are incompatible with tortoise conservation. Effects of organized trail-riding events, properly stipulated (e.g., only between November 1 and March 1, pre-event sweep and lead rider, 500 riders maximum), are similar to other vehicle use of routes.

Recovery Plan Recommendations: Competitive and organized events would be prohibited in DWMAs. No cross-country travel would be allowed. Fencing would be added around Ivanpah Dry Lake and Stateline area to keep vehicles out of the DWMAs. DWMA boundaries would be signed around Nipton and other settlements.

ISSUE: Vehicle Access

Scope of Issue: This issue includes legal use of authorized routes of travel on the public route network and on State and Federal Highways. It also includes stopping, parking, and camping along these routes. It does not include use of utility service roads or access to permitted activities, such as mining.

Current Situation

Current Situation in NEMO Planning Area: Wilderness areas have no general access by the public. Outside of wilderness, legal routes of travel on public lands include all existing routes and all washes showing signs of use. Route density is low relative to other desert areas. Stopping, parking, and camping on public lands is allowed within 300 feet of any route of travel. No BLM routes in tortoise habitat are paved. Most routes are maintained by repeated use; a few are maintained by blading. A few paved State and Federal highways pass through tortoise critical habitat - Interstate 40, Highway 95, and Goffs Road in the Piute-El Dorado Critical Habitat Unit and Interstate 15, Excelsior Mine Road, and Nipton Road in the Ivanpah Critical Habitat Unit. Some of these carry very heavy traffic.

Effects

Primary Effects: Tortoise can be crushed or injured by vehicles on roads. On paved highways where vehicle speeds and traffic volume are high, virtually no tortoise may pass over the highway. Tortoise populations are severely depressed for at least 0.5 to 1 mile along heavily used highways. This not only reduces tortoise overall populations, but fragments the populations.

Other Effects: Toxins emitted from vehicle exhaust may be a causative agent for shell diseases. Highways also serve as dispersal corridors for alien plants. Roadkills of reptiles and mammals serve as raven food, thereby artificially subsidizing the populations of an important tortoise predator (see Issue: Subsidized Predation). Fires occur most commonly along paved highways; fires promote alien plants, decrease native perennial cover, and kill tortoises (see Issue: Fire).

Information Needs: The effects of varying levels (i.e., light to heavy) of vehicle use of routes on desert tortoise populations is not understood. The effects of legal and illegal activities at campsites along routes (e.g., collecting, vandalism of tortoises, trash, pets) is not known. The effects of toxins in vehicle exhaust is not well understood.

Strategy

Strategy in Preferred Alternative for Addressing Issue: All routes in tortoise DWMAs would be designated open, closed, or limited use. Closed routes would be rehabilitated. Interstate highways and other heavily traveled, paved highways through tortoise DWMAs (i.e., I-15, I-40, Highway 95, Nipton Road) would be fenced to exclude tortoise access. Culverts to allow passage across these highways would be provided. Stopping, parking, and camping would be allowed only within 100 feet of route centerline or within banks of wash.

Rationale for Selected Strategy: The CDCA Plan calls for the designation of routes on public lands throughout the CDCA. Fencing of highways has been shown to greatly reduce the mortality of tortoises and other reptiles and mammals.

Recovery Plan Recommendations: Routes of travel would be designated individually. Fencing and culverts would be required along most paved highways (i.e., I-15, I-140, Highway 95) in critical habitat. Parking and camping would be restricted to designated sites. Speeds would be limited on designated routes.

ISSUE: Vandalism and Collecting

Scope of Issue: This issue refers to the illegal harming or collecting of desert tortoises. It does not include the authorized handling of tortoises to remove tortoises from a hazardous site as project mitigation.

Current Situation

Current Situation in NEMO Planning Area: Although tortoises are sometimes shot, the incidence of gunshot is very low in the NEMO Planning Area. Tortoises are collected for pets and for cultural observances. The amount of collecting and its significance is unknown, but the high number of tortoises in captivity implies that collecting is common. However, it is believed to be minimal in the NEMO Planning Area due to remoteness.

Effects

Primary Effects: Both collecting and vandalism remove tortoises from the population. Any such artificial mortality is potentially significant due to the tortoise's very low reproductive capacity.

Other Effects: In some areas where tortoises are sought by immigrants for cultural observances, burrows are destroyed in large numbers in the search for tortoises. This potentially exposes tortoises to increased predation and exposure to other natural elements.

Information Needs: There is no information on the amount of tortoise collecting occurring or its relative significance compared to other mortality factors.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Hunting would be permitted according to State regulation. Public education and law enforcement would be increased.

Rationale for Selected Strategy: Vandalism and collecting are believed to be relatively small in the Planning Area.

Recovery Plan Recommendations: Discharge of firearms, except for gamebird and big game hunting would be prohibited in the DWMAs. An environmental education program would be developed. Law enforcement would be increased to reduce illegal activities.

ISSUE: Vegetation Harvesting

Scope of Issue: This issue includes the authorized sale and illegal harvesting of whole plants or plant parts.

Current Situation

Current Situation in NEMO Planning Area: A permit is required in the CDCA for all vegetation harvesting except dead-and-down wood for campfire use. According to current BLM instructions in the CDCA, only creosote stems or salvage plants may be sold until an environmental assessment is prepared (none have been prepared for the NEMO Planning Area). Only salvage from areas to be disturbed is currently considered and only if the plants are not needed for project restoration. Some illegal harvesting of Mojave yucca and barrel cactus has occurred in the Piute and Fenner Valleys.

Effects

Primary Effects: Sales of plant parts for the floral industry if properly mitigated and restricted should have little or no effect on vegetation resources or desert tortoise. Commercial harvesting of yuccas can reduce bird populations. Illegal harvesting can eliminate key tortoise forage species, such as cactus.
Other Effects: Illegal harvesting usually involves illegal cross-country travel by trucks that damage habitat.
Information Needs: None.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Increased law enforcement would attack illegal harvesting. Permits for vegetation harvesting would be limited to salvage projects. Collection of dead-and-down wood (except Joshua trees and other yuccas) for personal campfire use would be allowed.
Rationale for Selected Strategy: The floral industry's needs for plant parts can be met in other areas. Commercial harvesting (e.g., yucca) has undesirable, negative effects on wildlife.
Recovery Plan Recommendations: No vegetation harvesting would be allowed except by permit (currently required throughout CDCA).

ISSUE: Wildlife Management

Scope of Issue: This includes various activities or habitat facilities (e.g., small game guzzlers) to enhance or stabilize wildlife (especially upland gamebird) populations.

Current Situation

Current Situation in NEMO Planning Area: There are numerous small game guzzlers in tortoise habitat in the NEMO Planning Area. Most, if not all, have been modified so that animals, including tortoises, do not become entrapped.

Effects

Primary Effects: Tortoises can become entrapped and die due to plastic entry/exit ramps that are too slick.
Other Effects: Tortoise predators, such as coyote and common raven, can drink from the guzzlers. Where water limits these predators, their populations could be enhanced leading to increased tortoise predation (see Issue: Subsidized Predation). Cameras at guzzlers in the southern Colorado Desert have shown that many species use guzzlers; though present in that area, raven use has not been recorded. Ravens are known to use cattle troughs in the NEMO Planning Area.
Information Needs: Additional information is needed on the use of small game guzzlers by coyotes and ravens and on the effects on their populations.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Modify all small game guzzlers to facilitate exit by tortoises.
Rationale for Selected Strategy: The strategy addresses the known problem.
Recovery Plan Recommendations: Guzzlers and other wildlife facilities would be allowed. Enhancement of native gamebird populations would be allowed.

ISSUE: Subsidized Predation

Scope of Issue: This issue includes the predation of tortoises by predators whose populations are subsidized, and thereby elevated, by human activities that provide food or other essential habitat elements. Major predators include common ravens, coyotes, and domestic or feral dogs.

Current Situation

Current Situation in NEMO Planning Area: Raven populations are somewhat elevated in the NEMO Planning Area, but not as much as the West Mojave. Raven numbers around Stateline near the Ivanpah Critical habitat Unit are likely to continue to increase with development there. Little is known about coyote populations in the Planning Area. Feral and domestic dogs are not known to be a problem in the NEMO Planning Area. The only authorized solid waste landfills are local operations at Baker and Needles; both are some distance from critical habitat. Unauthorized public and open community dumps exist at eight sites, all near critical habitat. Some of these have been closed, and efforts are underway to close the remaining in favor of regional landfills. Roadkills, especially on well-traveled paved roads (e.g., Interstate Highways 15 and 40 and State Highways 66 and 95), provide food for ravens and coyotes. Multiple transmission line systems are present in all utility corridors in both the Ivanpah and Piute-El Dorado Critical Habitat Units; raven use of these towers for nesting has been documented.

Effects

Primary Effects: The subsidizing of tortoise predator populations results in increased mortality to tortoises, especially to hatchling and juvenile tortoises less than 100 mm in length (usually less than 7 years of age). Both ravens and coyotes are known to forage at dumps and landfills, especially those where trash is not covered properly. Roadkills similarly provide food for predators; most relevant information is from highway fencing studies. The incidence of nesting on transmission towers in the NEMO Planning Area occurs at a low level.

Other Effects: None.

Information Needs: The relationship between raven populations that actually forage at landfills and dumps and those that prey on tortoises away from these sites is not well understood. The movements of ravens on a daily and seasonal basis (i.e., migratory behavior) is not known. Although highway fencing studies have quantified roadkills on some highways, the utilization by and importance of these roadkills to predators on heavily traveled highways is not known.

Strategy

Strategy in Preferred Alternative for Addressing Issue: No new landfills would be authorized by BLM in the DWMAs. Existing unauthorized dumps would be closed and reclaimed. The BLM would participate in regional raven depredation control programs. Major highways would be fenced to reduce Roadkills (see Issue: Vehicle Access).

Rationale for Selected Strategy: Elimination of unauthorized dumps in and near tortoise habitat and reduction of highway roadkills should aid in returning raven and coyote populations to natural levels.

Recovery Plan Recommendations: No new landfills would be allowed in DWMAs. Existing unauthorized dumps would be closed and reclaimed. Raven population control would be implemented. Dogs would be required to be on leashes in DWMAs.

ISSUE: Disease

Scope of Issue: At least three diseases, and possibly others, are affecting wild populations of desert tortoise.

Current Situation

Current Situation in NEMO Planning Area: The three main diseases affecting wild tortoise populations are upper respiratory tract disease (URTD), cutaneous dyskeratosis, and shell necrosis; the last two are often referred to collectively as shell diseases. Animals from study plots near Goffs and in Ivanpah Valley in the Mojave National Preserve have tested positive for URTD. Infection rates in samples have varied from year to year ranging from 5-39 percent at Goffs and 9-62 percent at Ivanpah Valley. High incidences of URTD occur in captives at Needles and Las Vegas just outside the Planning Area. Cutaneous dyskeratosis has been common in recent years at study plots in Shadow Valley, in Ivanpah Valley, and near Goffs (highest incidence). Environmental toxicants have been implicated in shell diseases.

Effects

Primary Effects: Large die-offs in the West Mojave have been largely attributed to URTD, and similar die-offs on Chuckwalla Bench have been attributed to shell diseases. Similar die-offs can be expected in the Planning Area in the future. At a minimum, diseases increase physiological stress that can result in starvation or dehydration especially during drought.

Other Effects: Disease may make sick animals lethargic or weak predisposing them to predation or exposure to weather.

Information Needs: Additional information is needed on the epidemiology of all diseases of wild tortoises. Additional information is needed on the causative agent of shell diseases. The importance of environmental toxicants in tortoise health has not been clarified. The importance of nutrition, especially relative to alien plants, in recovery rates of sick tortoises is not known.

Strategy

Strategy in Preferred Alternative for Addressing Issue: The strategy would continue 1) disease research programs, 2) prohibitions on reintroduction of captive tortoises into the wild, 3) education of the public about the disease issue and particularly the prohibition on release of captives, and 4) allowing only local relocation of tortoises in project mitigation.

Rationale for Selected Strategy: The only known URTD defense is to inhibit the spread by restricting the relocation of infected tortoises and to limit physiological stress by maintaining habitat in good condition.

Recovery Plan Recommendations: Research programs on disease would continue. Relocations in projects would be localized.

ISSUE: Fire

Scope of Issue: This issue includes both the direct effects of burning the vegetation and the effects of fire suppression activities. Both natural and man caused fires are included.

Current Situation

Current Situation in NEMO Planning Area: Fire occurrence in tortoise habitat in the NEMO Planning Area is relatively low, averaging about one fire per year. Fires below 3,000 feet are usually man caused, occur along highways, and rarely exceed 1 acre in size. Above 3,000 feet, fires are mostly ignited by lightning strikes and are usually less than 10 acres in size. The BLM has a *Fire Management Activity Plan for the California Desert*. It includes fire suppression guidelines for critical habitat and other tortoise habitat. The intent is to limit the fire size without unnecessarily disturbing habitat. Post-suppression restoration is also implemented.

Effects

Primary Effects: Tortoises can be killed directly by fires. The small size of fires in the Planning Area limits the amount of mortality. Fires eliminate perennial plants used by tortoises as food and cover. If the fire is small, surviving tortoises may be able to move outside of the burned area for food and cover. Burned areas provide opportunity for the invasion and establishment of alien plants, perhaps degrading forage value over a wider area than the burn itself. Surface disturbance caused by equipment, if any, used in fire suppression would add to the habitat loss and alien plant invasion.

Other Effects: As a part of fire suppression, unburned fingers and islands between burned areas and firebreaks (i.e., roads) are sometimes burned to prevent flare-ups. This can increase the size of burned area.

Information Needs: Although some research has been conducted, there is much yet to learn about the relationship of fire and the spread and establishment of alien plant species.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Suppression would include a mix of aerial attack, hand tools, foam or fire retardant with engines restricted to roads unless life or property are threatened. Post-suppression would include the obliteration of vehicle tracks off of roads, if any. Backfires and burning of unburned fingers and islands would be discouraged in DWMAs.

Rationale for Selected Strategy: There is a need to limit the burn size while limiting surface disturbance by equipment.

Recovery Plan Recommendations: Use of minimum impact fire suppression methods and restoration of disturbed areas would be required.

ISSUE: Alien Plants

Scope of Issue: This issue includes the effects of alien plants on tortoises.

Current Situation

Current Situation in NEMO Planning Area: The distribution of alien plant species has not been mapped in the Planning Area. Most are highly competitive, and have the potential to replace native species. Many are associated with human disturbance and spread along corridors where soil and plant disturbance occurs, such as along streams, washes, roads, and utility lines. Among the most widespread in the Mojave Desert are Mediterranean (split) grass, various brome grasses, and filaree. Moroccan mustard has been spreading rapidly in recent years.

Effects

Primary Effects: The invasion of alien plant species has greatly altered plant composition in some areas. This could potentially effect tortoise populations as thermal cover and forage are modified. Although many alien plants have nutritional value comparable to native plants, there is a reduction in diversity in the diet. Some alien plants, such as Mediterranean grass create a dense ground cover that carries fire more readily. Although fires have been small and few in number in the past in the Planning Area, they may become larger as alien plants increase (see Issue: Fire).

Other Effects: As plant species composition is altered, changes can be expected in other ecosystem elements, such as animal community composition, soil structure and chemistry, and soil and surface hydrology.

Information Needs: The effects of alien plants on ecosystem processes and soil chemistry and thermodynamics are not known. The mutual effects of alien plants and fire have been studied, but much is not known. The nutritional value of many alien plants is known, but the overall effects on tortoise diet and health is not known. Aside from minimizing disturbances, methods for controlling the invasion of new alien plants species and the spread of all alien plants are not known. Methods for restoring vegetation and minimizing the invasion of alien plants in project areas needs improvement.

Strategy

Strategy in Preferred Alternative for Addressing Issue: The frequency and extent of surface disturbing activities would be reduced. Vegetation restoration using the best available techniques would be required on projects.

Rationale for Selected Strategy: The invasion and spread of alien plants must be limited to the extent possible.

Recovery Plan Recommendations: None were given.

ISSUE: Drought

Scope of Issue: Drought refers to the absence or shortage of precipitation during seasons of normal occurrence such that the spring season has very low plant germination and growth.

Current Situation

Current Situation in NEMO Planning Area: Years with low precipitation in desert areas are common. Occurrences of successive years of low precipitation are not uncommon. Whether rainfall patterns have changed substantially through recent decades such that the occurrence of drought has increased is arguable.

Effects

Primary Effects: During years of low precipitation tortoises may be stressed due to a low internal water balance. In addition, the low forage availability may create nutritional deficiencies, such as low energy levels and/or low levels of essential nutrients. This can create stress or even starvation. Where stressed by lack of water or food, tortoises may be more susceptible to predation, disease, or exposure; presumably hatchling and juvenile tortoises are affected most. When water or food is low, both clutch size and number of clutches is reduced; reproduction may be eliminated. In some drought years, tortoises may be largely inactive in their burrows.
Other Effects: In years of low forage production, competition between tortoises and other species or cattle may occur.
Information Needs: Additional information is needed on the effects of precipitation on tortoise reproduction, alien plant populations, plant nutritional value, and other factors.

Strategy

Strategy in Preferred Alternative for Addressing Issue: Cattle grazing would be reduced or eliminated in DWMAs when ephemeral forage production (i.e., annual plant germination and growth) is low. Where feasible, authorized projects would be restricted to the non-tortoise season.
Rationale for Selected Strategy: Although drought is beyond local control, activities that create additional physiological or behavioral stress can be reduced.
Recovery Plan Recommendations: None were given.

ISSUE: Monitoring

Scope of Issue: This issue includes only the monitoring of tortoise populations.

Current Situation

Current Situation in NEMO Planning Area: There are three tortoise permanent study plots in the NEMO Planning Area - Ivanpah Valley, Goffs, and Shadow Valley. Only the last is on BLM land; the other two are in the Mojave National Preserve. The plots were surveyed regularly through the 1980's and early 1990's, but a lack of funds has prevented USGS from surveying these plots regularly since 1994. The plots were used to study population trends, demographics, and mortality factors. An additional technique called distance-sampling has been approved by the Tortoise Management Oversight Group. It will provide long-term population trend data on a recovery unit basis. Implementation of this program is awaiting refinement and funding.

Effects

Primary Effects: There are no negative effects of the monitoring programs.
Other Effects: None.
Information Needs: Additional information is needed on the application of the distance-sampling methodology, which has been field tested only in limited situations.

Strategy

Strategy in Preferred Alternative for Addressing Issue: The BLM would resume funding of population studies at the Shadow Valley plot on a four-year cycle. The BLM would also participate in the rangewide monitoring program employing distance-sampling methodology.
Rationale for Selected Strategy: The Shadow Valley plot was studied in 1979, 1988, and 1992; continued study of this plot can give important information on changes in tortoise populations and causes of mortality. It is important that the distance-sampling methodology be applied uniformly throughout the range of the tortoise. It will provide the basic trend data for determining recovery.
Recovery Plan Recommendations: Assessment of the permanent study plots would be continued. A second, new methodology, with sample plots randomly distributed over a wide area, would be applied rangewide.

APPENDIX D

Monitoring

Tortoise Monitoring

Permanent Study Plot Methodology - In the 1970's, tortoise population studies were conducted on 47 plots. The method was to survey the sites intensively, locating all living tortoises and shell remains. In the early years, survey times of 15, 30, and 60 days were tested. Plot sizes of 1-2 square miles were used. For analysis of population trends, tortoise measurements are collected, and the sex is recorded. Shell remains are collected to derive minimum mortality and causes of death.

In the early 1980's, 15 of the 47 plots were selected by BLM as *permanent study plots* to be surveyed on a 4-year cycle. The Shadow Valley, Ivanpah Valley, and Goffs permanent study plots are located in the Northern and Eastern Mojave Planning Area. With designation of the Mojave National Preserve in 1994, only the Shadow Valley Plot is on BLM-administered land; however, the other two are within a few miles. Current methodologies involve two 30-day consecutive surveys (60 days total) of each plot; age-specific population estimates for each plot are computed using a modified Lincoln Index method. A description of the plot survey methods and the methods of analysis can be found in Turner and Berry (1984). Table E-1 shows the years the four plots have been surveyed.

Table D-1: Desert tortoise permanent study plots in the Planning Area.

Study Plot Name	Years Surveyed
Shadow Valley	1979, 88, 92
Ivanpah Valley	1979, 86, 90, 94,
Goffs	1980, 83-86, 90, 94, 00

The monitoring plots have provided valuable information on various demographic factors. Analysis yields such information as population density and trend, size-specific sex ratios, age structure, mortality rates, survivorship rates, and causes of mortality.

Until 1994, surveys and analysis of the permanent study plots were conducted by the BLM for the three plots on BLM-administered lands. In 1995, responsibility for these surveys was transferred to the Biological Research Division of the U. S. Geological Survey. In the past few years, funding for these surveys has been inconsistent.

In the early 1990's, the permanent study plot methodology came under criticism primarily because:

1) the plot locations were not selected randomly but in relatively undisturbed locations;

2) the low number of plots does not adequately represent the variation present over the expanse of tortoise habitat;
3) there has been inconsistent funding resulting in variation in the 4-year sampling period;
4) there is an invalid assumption that tortoises do not enter or leave the study plot during the entire spring study period;
5) different size classes are not equally detectable; and
6) tortoise above-ground activity may not be 100 percent in poor forage years and is not constant throughout the 60-day sampling period (Tracy, undated).

Despite the criticisms of this monitoring methodology, it has 20 years of history and has provided a tremendous amount of research material. This has resulted from collections of shells, measurements of burrows, measurements of tortoises, notes on predators and human uses, and other data besides counting tortoises. The Desert Tortoise Recovery Plan suggests that a new methodology giving more reliable trend information be developed to supplement but not replace the permanent study plots.

Distance Sampling Methodology - A number of alternative methods for measuring population density and, hence, determining trends in density have been examined in the field (Tracy undated). The selected technique for monitoring desert tortoise trends on a recovery unit basis is a *stratified distance-sampling/above-ground detection* methodology. In this method, each recovery unit is divided into homogeneous *strata.* The strata represent areas where 1) vegetation, soil, and topography are such that tortoises are everywhere equally visible, and 2) all tortoises are engaged in similar activity throughout the stratum at any given time. For the latter assumption, it is especially critical that the proportion active above ground is similar throughout the stratum. A separate survey is to be performed in each stratum.

In 1997 several teams of biologists met to delineate strata in the various recovery units. Strata were delineated only for areas of potential long-term management (i.e., Desert Wildlife Management Areas (DWMAs) as described in the Desert Tortoise Recovery Plan).

The proposed methodology is conducted with two teams, one team (Team A) searching a strip transect for tortoises, and one team (Team B) assessing the proportion above ground using radio telemetry. For Team A, a system of permanent line transects is positioned randomly in the stratum. Each transect is 4 km in length. Each transect is searched by 2-3 observers in a strip 10 meters on each side of the line. The area near the line must be searched thoroughly. For each tortoise sighted, the distance from the tortoise to the line is recorded. From these data a distance-detection function is constructed. This function is then used to estimate the number of tortoises above ground in the strip transect. A simple multiplication yields an estimate of the number of tortoises present above ground in the entire stratum. (Anderson and Burnham, undated)

Team B uses radio-telemetry equipment to relocate tortoises that have been previously radio-tagged. About 25 tortoises must be relocated in each strata. From the relocation

sightings, an above-ground proportion is determined. This proportion is then used to correct the estimate from Team A to give a total estimate for the number of tortoises in the DWMA. (Anderson and Burnham, undated)

In 1999, a rangewide tortoise monitoring coordinator will be selected. This coordinator will move the trend monitoring program forward aggressively in subsequent years. Dr. Kristin Berry of U. S. Geological Survey will continue to manage permanent study plot assessments and data analysis for the California Desert.

Integrated Ecological Monitoring

Plans are underway for development of a California desertwide ecological monitoring program. This program is being developed under direction of the *Desert Managers Group*. The goal of the program is to evaluate ecosystem functions and resource sustainability in the California Desert. The elements of the program can be grouped into three areas:

1. **Early Warning** - This monitoring will give managers a comprehensive view of how the ecosystem is changing over time, especially in response to a range of human effects.
2. **Compliance** - This monitoring will indicate whether agency efforts are meeting various mandated responsibilities (e.g., recovery of endangered species).
3. **Diagnosis** - This monitoring will assess the effects of specific management actions, in particular their impacts on resources.

Under current plans, a regionwide monitoring coordinator will be selected as soon as funding is available. Then, a list of "vital signs" indicating ecosystem health will be identified, a range of alternative methodologies will be defined, monitoring sites will selected, thresholds of acceptable change will be established, and a data management system will be established.

Livestock Grazing Monitoring

Monitoring can be defined as the orderly, repeated collection and analysis of resource data to evaluate progress in meeting resource management objectives (this is based on BLM Manual 6600). The repetition of measurements over time for the purpose of detecting change distinguishes monitoring from inventory.

Types of monitoring.

Several types of monitoring have been identified. The following two are particularly relevant to monitoring livestock grazing (see MacDonald, et al. 1991, for a discussion of these and other types of monitoring).

- **Trend monitoring**. Monitoring to determine the long-term trend in a particular parameter. For example, is the population of a key species increasing, decreasing, or remaining stable at a particular site?

- **Implementation or compliance monitoring**. This type of monitoring assesses whether activities were carried out as planned or whether livestock operators are complying with the terms of management plans and permits/leases. For example, did BLM construct the pasture fence in FY 1993 as called for in the activity plan? Did the operator move the mineral blocks at least 1 mile from the riparian-wetland areas as required in the allotment management plan? One of the major types of rangeland monitoring, involving the measurement of utilization is a form of compliance monitoring. We'll discuss this in detail below.

Levels of monitoring.

Qualitative and semi-quantitative monitoring. Although many people equate monitoring with the gathering of some type of quantitative information, qualitative assessment of the condition of rangeland resources is a valid and important form of monitoring. Because of constraints related to limited budgets and workforces and the number of allotments for which BLM is responsible, qualitative monitoring is the level of monitoring most commonly employed in grazing management. Following are types of qualitative and semi-quantitative monitoring:

- **Stewardship integrity monitoring**. This involves visiting areas to ensure the habitat has not changed dramatically, as might occur with fire, overgrazing, trespass mining, vehicular use, etc. Aerial photography at specified intervals could also be used to assess some of these impacts without actually visiting the site.

- **Photoplots**. Photographs can provide important documentation of changes, particularly to habitat, over time. Although listed here under qualitative techniques, photoplots can also be used as a form of quantitative measurement. For example, several close-up photographs may be taken at a site and the number of individuals of the plant species of interest in each photograph counted or estimated.

- **Presence or absence**. Sites are visited to determine if a rare species is still extant or to determine whether a noxious weed has invaded a site.

- **Occurrence mapping**. An occurrence of a rare species or a riparian area may be mapped by delineating the distributional boundaries on the ground or on aerial photos.

- **Utilization pattern mapping**. Mapping the utilization made on key forage species is an important and effective form of grazing monitoring. The entire allotment or individual pasture is canvassed, usually following the removal of livestock, and the amount of utilization in different areas on one or more key plant species is assessed. Areas are then mapped into several classes based on level of utilization (e.g., no use,

light use, moderate use, and heavy use). Ocular estimation is often used to assign areas to one of these classes, but sometimes quantitative studies are also used (e.g., utilization transects are established in different areas of the allotment and used to assign these areas to a particular utilization class).

Utilization mapping is usually done each year for several years to determine if patterns are consistent from year to year. Where rest rotation grazing systems are in place, yearly mapping is normally conducted until the completion of at least one rotational cycle. The results of utilization pattern mapping can then be used to identify over-utilized areas of the allotment in need of adjustment through different management and to locate key areas (discussed below) for future monitoring studies.

- **Other observations**. Additional information deemed to be important may be collected based on ocular estimates. Examples are: presence/absence of individuals of a key species in different size classes; rough categorical estimate of the percent of plants in each size class; presence/absence of a defined condition in individuals at a given location (e.g., flowering, diseased, infested by insects, dead); rough categorical estimate of the percent of plants exhibiting the condition (e.g., 25-50% flowering).

The strengths of qualitative and semi-quantitative monitoring are that it is quick and therefore inexpensive, it allows assessment of large areas, such as complete allotments and pastures, it provides insight on condition and management needs, and it can serve as a "red flag" to trigger quantitative monitoring. The weaknesses of this type of monitoring are that different observers may reach different conclusions when no real difference exists; the interpretation is somewhat subjective; it provides purely descriptive information with no potential for analysis; and the only detectable change is often dramatic and severe.

Quantitative monitoring. In performing quantitative monitoring studies you *measure* something. This can mean, for example, that you count the number of individuals of a key plant species (either in total or by size class), you estimate its cover in plots, or you measure the size (height, cover or both) of individual plants. Quantitative monitoring involves taking a sample to estimate something about the parameter of interest, such as the cover or vigor of a key species in a pasture. Because sampling is involved, there is error around estimates of these parameters that must be considered in analysis. Statistical analysis takes these sampling errors into account when determining whether changes have occurred or thresholds (such as utilization levels) have been crossed.

Key area concept. Many, if not most, rangeland vegetation monitoring studies employ the key area concept. Using this approach, key areas are selected (subjectively) that (we hope) reflect what is happening on a larger area. Key areas are areas chosen to be representative of a larger area (such as a pasture) or critical areas such as riparian-wetland areas and sites where endangered species occur. Monitoring studies are then located in these key areas.

Although we would like to make inferences from our sampling of key areas to the larger areas they are chosen to represent, there is no way this can be done in the statistical sense because the key areas have been chosen subjectively. An alternative is to sample the larger areas, but the constraints of time and money coupled with the tremendous variability usually encountered when sampling very large areas often makes this impossible. The key area concept represents a compromise.

Because statistical inferences can be made only to the key areas that are actually sampled, it is important to develop objectives that are specific to these key areas. It is equally important to make it clear that actions will be taken based on what happens in the key area, even when it can't be demonstrated statistically that what is happening in the key area is happening in the area it was chosen to represent. It is also important to base objectives and management actions on each key area separately. *Values from different key areas should never be averaged*.

Key species concept. Just as the key area concept is a compromise between sampling an entire allotment versus sampling only a portion of it, the key species concept is a compromise between tracking change in all plant species versus tracking change in those species that are most likely to be affected by management. The latter species are called key species and are chosen based on several criteria. First, they are usually species that are preferred forage for livestock. Thus, they can be expected to increase under proper grazing management and decrease under improper grazing management. They therefore provide valuable information on the success of management. Second, they should be common enough that monitoring them will not be overly difficult or intensive. Third, changes in the distribution, vigor, or abundance of these key species should be representative of similar changes to other species deemed to be important to the plant community desired for a particular site. In this instance key species serve as keystone or indicator species. A fourth criteria that can be employed is legal status: special status plants may be singled out to be monitored regardless of their rarity or whether they function as keystone or indicator species.

Long-term (trend) monitoring. What most interests the range manager is how ecosystems (including plant and animal communities and abiotic factors such as soil) change over time in response to management. Usually only vegetation is monitored and an assumption made that if certain types and amounts of desired vegetation are present then the desired animals and desired soil conditions are also present. The assessment is made through either quantitative or qualitative monitoring studies usually located in key areas of the allotment. Photoplots and checklists are the principal qualitative monitoring method used in trend monitoring. An example of the checklist approach is the proper functioning condition checklist used in riparian areas. Although this approach can be considered to be inventory, its use at the same site on two or more occasions is a form of monitoring.

Quantitative monitoring methods are several and usually entail the measurement of some attribute of key species at key areas. The Interagency Technical Reference, Sampling Vegetation Attributes (BLM et al. 1996a), includes most of the types of range studies

employed by BLM nationwide. In the EIS area the two most common quantitative trend methods involve the use of cover and frequency measurements.

Cover measurements entail the estimation of the percentage of ground surface covered by vegetation. Three types of cover are measured, depending on the measurement method and the biology of the target plant(s). *Canopy cover* is the area of ground covered by the vertical projection of the outermost spread of the foliage of plants, including any small openings in the canopy. Canopy cover measurements are used in estimating the cover of shrubs, trees, and herbaceous plants. The line intercept method (BLM et al. 1996a) is most often used to estimate shrub and tree cover or, alternatively, aerial photographs are used. Canopy cover of herbaceous plants is usually made using plots, such as those described for the Daubenmire method (BLM et al. 1996a). *Foliar cover* is the area of ground covered by the vertical projection of the aerial portions of plants, with small openings in the canopy excluded. This is the type of cover measured by the point intercept method (BLM et al. 1996a), a method used primarily for herbaceous plants. *Basal cover* is the area of ground surface occupied by the basal portion of plants. This is the type of cover often used to monitor changes in bunchgrasses or tree stems. The basal area of bunchgrasses is estimated using line intercepts or estimation in plots. Several methods are applicable to the estimation of tree basal cover; these, however, are rarely used in grazing-related monitoring and will therefore not be discussed here.

Depending on objectives, cover is measured on key species, on all species, or on broad cover categories (e.g., live vegetation, litter, bare ground, and gravel). Total ground cover is important in determining whether sites are adequately protected from accelerated wind and water erosion. Cover of key species is important in determining whether objectives relative to increasing or maintaining the key species are being met.

Changes in the canopy and foliar cover of herbaceous species can be difficult to interpret because they can vary widely with climatic fluctuations. It is therefore difficult to tell whether changes are due to grazing management, weather, or a combination of both. Basal cover is much less sensitive to climatic fluctuations and a better indicator of trend in those species that are amenable to basal cover measurement (e.g., perennial bunchgrasses). The canopy and foliar cover of most woody shrubs does not vary nearly as much as herbaceous plants with climatic fluctuations, and these types of cover are often used to assess trend due to management (sub-shrubs, however, can present the same interpretation problems as herbaceous plants).

Frequency is another attribute often used to assess long-term trend on rangelands. It is one of the easiest and fastest methods available for monitoring vegetation. Frequency is the number of plots (called quadrants) occupied by a particular species, expressed as a percentage. For example, let's say we decide to sample 100 randomly placed 1m x 1m quadrants in a key area. If 40 of these have Key Species A in them, then we say that the frequency of Key Species A in that key area is 40 percent (note that we are interested only whether the species is present or absent in each quadrant--a species is present in a quadrant if 1 or if 100 plants occur in it). We then compare this 40 percent frequency with the value we come up with the next time the key area is sampled to determine if the

trend in this key species is up, down, or static. The best results are obtained when frequencies range from 20-80 percent.

Unlike cover, which is not dependent on the type or size of sampling unit used, frequency is only meaningful when the same quadrant size and shape is used in each year of measurement. When measuring the frequency of more than one plant species, it is often difficult to use the same size quadrant and maintain a frequency of 20-80 percent for all species. In these situations a nested frequency quadrant is often used. For example, within a 1m x 1m quadrant, three other quadrant sizes, 50cm x 50cm, 30cm x 30cm, and 10cm x 10cm, are nested. At each random placement of the quadrant, the smallest to the largest quadrant size is searched for the target species. If the species is found in the smallest quadrant, then it is also found in all other quadrants; if it is not found in the smallest quadrant, then the next smallest quadrant is searched, and so on. Once the first year's data are collected, optimal quadrant sizes can be determined for each species.

Changes in frequency can be due to changes in density or spatial pattern. Interpretation can be difficult because of this. However, if the data are recorded on a quadrant-by-quadrant basis, if seedlings and established plants are recorded separately, and if other trend data such as cover are collected at the same time, interpretation becomes easier.

The vertical structure of vegetation can be extremely important to wildlife. This is especially true in riparian areas. Most offices monitor this through the use of photoplots and other qualitative methods. Some offices use quantitative techniques such as the cover board method (BLM et al. 1996a) to monitor vertical structure.

Short-term (utilization) monitoring. Except for very favorable sites, such as riparian-wetland areas, changes in vegetation attributes such as frequency and cover can be very slow, making it hard to detect these changes until many years or even decades have passed. This lag time not only makes it difficult to assess the effects of management, it can place the natural resources at risk: if the changes, once they are detected, are in the wrong direction, correcting this downward trend may be all that more difficult or even impossible. Supplementing long-term monitoring with short-term monitoring studies is a means of reducing this risk. These short-term studies monitor the amount of utilization made on key plant species.

Management objectives are developed that specify how much utilization is allowed on key species before livestock are moved off a pasture. Utilization is then estimated through monitoring studies, and management actions implemented accordingly. These management actions can consist of taking immediate action in the same year (i.e., immediately moving livestock out of the pasture once the utilization threshold is approached or crossed) and of making long-term changes to the livestock grazing on an allotment (i.e., reducing stocking rate or season of use if utilization levels are consistently high).

Several methods are used by different field offices in California to estimate utilization. The Interagency Technical Reference, Utilization Studies and Residual Measurements (BLM et al. 1996b) describe these methods.

Most current BLM land use plans allow for utilization of key perennial grass species of 50 percent of the annual above-ground production (some plans specify a range of 40-60 percent utilization). Holechek (1991), however, points out that:

> A 50% use level works well in the flat, humid regions of the Great Plains and Southeast because of their high productivity and high adaptability of the plants to grazing. However in most cases it causes range destruction in the rugged, arid ranges of the West. Research shows stocking rates that involve a 30 to 40% forage use level will enhance range recovery, maintain adequate food and cover for wildlife, protect soil resources and will give the highest long term economic returns with the least risk on nearly all of the western range types (see reviews by Holechek et al. 1989, Vallentine 1990).

It is also important to estimate utilization on shrubs, where these species are important components of the ecosystem. Areas that support shrub species that are used by livestock and wildlife include: (1) riparian areas, which often support willows and other shrubs; (2) areas within the sagebrush steppe where bitterbrush and other shrubs are important components; and (3) areas where saltbushes and other related shrubs occur, both in the sagebrush steppe and annual grassland vegetation types. There are 19 allotments (an area determined to be suitable for grazing) within the NEMO planning area. Eight allotments are located within the Ridgecrest Resource Area; ten within the Needles Resource Area and one in the Barstow Resource Area. With the passage of the CDPA, 3 allotments have portions located in Death Valley National Park, and eight allotments have portions located in the Mojave National Preserve.

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APPENDIX E

PROPOSED CATTLE, WILD HORSE AND BURRO GRAZING STIPULATIONS IN NORTHERN AND EASTERN MOJAVE DESERT TORTOISE HABITAT

Cattle grazing allotments terms and conditions for grazing use on desert tortoise habitat have been separated into groups based on quantity and quality of desert tortoise habitat. Group 1 allotments contain only Category III habitat, and consist of Pahrump and Horsethief Springs Allotments. Group 2 allotments contain relatively small portions of Category I and II habitat, and consist of Clark Mountain, Crescent Peak and Granite Mountain Allotments. Group 3 allotments contain large amounts of Category I and II habitat, and consist of Chemehuevi Valley, Jean Lake, Kessler Springs, Piute Valley, Valley View and Valley Wells Allotments.

The following stipulations apply to Group 1, 2 and 3 portions of allotments.

1. Within key areas, utilization shall be limited to between 30 and 50 percent of key forage species. In desert tortoise habitat, utilization of key perennial grasses shall not exceed 40% from February 15 to November 1. No averaging of utilization levels among key species or key areas shall occur. When utilization approaches authorized limits in any key area, steps shall be taken to redistribute or reduce cattle use of that key area. These steps shall include removal of cattle or, where feasible, turning off water at troughs to reduce adjacent grazing.

2. Cattle shall be evenly dispersed throughout their area of use, and herding shall be limited to shipping and animal husbandry practices. Grazing use shall be managed according to grazing regulations, allotment management plans, CDCA Plan, and current biological opinions. All individuals and groups implementing activities in desert tortoise habitat shall be briefed about the status of desert tortoise and protection measures instituted to reduce potential impacts to the habitat and animal. Grazing use will be managed to improve trends for native perennial and annual plants where site potential permits. Feeding of roughage, such as hay, hay cubes, or grains to supplement forage quantity, is not allowed. Grazing shall be curtailed to protect perennial plants during severe or prolonged drought.

3. All cattle carcasses found within 300 feet of any road shall be removed and disposed of in an appropriate manner, and no prior notification to the BLM is necessary if off-road vehicle use is required, but permission from the authorized officer is required to remove animals within wilderness.

4. Authorization for ephemeral forage in Category III desert tortoise habitat shall occur when 200 pounds of air dry-weight per acre or more of ephemeral forage is available. Any replacement cattle authorized to use ephemeral forage shall be removed from such allotments whenever the thresholds for curtailing ephemeral grazing are reached. Temporary, non-renewable perennial forage above permitted use in Category III habitat, shall be authorized for three-month increments.

5. The level of utilization of perennial forage in Pahrump Allotment will not exceed 40%. Clark Mountain, Horsethief Springs, and Valley Wells are in fair or poor condition and utilization will not exceed 40% until condition class improves.

6. Construction and maintenance of range improvements in desert tortoise habitat are limited to current biological opinion. For all construction, operation, and maintenance of range improvements involving land disturbance in desert tortoise habitat the following requirements apply:

   A. Surface disturbance during construction of range improvements shall occur on previously disturbed sites and shall be minimized whenever possible. Routine vehicle use shall be limited to existing roads and disturbed areas, and off-road vehicle activity shall be held to a minimum. Construction of new roads shall be minimized. Construction of new or replacement facilities shall be carried out only from November 1 to March 15, unless specifically authorized due to safety or emergency considerations. After completion of the project, the disturbed soil shall be blended and contoured into the surrounding soil surface. To reduce attraction of desert tortoise predators, debris and trash created during construction or maintenance of a facility will be removed immediately.

   B. Range improvement construction, operation, and maintenance shall be modified as necessary to avoid direct impacts to desert tortoises and their burrows e.g., construction of fences or pipelines near tortoise burrows shall be avoided. Existing access and areas of disturbance shall be utilized when trenching a section of new pipe or during performance of maintenance. Any hazards to desert tortoises that may created, such as auger holes and trenches, shall be monitored by a biological monitor at least twice daily for desert tortoises that might become trapped. These hazards will be eliminated before workers leave the site.

   C. Prior to land-disturbing activities, a field contact representative (FCR) will be designated to ensure compliance with protective measures stipulations for the desert tortoise and will be responsible for coordinating with the Service. A FCR will have the authority and responsibility to halt activities in violation of the

Service stipulations.

D. Only authorized personnel are permitted to handle desert tortoises. If construction or maintenance of a range improvements endangers the life of a desert tortoise then authorized persons may move the animal a short distance away or hold the animal overnight to release it in the same area the next day.

E. All construction and maintenance workers shall strictly limit their activities and vehicles to areas flagged or cleared by persons authorized by the Service. When off-road use with equipment is required, the lessee is to notify the BLM two working days prior to construction or maintenance of a facility.

7. In Category I of Clark Mountain, Kessler Springs, Piute Valley, Valley View, and Valley Wells Allotments authorization of forage shall occur when 230 pounds of air dry-weight per acre or more of ephemeral forage is available for spring turn-out.

8. In Clark Mountain, Jean Lake, Kessler Springs, Piute Valley, Valley View, and Valley Wells Allotments no new or replacement cattle water sources shall be constructed within ? mile of Category I unless it is an overall benefit to the desert tortoise. Concurrence between the Service and the BLM shall be required to determine whether a benefit would accure. Only those new range improvements which will not create conflicts with desert tortoise populations shall be allowed.

9. For Clark Mountain, Jean Lake, Kessler Springs, Piute Valley, Valley View, and Valley Wells Allotments in Category I habitat no temporary, non-renewable use shall be authorized. Utilization shall be light (no more than 40 percent) on all key species. Galleta grass shall be a key forage species wherever it is found. New key areas shall be established in areas accessible to cattle and within ? mile of water sources.

10. Grazing use shall be limited to November 1 to February 28 in the Jean Lake Allotment.

11. The Lanfair Valley Allotment has been retired.

12. In Piute Valley Allotment, cattle shall be removed and water turned off to cattle troughs (unless needed for wildlife) in Category I habitat east of the power line road.

13. In the Valley View Allotment, cattle water sources shall be managed to discourage use of category I habitat.

14. In the Valley Wells Allotment, cattle water sources shall be managed to encourage summer use by cattle of the higher elevation portions of the allotment, out of Shadow Valley. Utilization of pipeline P5 and P6P (BLM, 1991) to establish water sources

outside of Category I habitat is authorized. However, no new or replacement water sources shall be constructed along these pipelines in Category I habitat.

WILD HORSE & BURRO GRAZING USE GUIDELINES IN NORTHERN AND EASTERN MOJAVE DESERT TORTOISE HABITAT

WH&B herd management area (HMA) guidelines for grazing use on desert tortoise habitat have been separated into groups based on quantity and quality of desert tortoise habitat. Group 1 HMAs contain only Category III habitat, and consist of Chicago Valley and Dead Mountains. Group 2 HMAs contain significant portions of Category I and consist of Clark Mountain and the Slate Range.

The following guidelines apply to Group 1 and 2 Herd Management Areas in desert tortoise habitat.

1. Within key areas, use shall be limited between 30 and 50 percent of key species. In desert tortoise habitat, utilization of key perennial grasses shall not exceed 40% from March 15 to November 1. No averaging of utilization levels among key species or key areas shall occur. If not identified, key areas within each HMA shall be established within three years. Galleta grass is a key species when found in a key area. When utilization approaches authorized limits in any key area, steps shall be taken to redistribute or reduce WH&B use of that key area. These steps shall include removal of WH&Bs or, where feasible, turning off water at troughs to reduce adjacent grazing.

2. Range improvement projects shall be constructed and maintained following standard environmental guidelines. Construction shall occur on previously disturbed sites, whenever possible. Environmental guidelines shall require that no known desert tortoise burrow be destroyed and that the chance of incidental take of desert tortoises be minimized.

3. WH&B grazing management strategies shall be followed to protect perennial plants during severe or prolonged drought.

4. Monitoring of perennial plant utilization, ephemeral forage production, and range condition and trend shall be implemented according to the methods and scheduling detailed in herd management plans and in accordance with the Bureau Manual, CDCA Plan, and technical references.

5. All HMAs shall be managed according to a current HMAP for the areas. The East Mojave HMA will be supplemented to address proposed changes in management to the Clark Mountain herd.

6. HMAs shall be managed for an increase of native perennial and annual plants, and promote continued improvement in trend and forage condition in areas where natural site potentials permit.

7. Private and Federal personnel shall be advised that handling, harming, or harassing desert tortoises without specific authorization is a violation of the Endangered Species Act. Handouts summarizing this information shall be provided to all personnel implementing all actions proposed in which may result in a take of desert tortoises.

8. For all operational activities (e.g., gathers, range improvement development) involving land disturbance in desert tortoise habitat:

a. All removal trap locations shall be located at previously disturbed sites. Surface disturbance, particularly road construction and off-road vehicle activity shall be held to a minimum. After completion of the activity, the disturbed soil shall be blended and contoured into the surrounding soil surface.

b. Prior to conducting these surface disturbing activities, desert tortoise surveys of the project sites shall be conducted by qualified BLM personnel.

c. Range improvement construction, operation, and maintenance shall be modified as necessary to avoid direct impacts to desert tortoises. Hazards that may be created, such as auger holes and trenches, shall be monitored by a biological monitor at least twice daily for desert tortoises that might become entrapped. These hazards shall be eliminated prior to the work crew leaving the site.

d. Prior to land-disturbing activities, and individual shall be designated as a field contact representative who shall have the authority to ensure compliance with protective stipulations for the desert tortoise and be responsible for coordination with the U.S. Fish and Wildlife Service (USFWS). Such designated representative shall have the authority and responsibility to halt activities that are in violation of stipulations.

e. If desert tortoises are found above ground within areas to be disturbed by operational activities, and in the opinion of a qualified BLM representative are endangered by the proposed activity, they shall be relocated by an authorized desert tortoise biologist a short distance away from the activity zone in the direction of undisturbed habitat. Relocated desert tortoises shall be placed in

the shade of a large, marked shrub. If activities are short in duration, the authorized BLM biologist may elect to hold the desert tortoise overnight and release the animal the next day at or near the point of capture after the activity has been completed. Only persons authorized by the FWS shall be permitted to handle desert tortoises.

f. Each tortoise found within a trench or above ground within three hours of nightfall or when ambient air temperatures exceed 90 degrees Fahrenheit shall be placed in a clean disposable cardboard box and held overnight in a cool location. The box shall be covered and kept in possession of a qualified biologist for release the next morning in the manner described above. Cardboard boxes used to hold desert tortoises shall be new, used once, and discarded. All materials which come into contact with desert tortoises shall be used only once and then properly discarded to minimize contact with the causative factor(s) for URTD or other diseases.

g. All personnel working at the site shall strictly limit their activities and vehicles to areas which have been flagged by the qualified individual to eliminate adverse impacts to desert tortoises and their habitat. All personnel shall be instructed that their activities are restricted to flagged and cleared areas.

9. Until range conditions improve to good condition in the Clark Mountain, herd management area, utilization of key species shall not exceed 30 percent.

The following stipulations apply to Group 2 Herd Management Areas in Category I desert tortoise habitat.

10. New or replacement water sources (not including water pipelines which may traverse, but do not provide water sources in Category I habitat) shall not be constructed within ½ of a mile from Category I, unless an overall benefit to desert tortoise would accrue, after consultation with the USFWS.

APPENDIX F

NEW SURFACE DISTURBANCES AND REHABILITATION STRATEGIES

CUMULATIVE SURFACE DISTURBANCES

New surface disturbance on lands administered by Federal and State agencies within any desert tortoise ACEC will have a cumulative limitation -- this limitation is proposed to be 1 percent of suitable habitat in the preferred alternative. The amount that may be disturbed will be apportioned among the various participating agency jurisdictions.

Rationale - The limit of 1 percent on cumulative surface disturbance is intended to show a high level of commitment to conservation of natural habitats. Although the 1 percent level may seem arbitrary to some, it is expected to accommodate the needs of those activities that must occur in the ACEC based on low historic levels of use in these areas. Among these are communication sites, maintenance of existing and construction of new utilities in designated utility corridors, dispersed recreation, and mining. It is anticipated that retaining 99 percent of what is presently in natural condition will be sufficient for maintaining viable populations of all species that are dependent upon the ACEC; conserving lesser amounts might be arguable. The commitment to limiting cumulative disturbance is an alternative to the prohibition on specific classes of activities based primarily on our ability to prohibit them rather than on their expected level of occurrence and size, their need, their public value, etc. It gets us closer to the direct effect on species that we are attempting to address: prevention of loss of habitat.

Specifics - Surface disturbing activities are those which result in elimination of perennial plant cover over an area. Elimination may result from blading or otherwise destroying plant roots and severely disturbing soil structure or it may be less severe in the form of crushing of above-ground plant parts. The localized effects of new corrals or livestock watering sites will be considered surface disturbing, but general grazing will not be. Burned areas will not be included under the 1- percent limit.

Surface disturbing activities will be recorded on 7.5-min. topographic maps and entered into a GIS database. Disturbances will be recorded as they are permitted. Unauthorized disturbances will also be entered as they are identified. Disturbances on private lands may also be recorded but will not be limited to 1- percent cumulative disturbance.

Lands acquired by an agency will be added to the base in their condition at the time of acquisition. That is, disturbance present on the parcel at the time of acquisition will not be added to the cumulative new disturbance.
If an interstate highway or state highway is widened and creates new surface disturbance in an ACEC, the new disturbance will not be covered by the cumulative limit if highway fencing is

added. The fencing will result in increased tortoise populations along the highway due to decreased tortoise mortality on the road. In addition, there may be a decrease in raven populations as roadkills supporting ravens are reduced.

REHABILITATION STRATEGIES

Trigger for Evaluation of Rehabilitation - As disturbed lands are restored, it would be practical that they may be subtracted from the cumulative total of disturbed lands. Lands may be evaluated for removal only after they meet the following "40% criteria" (or *evaluation trigger*); passing of the evaluation trigger alone will not remove the disturbed lands, it is the point at which evaluation of lands would be initiated:

> Perennial plants are present in densities and sizes so that impacts are substantially unnoticeable in the area as a whole and so that the area provides food and shelter for key wildlife species in the area. More specifically, each species in a suite of the most dominant perennial plants prior to disturbance must be reestablished to at least 40 percent of its original density (i.e., number of plants/hectare) and at least 30 percent of its original total cover. The choice of the suite of dominant perennial plants are any combination of perennial plants which originally accounted cumulatively for at least 80 percent of relative density.[1] There will be no less than two dominant perennial species.

The use of only perennial plant cover in the evaluation trigger allows calculation of the restoration requirement in any year (wet or dry) and any season. The use of specific numbers allows the evaluation trigger for a particular site to be known prior to the disturbance. It should be noted that some important plants, such as Joshua trees, which are important as an overstory plant but are not dominant, would not be a part of the evaluation trigger. Reestablishment of such plants could, of course, be a restoration requirement for a particular project, but they would not be used to trigger an evaluation for the purposes of reducing the cumulative disturbance total. Annual plants are difficult to use in evaluating restoration progress because 1) the number of species is very high, 2) identification is difficult, and 3) the presence of a given species is highly variable from year to year based on factors (e.g., rainfall) unrelated to habitat restoration. The evaluation trigger does not preclude the possibility that annual weeds may be present or even prevalent. Once an evaluation is triggered, many factors would be considered in the analysis of the site.

Rehabilitation Factors - Many of the ideas and information described below come from the Desert Restoration Task Force, a committee to the Desert Managers Group (DMG). This committee has developed publications on the subject. One part of the array of management initiatives of the DMG includes restoration of disturbed sites. This is being specifically addressed through the DMG subcommittee for the Desert Restoration Task Force. This group has published a technical manual on the subject. In it tried and tested site planning and application techniques as well as experimentation are encouraged. Much more will be learned

and written over time. The intent of this discussion is not to review the technology or "cook-book" restoration design on a species and habitat basis, but to review some thought considerations and convey an intent that more sophisticated and effective rehabilitation measures are needed and expected for future authorized disturbances. In the final analysis it will be left to case-by-case field applications to evaluate the specific needs, actions, expense that will result in site conditions which approximate natural disturbance, and identify priorities for restoration.

The NECO Science Panel which met on November 12, 1998, noted that disturbance is not entirely a negative ecological condition or just human-caused. Wash, wind, tectonic, fire and other violent natural forces cause episodes of natural disturbance and are forces of natural ecological processes. Variables to consider in restoration may include the amount, location, nature, and effects of disturbance and other constraints. Disturbances that pose serious problems and that do not lend themselves to a "construction" solution are not addressed here. These include disease, unnatural change to fire regime, and exotic plants. To meet this mandate decision makers must apply site planning and consider a variety of technical applications. Site planning and restoration considerations may include:

1. **Special Status Species**
   - listed, proposed for listing, sensitive
   - species-habitat relationships that apply.
2. **Plant Community**
   - common, rare
   - site quality
3. **Management Goals**
   - general management goals
   - special management goals (e.g., DWMA, WHMA, species and sensitive habitats). This consideration is critical and can make the difference between a minimally necessary and special needs restoration and cost.
4. **Ecological Processes**
   - determine the preexisting condition, distribution of species and habitats
   - most important to restore and that humans can effect
   - commonly considered are soil, hydrologic, wind functions, movement of animals, sources and movement of seed.
5. **Conservation Principles**
   - patch size (fragmentation)
   - plant cover
   - corridors
   - habitat conversion to exotic species
6. **Site Context**
   - site in area of habitat
   - site in the range(s) of species
   - site quality

- cumulative situation, if any, of this site, with others of a permanent/temporary disturbance nature

7. **Site Analysis/Pre-existing Site Condition - constraints and objectives**
   - Topography, Slope, Aspect
   - Landforms (e.g.,washes, desert pavement, sand systems)
   - Surface and Subsurface Soils
   - Vegetation
   - Subsurface organic matter
   - Surface texture/micro-habitat: organic debris, soil, sand, rock texture
8. **Constraints**
   - Can approximate original topography be achieved?
   - Is compaction a problem?
   - Historic use patterns
   - Are materials on hand to recreate original surface texture?
   - Are there uses to prevent or that could impair restoration efforts?
   - Time
   - Cost
9. **Common applications** (not for all situations)
   - Grading (topography, landform, microtopography, surface texture)
   - Replacing topsoil
   - Increasing soil moisture through mulching surface or subsurface (non contaminated with chemicals or weed seeds), imprinting, pitting
   - Treating compacted soils
   - Capturing and holding seeds through imprinting and pitting
   - Seeding (seed treatment) with locally gathered/commercially available seed
   - Individual plantings/Irrigation (costly, uncommon)
   - Erosion control

The evaluation criteria are an initial trigger upon which an evaluation of both the productivity and the visual aspect of the vegetative community would take place, considering targets set for the rehabilitation, such as pertinent factors identified above. Specified levels are those levels where the impact may be unnoticeable and the area may be productive for wildlife in terms of food and shelter. At these levels it is likely that soil condition is returning, and annual plant cover is probably present; therefore ecosystem processes are beginning to successfully operate again.

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1 For example, if perennial plants A, B, and C have relative densities of 70, 13, and 12 percent, respectively, the dominant species could be species A and any one (or more) of species B or C.

Appendix G

Recommended Special Management Actions For the Recovery of the Ash Meadows Gumplant (*Grindelia fraxino-pratensis*) and Amargosa Niterwort (*Nitrophila mohavensis*)[1]

Introduction

Ash Meadows Gumplant: The Ash Meadows gumplant (*Grindelia fraxion-pratensis*) was published in Notice of Review of 1 July 1975 as threatened (40 FR 27861) and in the 15 December 1980 Notice as Category I: taxa to be considered for threatened or endangered status (45 FR 82512). It was listed as Rare and Endangered by the California Native Plant Society and Endangered by the Northern Nevada Native Plant Society in 1980. This plant was also listed as California State Endangered in 1979 and federally listed as Endangered in 1985.

The Ash Meadows gumplant is an erect biennial or perennial herbaceous plant that is approximately 5-12 decimeters (dm) tall with one to several stems arising from a woody root-stock. The stems are light to reddish brown, glabrous, leafy and branched in their upper halves. The dark green leathery resin-coated leaves are narrow, about 2-7 centimeters (cm) long and 5-12 millimeters (mm) wide and are somewhat sticky to the touch. The basal leaves are longer and wider than the stem leaves. The leaf margin is entire to somewhat toothed at the tip. The inflorescence is openly branched with several heads on the terminal branchlets with head width ranging from 8-10 mm. The involucres are 7-9 mm tall with overlapping resin-dotted phyllaries 3-7 mm long. Ray flowers are mostly 13 in number, golden to lemon yellow and 7-9 mm long. Disk flowers are golden yellow and 4-5 mm long. In bud, the disk flowers are covered with a white gum-like substance; hence, the name gumplant. The achenes are 2.5 - 3.5 mm long which bear two stout awns that are approximately 3-4 mm long. Little is known about this species' life history or habitat requirements due to its limited distribution and individual occurrences.

Amargosa Niterwort: The Amargosa niterwort (*Nitrophila mohavensis*) was published in a Notice of Review on 1 July 1775 (40 FR 27833) as Endangered and was proposed as Endangered on 16 June 1976 (41 FR 24539). This plant was California State listed as Endangered in 1979 and federally listed as Endangered in 1980

The Amargosa niterwort is a low, long-lived erect plant from thick underground roots. It reaches heights up to 8 cm. The leaves are small, approximately 2-3 mm long, thick, fleshy and bright green. They are densely arranged along a reddish-colored stem. The flowers are small and frequently hidden among the upper leaves. The petal-like segments on the flowers are rose-colored when fresh and approximately 2 mm long. When the

[1] Both of these species are on the Center for Plant Conservation's list of species expected to go extinct within ten years.

segments become dry, they are brownish in color and somewhat papery to the touch. The anthers are small and 5 in number. The fruit is small and round, with black shiny seeds.

Objectives:

The objective is to minimize the threats that imperil the Ash Meadows gumplant and Amargosa niterwort so that these species can be downlisted. These plants may be proposed for downlisting when their populations and the wetland ecosystem on which they are dependent within the Carson Slough and other habitat in Nevada are secure and self-perpetuating.

Recovery efforts should occur on the following sites:

- Public lands administered by the BLM in the Carson Slough area. The Ash Meadows gumplant is known in only two sites, one in Nye County, Nevada and the other in the Carson Slough area of Inyo County, California, in close proximity to the Amargosa niterwort. These two species are known on a single site (see Chapter 7, Figure 10) on the southwestern edge of Ash Meadows region just west of the Nevada state line in extreme southeastern Inyo County, California, at the Amargosa River drainage (Carson Slough) about three miles northeast of Death Valley Junction.
- Water sources required to perpetuate these areas should be secured and managed.

Specific recommendations, requirements and tasks include:

1. Implement short-term actions critical for the near term survival of the Ash Meadows gumplant and Amargosa niterwort.

    a. Identify habitat and source water on private, The Nature Conservancy, State, and Federal Lands.

        (1) Identify habitat
        (2) Identify groundwater sources and springs

2. Identify and preclude present or threatened destruction, modification, or curtailment of habitat or range.

        (1) Reduce the major threat from the reduction of free-flowing water through the Carson Slough currently being diverted for farming activities.
        (2) Reduce the threat of grazing and trampling by horses (both feral and owned).
        (3) Reduce the threat from the increase of off-road vehicle activities.
        (4) Reduce the threat to the environment of, and possible type conversion from non-native, weedy, species.

The above mentioned existing threats are all expected to continue for some time into the future and can be considered potential threats for more populations than are currently impacted.

3. Identify and implement measures to protect public land populations.
    (a) Develop ACEC management strategy within three years.
    (b) Integrate strategy with the Amargosa River ACEC management planning to address watershed, water quantity and related issues.

Appendix H

Recommended Special Management Actions for the Recovery of the Amargosa Vole

Introduction

The Amargosa Vole is a desert sub-species of the widely distributed California Vole. The Amargosa Vole historically inhabited a highly localized and isolated wetland of the central Mojave Desert in extreme southeastern Inyo County, California, near the Inyo – San Bernardino County line. It depends upon, and is closely associated with, wetland vegetation dominated by bulrush. The Amargosa Vole was listed as a California State endangered species on September 2, 1980. (Title 14 California Administrative Code, Section 670.5) and as a Federal endangered species with critical habitat on November 15, 1984 (49 Federal Register (FR): 45160). Reasons for listing include loss of historical habitat, rechannelization of water sources needed to perpetuate habitats, and pumping of groundwater. Based on the high degree of threat and low full recovery potential, the Amargosa Vole has been given a recovery priority of six (6), meaning that it is a sub-species under high threat with a low recovery potential.

Objective

The objective is to minimize the threats that imperil the Amargosa Vole so that the species can be downlisted to "Threatened" status. The Amargosa Vole may be proposed for downlisting when populations of the vole and the wetland ecosystem on which they are dependent within the ancient Tecopa Lake Basin and within Amargosa Canyon are secure and self-perpetuating.

Recovery efforts should occur on the following five sites:

- Public lands administered by the BLM in the Grimshaw Lake and Amargosa Canyon Areas of Critical Environmental Concern.
- State lands in the northern portion of the Amargosa Canyon
- The BLM lands south of Tecopa Hot Springs
- Private lands containing vole habitat.
- Water sources required to perpetuate these areas, and corridors necessary for maintaining genetic exchange between otherwise isolated vole populations should be secured and managed.

The interim goal is to secure vole populations in wetlands above 1,370 feet (410 meters) elevation. Tasks to achieve the interim goal include securing habitat and the water sources for maintaining these wetlands, and minimizing threats from introduced species.

Specific recommendations, requirements and tasks include:

1. Implement short-term actions critical for the near term survival of the Amargosa Vole.
   a. Identify Amargosa Vole habitat and source water on private, The Nature Conservancy, State, and Federal Lands.
      (1) Identify Amargosa Vole Habitat
      (2) Identify groundwater sources and springs

   b. Implement measures to secure extant populations and non-occupied habitat; foremost, those above 1,370 feet (410 meters) in elevation and habitats protected against flooding by the historic railbed grading for the Tonopah and Tidewater railroad lines.

      (1) Secure water sources and water rights for groundwater and springs critical to maintaining and enhancing upland habitats and lowland habitats.
      (2) Protect wetland habitats from geothermal development.

         (a) Identify geothermal ownership that can affect upland and protected lowland habitats.
         (b) Remove geothermal development that has adverse effects on wetlands from current and future leasings.

      (3) Remove Tamrisk from upland and protected lowland habitats
      (4) Maintain integrity of the Tonopah and Tidewater railbed to prevent flooding of existing lowland habitats.
      (5) Prevent further loss of habitat or water quality by road construction, maintenance, or other construction activities.
      (6) Replace existing OHV exclusion barrier with a more substantial post and cable barrier.
      (7) Immediately remove all feral cattle from the Amargosa Canyon
      (8) Prohibit all camping and campfires on public lands.

   c. Identify threats to the Amargosa Vole and/or habitat
   d. Develop interim management plan to protect habitats
   e. Implement Management Plan

2. Population surveys and assessments.
   a. Estimate population size of all habitat patches using capture/mark/recapture.
   b. Obtain demographic data on the Amargosa Vole to determine abundance, distribution, natality, mortality, recruitment, dispersal distance, and rate of population change.
   c. Collect tissue samples from all new captured animals
   d. Collate and analyze data annually.

3. Habitat Surveys and assessment.
   (a) Quantify habitat characteristics around animal capture sites.

(b) Determine temporal and spacial patterns of habitat use.
(c) Evaluate habitat condition annually.
  (1) Tecopa Lake Basin and Amargosa Canyon.
  (2) Shoshone area.
(d) Develop management protocols for enhancing extant habitat and rehabilitating historical habitat sites
  (1) Analyze habitat data.
  (2) Develop management protocols for enhancing extant habitat and rehabilitating historical habitat sites.

4. Genetic Analysis
   a. Analyze genetic data.
   b. Evaluate progress toward recovery objective

5. Enhance Amargosa Vole populations and habitat.
   a. Determine affects of natural and anthropogenic threats including flooding, spring water flow and flux, vegetation changes, fire, exotic intrusion (plant and animal), pesticides/ rodentcides, and groundwater/ watershed alterations.
   b. Implement effective habitat/vegetation manipulation that enhances vole habitat and minimizes adverse effects on other sensitive native species.
   c. Reduce or eliminate competitive faunal species.
   d. Establish additional Amargosa Vole populations.
      (1) Determine if establishment or rehabilitation of habitat is necessary.
      (2) Complete habitat rehabilitation or protective measures, if necessary, prior to reintroducing voles.
      (3) Introduce voles into the site.
      (4) Monitor success of the vole population at each transplant site.
      (5) Continue with transplant program if necessary of feasible.
   e. Develop map of habitat and population trends.

6. Monitor habitat trends.
   a. Develop monitoring protocol and conduct yearly small mammal and vegetation surveys.
   b. Update map of habitat and population trends.
   c. As necessary, modify management plans.

7. Establish a public outreach program.[1]

[1] U.S. Fish and Wildlife Service, 1997. Amargosa Vole (*Microtus californicus scirpensis*) Recovery Plan. Portland, Oregon.

APPENDIX I: SPECIAL STATUS SPECIES WITHIN THE NORTHERN AND EASTERN MOJAVE

ANIMAL STATUS CODES

Federal

Endangered: Those animals officially listed or proposed for listing as endangered under the Federal Endangered Species Act.

Threatened: Those animals officially listed or proposed for listing as threatened under the Federal Endangered Species Act.

BLM Sensitive :. California Bureau of Land Management Sensitive Species
Sensitive species are designated by a BLM State Director
BLM Manual 6840 defines sensitive species as "...those species that are (1) under status review by the Fish and Wildlife Service/National Marine Fisheries Service; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats."

FSC: Federal Special Concern species (a "term of art" for former USFWS Category 2 candidates.)

FWS:MNBMC: The Fish and Wildlife Service: Migratory Nongame Birds of Management Concern:
Species of migratory nongame birds that are considered to be of concern in the United States because of (1) documented or apparent population declines, (2) small or restricted populations, or (3) dependence on restricted or vulnerable habitats

State

Endangered: Those animals officially listed or proposed for listing as endangered under the California Endangered Species Act.

Threatened: Those animals officially listed or proposed for listing as threatened under the California Endangered Species Act.

CDFG:CSC: California Special Concern species:
The Department has designated certain vertebrate species as CDFG:CSC because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

CDFG: Fully Protected and Protected:
Fully Protected and Protected species may not be taken or possessed without a permit from the Fish and Game Commission and/or the Department of Fish and Game.

ANIMAL SPECIES		LISTING STATUS	
Common Name	**Scientific Name**	**Federal**	**State**
BIRDS			
Swainson's hawk	***Buteo swainsoni***		Threatened
Western yellow-billed cuckoo	***Coccyzus americanus occidentalis***	FWS: MNBMC	Endangered
Southwestern willow flycatcher	***Empidonax trailli extimus***	Endangered	
Least bells vireo	***Vireo bellii pusillus***	Endangered FWS:MNBMC	Endangered
Inyo California towhee	*Pipilo crissalis*	Threatened	Endangered
Cooper's hawk	*Accipiter cooperi*		CDFG:CSC
Tricolored blackbird	*Agelaius tricolor*	BLM Sensitive, FSC FWS: MNBMC	CDFG:CSC
Golden eagle	*Aquila chrysaetos*		CDFG Fully Protected
Long-eared owl	*Asio otus*		CDFG:CSC
Burrowing owl	*Athene cunicularia hypugea*	BLM Sensitive FWS: MNBMC	CDFG:CSC
Ferruginous hawk	*Buteo regalis*	FSC, FWS: MNBMC	CDFG:CSC

Appendix I: Species of Special Consideration within NEMO

Western snowy plover	*Charadrius alexandrinus nivosus* Inland populations	FWS: MNBMC	CDFG:CSC
Northern harrier	*Circus cyaneus*		CDFG:CSC
Yellow warbler	*Dendroica petechia brewsteri*		CDFG:CSC
Prairie falcon	*Falco mexicanus*		CDFG:CSC
Yellow-breasted chat	*Icteria virens*		CDFG:CSC
Western least bittern	*Ixobrychus exilis hesperis*	FSC, FWS: MNBMC	CDFG:CSC
California gray-headed junco	*Junco hyemalis caniceps*	FWS: MNBMC	CDFG:CSC
Loggerhead shrike	*Lanius ludovicianus*	FSC, FWS: MNBMC	CDFG:CSC
Brown-crested flycatcher	*Myiarchus tyrannulus*		CDFG:CSC
Hepatic tanager	*Piranga flava*		CDFG:CSC
Summer tanager	*Piranga rubra*		CDFG:CSC
White-faced ibis	*Plegadis chihi*	FSC, FWS: MNBMC	CDFG:CSC
Vermilion flycatcher	*Pyrocephalus rubinus*		CDFG:CSC
Bendire's thrasher	*Toxostoma bendirei*	BLM Sensitive FWS: MNBMC	CDFG:CSC
Crissale thrasher	*Toxostoma crissale*		CDFG:CSC
Le conte's thrasher	*Toxostoma lecontei*	BLM Sensitive	CDFG:CSC
Virginia's warbler	*Vermivora virginiae*		CDFG:CSC
Gray vireo	*Vireo vicinior*	BLM Sensitive	CDFG:CSC
MAMMALS			
Amargosa vole	***Microtus californicus scirpensis***	Endangered	Endangered
Mohave ground squirrel	*Spermophilus mohavensis*	FSC	Threatened
Pallid bat	*Antrozous pallidus*	BLM Sensitive	CDFG:CSC
Townsend's western big-eared bat	*Corynorhinus townsendii townsendii*	BLM Sensitive, FSC	CDFG:CSC
Occult little brown bat	*Myotis lucifugus occultus*	FSC	CDFG:CSC
Fringed myotis	*Myotis thysanodes*	BLM Sensitive, FSC	
Western mastiff bat	*Eumops perotis*	BLM Sensitive, FSC	CDFG:CSC
Spotted bat	*Euderma maculatum*	BLM Sensitive, FSC	CDFG:CSC
Western small-footed myotis	*Myotis ciliolabrum*	BLM Sensitive, FSC	
Long-eared myotis	*Myotis evotis*	BLM Sensitive, FSC	
California leaf-nosed bat	*Macrotus californicus*	BLM Sensitive, FSC	CDFG:CSC
Desert bighorn sheep	*Ovis canadensis nelsoni*	BLM Sensitive	CDFG Fully Protected
AMPHIBIANS			
Black toad	*Bufo exsul*		Endangered
Inyo Mountains slender salamander	*Batrachoseps campi*	BLM Sensitive	CDFG Protected, CDFG:CSC
REPTILES			
Desert tortoise	***Gopherus agassizii***	Threatened	Threatened
Panamint alligator lizard	*Elgaria panamintinus*	BLM Sensitive	CDFG Protected
Banded gila monster	*Heloderma suspectum cinctum*	BLM Sensitive, FSC	CDFG Protected, CDFG:CSC
FISH			
Amargosa River pupfish	*Cyprinodon nevadensis amargosae*	BLM Sensitive	CDFG:CSC
Shoshone pupfish	*Cyprinodon nevadensis shoshone*	FSC	CDFG:CSC
Amargosa Canyon speckled dace	*Rhinichthys osculus* ssp 1	BLM Sensitive, FSC	CDFG:CSC
INSECTS			
Shoshone cave whip-scorpion	*Trithyreus shoshonensis*	BLM Sensitive	

PLANTS OF SPECIAL CONSIDERATION

PLANT STATUS EXPLANATION

FEDERAL

Endangered: Those plants officially listed or proposed for listing as endangered under the Endangered Species Act.

Threatened: Those plants officially listed or proposed for listing as threatened under the Endangered Species Act.

. **BLM Sensitive:** California Bureau of Land Management Sensitive Species **Sensitive species are designated by a BLM State Director**... BLM Manual 6840 defines sensitive species as "...those species that are (1) under status review by the Fish and Wildlife Service and the National Marine Fisheries Service; or (2) whose numbers are declining so rapidly that Federal listing may become necessary: or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

FSC: Federal Species of Special Concern

STATE

Rare, Threatened or Endangered: Those plants officially listed or proposed for listing under the California Endangered Species Act.

NVCE: Critically Endangered in Nevada.

NVCE#: Recommended for Critically Endangered List pending formal listing.

CNPS : The California Native Plant Society Lists

List 1A: Plants presumed extinct in California

List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere

List 2: Plants Rare, Threatened, or Endangered in California, but more common elsewhere

List 3: Plants about which we need more information-A review list

List 4: Plants of limited distribution (significant locally)-A watch list

PLANT SPECIES OF SPECIAL CONSIDERATION

PLANT SPECIES		LISTING STATUS		CNPS
COMMON NAME	**SCIENTIFIC NAME**	**FEDERAL**	**STATE**	**CNPS**
Curved-pod Milk-vetch	*Astragalus mohavensis* var. *hemigyrus*	FSC		1A
July gold	*Dedeckera eurekensis*	FSC	CA Rare	1B
Forked buckwheat	*Eriogonum bifurcatum*	FSC		1B
Kingston mountain bedstraw	*Galium hilendiae* ssp. *kingstonense*	BLM Sensitive		1B
Ash meadows gumplant	*Grindelia fraxino-pratensis*	Threatened		1B
Amargosa niterwort	*Nitrophila mohavensis*	Endangered	CA Endangered	1B
Shining Milk-vetch	*Astragalus lentiginosus* var. *micans*	FSC		1B
Sodaville Milk-vetch	*Astragalus lentiginosus* var. *sesquimetralis*	FSC	CA Endangered	1B
Spring-loving centaury	*Centaurium namophilum*	Threatened		
Tecopa Birds-beak	*Cordylanthus tecopensis*	BLM Sensitive- FSC		1B
Thorne's buckwheat	***Eriogonum ericifolium*** var. ***thornei***	FSC	CA Endangered	1B
Darwin rock cress	*Arabis pulchra* var. *munciensis*	BLM Sensitive		2
Shockley's rock cress	*Arabis shockleyi*			2
White bear poppy	*Arctomecon merriamii*	FSC		2
Cloak fern	*Argyrochosma limitanea* var. *limitanea*			2
Playa milk-vetch	*Astragalus allochrorous* var. *playanus*			2
Darwin mesa milk-vetch	*Astragalus atratus* var. *mensanus*	BLM Sensitive		1B
Black milk-vetch	*Astragalus funereus*	BLM Sensitive - FSC		1B
Geyer's milk-vetch	*Astragalus geyeri* var. *geyeri*	BLM Sensitive		2
Gilman's milk-vetch	*Astragalus gilmanii*	FSC		1B
Little big-pod milk-vetch	*Astragalus platytropis*			2
Preuss's milk-vetch	*Astragalus preussii* var. *preussii*			2
Naked milk-vetch	*Astragalus serenoi* var. *shockleyi*			2
Scaly cloak fern	*Astrolepis cochisensis*			2
Ayenia	*Ayenia compacta*			2
Fremont barberry	*Berberis fremontii*			3
King's eyelash grass	*Blepharidachne kingii*			2
Red grama	*Bouteloua trifida*			2
Crucifixion thorn	*Castela emoryi*			2
Jaeger's caulostramina	*Caulostramina jaegeri*	BLM Sensitive - FSC		1B
Wooton's lace fern	*Cheilanthes wootonii*			2
Desert birds-beak	*Cordylanthus eremicus* ssp. *eremicus*			4

Purple bird's-beak	*Cordylanthus parviflorus*			2
Gilman's cymopterus	*Cymopterus gilmanii*			2
Ripley's cymopterus	*Cymopterus ripleyi var. saniculoides*			1B
Panamint dudleya	*Dudleya saxosa ssp. saxosa*	FSC		1B
Howe's hedgehog cactus	*Echinocereus engelmannii* var. *howei*	BLM Sensitive - FSC		1B
Panamint daisy	*Enceliopsis covillei*	BLM Sensitive - FSC		1B
Nine-awned pappus grass	*Enneapogon desvauxii*			2
Gilman's goldenbush	*Ericameria gilmanii*			1B
Reveal's buckwheat	*Eriogonum contiguum*			2
Wildrose canyon buckwheat	*Eriogonum eremicola*	BLM Sensitive - FSC		1B
Jointed buckwheat	*Eriogonum intrafractum*	FSC		1B
Panamint mountains buckwheat	*Eriogonum microthecum* var. *panamintense*	BLM Sensitive - FSC		1B
Juniper buckwheat	*Eriogonum umbellatum* var. *juniporinum*			4
Ripley's gilia	*Gilia ripleyi*			2
Golden carpet	*Gilmania luteola*			1B
Pungent glossopetalon	*Glossopetalon pungens*	BLM Sensitive - FSC		1B
Inyo hulsea	*Hulsea vestita* ssp. *inyoensis*	BLM Sensitive		2
Yellow ivesia	*Ivesia arizonica* var. *arizonica*			3
Jaeger's ivesia	*Ivesia jaegeri*	BLM Sensitive - FSC		1B
Kingston mountains iuesia	*Ivesia patellifera*	BLM Sensitive - FSC		1B
Sand linanthus	*Linanthus arenicola*			2
Scrub lotus	*Lotus argyraeus* var. *multicaulis*			1B
Providence mountains lotus	*Lotus argyraeus* var. *notitius*			1B
Panamint mountains lupine	*Lupinus magnificus var. magnificus*	BLM Sensitive - FSC		1B
Wolftail	*Lycurus phleoides* var. *phleoides*			2
Spearleaf	*Matelea parvifolia*			2
Violet twining snapdragon	*Maurandya antirrhiniflora* ssp. *antirrhiniflora*			2
Rock lady	*Maurandya petrophila*	FSC	CA Rare	1B
Utah monkeyflower	*Mimulus glabratus* ssp. *utahensis*			2
Appressed muhly	*Muhlenbergia appressa*			2
Tough muhly	*Muhlenbergia arsenei*			2
Delicate muhly	*Muhlenbergia fragilis*			2
Few-flowered Muhly	*Muhlenbergia pauciflora*			2
False Buffalo-grass	*Munroa squarrosa*			2
Forked purple mat	*Nama dichotomum* var. *dichotomum*			2
Slender Woolly-heads	*Nemacaulis denudata* var. *gracilis*			2
Curved-spine Beavertail	*Opuntia curvospina*			2
Beautiful cholla	*Opuntia pulchella*			2
Watson's oxytheca	*Oxytheca watsonii*			2
Cliff brake	*Pellaea truncata*			2
Limestone beardtongue	*Penstemon calcareus*			2
Death valley beardtongue	*Penstemon fruticiformis* var. *amargosae*	BLM Sensitive - FSC		1B
Stephen's beardtongue	*Penstemon stephensii*	BLM Sensitive - FSC		1B
Inyo rock daisy	*Perityle inyoensis*	BLM Sensitive		1B
Hanaupah rock daisy	*Perityle villosa*	BLM Sensitive		1B
Death valley sandpaper plant	*Petalonyx thurberi* ssp. *gilmanii*	BLM Sensitive - FSC		1B
Saline valley phacelia	*Phacelia amabilis*	FSC		3
Aven nelson's phacelia	*Phacelia anelsonii*			2
Death Valley Round-leaved Phacelia	*Phacelia mustelina*	BLM Sensitive		1B
Goodding's phacelia	*Phacelia pulchella* var. *gooddingii*			2
Two-needle pinyon pine	*Pinus edulis*			3
Small-flowered rice grass	*Piptatherum micranthum*			2
Desert popcorn-flower	*Plagiobothrys salsus*			2
Notch-beaked milkwort	*Polygala heterorhyncha*			2
Narrow-leaved cottonwood	*Populus angustifolia*			2
Abert's sanvitalia	*Sanvitalia abertii*			2
Burro grass	*Scleropogon brevifolius*			2

Desert wing-fruit	*Selinocarpus nevadensis*			2
Rusby's desert mallow	*Sphaeralcea rusbyi* ssp. *eremicola*	BLM Sensitive		1B
Holly-leaved tetracoccus	*Tetracoccus ilicifolius*			1B
Plummer's woodsia	*Woodsia plummerae*			2

APPENDIX J

UPLAND PUBLIC LANDS ASSESSMENT CRITERIA			
Indicators	**Healthy**	**At Risk**	**Unhealthy**
Phase I: Soil Stability and Watershed Function			
A-horizon	Present and Distribution unfragmented	Present but fragmented distribution developing	Absent, or present only in association prominent plants or with other obstructions
Pedestaling	No pedestaling of plants or rocks	Pedestals present, but on mature plants only; no roots exposed	Most plants and rocks pedestaled; Roots exposed
Rills and gullies	Absent, or with blunted and muted feature	Small, embryonic, and not connected into dendritic pattern	Well defined, actively expanding, dendritic pattern established
Scouring or sheet erosion	No visible scouring or sheet erosion	Patches of bare soil or scours developing	Bare areas and scours well developed and contiguous
Sedimentation or dunes	No visible soil deposition	Soil accumulating around plants or small obstructions	Soil accumulating in large barren deposits or dunes or behind large obstructions
Phase 2: Distribution of nutrient cycling and energy flow			
Distribution of plants	Plants well distributed across site	Plant distribution becoming fragmented	Plants clumped, often in association with prominent individuals; large bare areas between clumps
Litter distribution and incorporation	Uniform across site	Becoming associated with prominent plants or other obstructions	Litter largely absent
Root distribution	Community structure results in rooting throughout the available soil profile	Community structure results in absence of roots from portions of the available soil profile	Community structure results in rooting in only one portion of the available soil profile
Distribution of photosynthesis	Photosynthetic activity occurs throughout the period suitable for plant growth	Most photosynthetic activity occurs during one portion of the period suitable for plant growth	Little or no photosynthetic activity on location during most of the period suitable for plant growth
Phase 3: Recovery mechanisms			
Age-class distribution	Distribution reflects all species	Seedlings and young plants missing	Primarily old or deteriorating plants present
Plant vigor	Plants display normal growth form	Plants developing abnormal growth form	Most plants in abnormal growth form
Germination microsite	Microsites present and distributed across the site	Developing crusts, soil movement, or other factors degrading microsites; developing crusts are fragile	Soil movement or crusting sufficient to inhibit most germination and seedling establishment

DISCUSSION OF PROPER FUNCTIONING CONDITION (PFC)

PFC -- PROPER FUNCTIONING CONDITION

WHAT IT IS - WHAT IT ISN'T

PFC is: A methodology for assessing the physical functioning of riparian and wetland areas. The term PFC is used to describe both the **assessment** process, and a defined, on-the-ground **condition** of a riparian-wetland area. In either case, PFC defines a minimum or starting point.

The PFC **assessment** provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. The PFC assessment synthesizes information that is foundational to determining the overall health of a riparian-wetland area.

The on-the-ground **condition** termed PFC refers to *how well* the physical processes are functioning. PFC is a state of resiliency that will allow a riparian-wetland system to hold together during a 25 to 30 year flow event, sustaining that system's ability to produce values related to both physical and biological attributes.

PFC isn't: The sole methodology for assessing the health of the aquatic or terrestrial components of a riparian-wetland area.

PFC isn't: A replacement for inventory or monitoring protocols designed to yield information on the "biology" of the plants and animals dependent on the riparian-wetland area.

PFC can: Provide information on whether a riparian-wetland area is physically functioning in a manner which will allow the maintenance or recovery of desired values, e.g., fish habitat, neotropical birds, or forage, over time.

PFC isn't: Desired (future) condition. It is a prerequisite to achieving desired condition.

PFC can't: Provide more than strong clues as to the actual condition of habitat for plants and animals. Generally a riparian-wetland area in a physically non-functioning condition will not provide quality habitat conditions. A riparian-wetland area that has recovered to a *proper functioning condition* would either be providing quality habitat conditions, or would be moving in that direction if recovery is allowed to continue. A riparian-wetland area that is functioning-at-risk would likely lose any habitat that exists in a 25 to 30 year flow event.

Therefore: To obtain a complete picture of riparian-wetland area health, including the biological side, one must have information on *both* physical status, provided through the PFC assessment, and biological habitat quality. Neither will provide a complete picture when analyzed in isolation. In most cases proper functioning condition will be a prerequisite to achieving and maintaining

habitat quality.

PFC is: A useful tool for prioritizing restoration activities. By concentrating on the “at risk” systems, restoration activities can save many riparian-wetland areas from degrading to a non functioning condition. Once a system is non-functional the effort, cost, and time required for recovery is dramatically increased. Restoration of non functional systems should be reserved for those situations where the riparian-wetland has reached a point where recovery *is possible*, when efforts are not at *the expense* of "at risk" systems, or when unique opportunities exist. At the same time, systems that are properly functioning are not the highest priorities for restoration. Management of these systems should be continued to maintain PFC and further recovery towards desired condition.

PFC is: A useful tool for determining appropriate timing and design of riparian-wetland restoration projects (including structural and management changes). It can identify situations where instream structures are either entirely inappropriate or premature.

PFC is: A useful tool that can be used in watershed analysis. While the methodology and resultant data is "reach based", the ratings can be aggregated and analyzed at the watershed scale. PFC, along with other watershed and habitat condition information helps provide a good picture of watershed health and the possible causal factors affecting watershed health. Use of PFC will help to identify watershed scale problems and suggest management remedies and priorities.

PFC isn't: Watershed analysis in and of itself, or a replacement for watershed analysis.

PFC is: A useful tool for designing implementation and effectiveness monitoring plans. By concentrating implementation monitoring efforts on the “no” answers, greater efficiency of resources (people, dollars, time) can be achieved. The limited resources of the local manager in monitoring riparian-wetland parameters can be prioritized to those factors that are currently “out of range” or at risk of going out of range. The role of research may extend to validation monitoring of many of the parameters.

PFC wasn't: Designed to be a long-term monitoring tool but it may be an appropriate part of a well designed monitoring program.

PFC isn't: Designed to provide monitoring answers about attainment of desired conditions. However, it can be used to provide a thought process on whether a management strategy is likely to allow attainment of desired conditions.

PFC can: Reduce the frequency and sometimes the extent of more data and labor intensive inventories. PFC can reduce process by concentrating efforts on the most significant problem areas first and thereby increasing efficiency.

PFC can't: Eliminate the need for more intensive inventory and monitoring protocols. These will often be needed to validate that riparian-wetland area recovery is indeed moving toward or has achieved desired conditions, e.g., good quality habitat; or simply establish what the existing habitat quality

is.

PFC is: A qualitative assessment based on quantitative science. The PFC assessment is intended for individuals with local, on-the-ground experience in the kind of quantitative sampling techniques that support the checklist. These quantitative techniques are encouraged in conjunction with the PFC assessment for individual calibration, where answers are uncertain, or where experience is limited. PFC is also an appropriate starting point for determining and prioritizing the type and location of quantitative inventory or monitoring necessary.

PFC isn't: A replacement for quantitative inventory or monitoring protocols. PFC is meant to complement more detailed methods by providing a way to synthesize data and communicate results.

PFC Checklist

The following section contains the PFC checklist as used by BLM staff and others in the field. Immediately following are the general instructions, and then the two pages of the checklist itself.

General Instructions

1) The concept "**Relative to Capability**" applies wherever it may be inferred.

2) This checklist constitutes the **Minimum National Standards** required to determine Proper Functioning Condition of lotic riparian-wetland areas.

3) As a minimum, an **ID Team** will use this checklist to determine the degree of function of a riparian-wetland area.

4) Mark one box for each element. Elements are numbered for the purpose of cataloging comments. The numbers do not declare importance.

5) For any item marked "**No**," the severity of the condition must be explained in the "**Remarks**" section and must be a subject for discussion with the ID Team in determining riparian-wetland functionality. Using the "**Remarks**" section to also explain items marked "**Yes**" is encouraged but not required.

6) Based on the ID Team's discussion, "**functional rating**" will be resolved and the checklist's summary section will be completed.

7) Establish photo points where possible to document the site.

Standard Lotic Checklist

Name of Riparian-Wetland Area: _____

Date: _____ Area/Segment ID: _____ Miles: _____

ID Team Observers: _____

Yes	No	N/A	HYDROLOGIC
			1) Floodplain inundated in "relatively frequent" events (1-3 years)
			2) Active/stable beaver dams
			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
			4) Riparian zone is widening or has achieved potential extent
			5) Upland watershed not contributing to riparian degradation

Yes	No	N/A	VEGETATIVE
			6) Diverse age-class distribution (recruitment for maintenance/recovery)
			7) Diverse composition of vegetation (for maintenance/recovery)
			8) Species present indicate maintenance of riparian soil moisture characteristics
			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
			10) Riparian plants exhibit high vigor
			11) Adequate vegetative cover present to protect banks and dissipate energy during high flows
			12) Plant communities in the riparian area are an adequate source of coarse and/or large woody debris

Yes	No	N/A	SOILS-EROSION DEPOSITION
			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody debris) adequate to dissipate energy
			14) Point bars are revegetating
			15) Lateral stream movement is associated with natural sinuosity
			16) System is vertically stable
			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

_____
_____
_____
_____
_____
_____

Summary Determination

Functional Rating:

Proper Functioning Condition _____
Functional -- At Risk _____
Nonfunctional _____
Unknown _____

Trend for Functional -- At Risk:

Upward _____
Downward _____
Not Apparent _____

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes _____
No _____

If yes, what are those factors?

____ Flow regulations
____ Mining activities
____ Upstream channel conditions
____ Channelization
____ Road encroachment
____ Oil Field water discharge
____ Augmented flows
____ Other (specify) _____

Lentic Standard Checklist

Name of Riparian-Wetland Area: _____

Date: _____ Area/Segment ID: _____ Acres: _____

ID Team Observers: _____

Yes	No	N/A	HYDROLOGIC
			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
			2) Fluctuation of water levels is not excessive
			3) Riparian-wetland zone is enlarging or has achieved potential extent
			4) Upland watershed not contributing to riparian-wetland degradation
			5) Water quality is sufficient to support riparian-wetland plants
			6) Natural surface or subsurface flow patterns are not altered by disturbance (i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)
			7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)

Yes	No	N/A	VEGETATION
			8) Diverse age-class distribution (recruitment for maintenance/recovery)
			9) Diverse composition of vegetation (for maintenance/recovery)
			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snow melt)
			12) Riparian-wetland plants exhibit high vigor
			13) Adequate vegetative cover present to protect shoreline/soil surface and dissipate energy during high wind and wave events or overland flows
			14) Frost or abnormal hydrologic heaving is not present
			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics

Yes	No	N/A	SOILS-EROSION DEPOSITION
			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
			18) Underlying geologic structure/soil materials/permafrost is capable of restricting water percolation
			19) Riparian-wetland is in balance with the water and sediment being supplied with the watershed (i.e., no excessive erosion or deposition)
			20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) adequate to dissipate wind and wave event energies

Remarks

Summary Determination

Functional Rating:

Proper Functioning Condition _____

Functional--At Risk _____

Nonfunctional _____

Unknown _____

Trend for Functional--At Risk

Upward _____

Downward _____

Not Apparent _____

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes _____

No _____

If yes, what are those factors?

_____	Dewatering	_____	Mining activities	_____	Watershed condition
_____	Dredging activities	_____	Road encroachment	_____	Land ownership
_____	Other (specify)	_____			

Proper Functioning Condition (PFC) ratings for evaluated desert springs, riverine segments and tributaries in various regions of the nemo planning area.

Desert Spring Site or Riverine Segment	NEMO Region	PFC Rating
Amargosa River-Amargosa Canyon to Dumont Reach	Tecopa	FAR-UT
Amargosa River-Grimshaw Lake	Hot Springs	FAR-DT
Amargosa River-Shoshone to Amargosa Canyon Reach	Shoshone	FAR-NT
Amargosa River-Nevada State Line to Shoshone Reach	Death Valley Junction	PFC
China Ranch Wash	Tecopa	PFC
Lower Carson Slough	DV Junction	PFC
Amargosa Spring	Silurian Valley	PFC
Corral Spring	California Valley	FAR-DT
Coyote Holes Spring	Kingston Wash	FAR-DT?
Crystal Spring	Kingston Mtns	FAR-UT
Dog Boots Spring	Ibex Hills	PFC
Sparrow Seep	Ibex Hills	PFC
Horsethief Spring	Kingston Mtns.	FAR-UT
Kingston Spring	Kingston Wash	FAR-NT
Old Mormon	Avawatz Mtns.	NF
Owl Hole Spring	Owlshead Mtns.	NF
Quail Spring	Owlshead Mtns.	FAR-DT
Salt Creek	Silurian Valley	FAR-UT
Smith Spring	Kingston Mtns.	FAR-UT
Tule Spring	California Valley	FAR-DT
Twelvemile Spring	Chicago Valley	FAR-DT
Weaverdick Spring	Avawatz Mtns.	FAR-NT

FAR=**FUNCTIONING AT RISK**; **DT**=**DOWNWARD TREND**; **NT**=**NO APPARENT TREND**; **UT**=**UPWARD TREND**; **NF**=**NON-FUNCTIONAL**; AND **PFC**=**PROPER FUNCTIONING CONDITION.**

APPENDIX K

CURRENT MANAGEMENT SITUATION

The purpose of this appendix is to document the current public land management policies in those portions of the Northern and Eastern Mojave Planning Area (NEMO Planning Area) as administered by the Bureau of Land Management (BLM). This evaluation will aid in defining the No Action alternative and alternatives proposed in Chapter 2 of this document. The need for revision of land use policies in the NEMO Planning Area is based largely on the USFWS listing of the desert tortoise (as a threatened species) and several other species under the Federal Endangered Species Act since signing of the California Desert Conservation Area Plan (*CDCA Plan*) (BLM 1980), tortoise population declines, the recommendations in the 1994 Desert Tortoise (Mojave Population) Recovery Plan[1]. Additional issues include the adoption of National Standards and Guidelines and the need to adopt regional Standards for Public Land Health and Guidelines for Grazing Management, Congressional designation of wilderness and release of some wilderness study areas from further consideration.

APPLICABLE FEDERAL AND STATE LAWS

The Bureau of Land Management operates under a number of federal and state laws and regulations. The following is a brief listing of the major laws that affect BLM's management of public lands. Some of these laws are specifically referenced within this EIS and some are here as reference. Decisions within the EIS will not affect BLM's responsibility to adhere to and/or enforce these laws.

FEDERAL LAWS

National Environmental Policy Act (NEPA): NEPA requires all federal agencies to analyze the environmental impacts of any proposed action affecting public lands or resources, to involve the public in decision making, and to disclose environmental impacts to the public. NEPA also requires that the analysis be interdisciplinary and issue driven and that the cumulative and indirect effects be reported. An EIS is required for any major federal action significantly affecting the quality of the human environment.

Taylor Grazing Act (TGA): With amendments, this act is the basic legislative authority governing grazing use on the vacant public lands of the United States.

Federal Land Policy and Management Act (FLPMA): This law established public land policy providing for the retention and management of the public lands held in Federal ownership, including special provisions for land use planning and range management.

[1]Recovery Plan (USFWS 1994a) (see Sec. 3.1.3 - *Desert Tortoise (Mojave Population) Recovery Plan*)

Public Rangelands Improvement Act (PRIA): This legislation of 1978 further supports the authority of the Taylor Grazing Act and the Federal Land Policy and Management Act by placing special emphasis for the improvement of rangeland conditions.

Wild Free-Roaming Horse and Burro Act: This act provides for the protection, management, and control of wild horses and burros on public lands administered by the BLM and the U.S. Forest Service. The basic goal is to keep the wild horse herds from disappearing, yet keep the herds at appropriate management levels to maintain a healthy functioning ecosystem. The act allows removal of animals if necessary to "restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation."

Endangered Species Act (ESA): This act requires the federal land management agencies to protect and enhance all species and their habitats on federal lands that are listed as endangered, threatened, or proposed for listing. Included in this act in Section 7 is a required process for all federal agencies to consult with the U.S. Fish and Wildlife Service regarding any federal action that may affect a federally listed threatened or endangered species.

Clean Water Act (CWA): This law's objective, administered by the U.S. Environmental Protection Agency (EPA), is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. It directs the federal agencies to comply with water quality standards, including initiating actions to control non-point sources of pollution such as grazing, as determined by each respective State government and as approved by EPA.

Coastal Zone Act Re-authorization (CZARA): This act is applicable to all waters in California and, as amended in 1990, places additional requirements on the states to address non-point source pollution in several categories, including rangeland**.** The federal agencies, such as the Bureau of Land Management are to cooperate with the state in fulfilling these requirements.

Federal Noxious Weed Act: This 1974 act, as amended in 1990 (Section 15 of the act), adds further responsibility for the federal land management agencies, in cooperation with the respective state agencies, to actively pursue the control of undesirable plants using an integrated management approach.

Antiquities Act of 1906 and amendments: This act provides for the protection of historic and prehistoric sites and objects of antiquity on Federal lands; and authorizes scientific investigation of such sites and antiquities, subject to permits and other regulatory requirements. Paleontological resources are also covered by this act.

Executive Order 13007: This executive order affirms that Native Americans have the right to access specific spiritual and sacred sites on federal lands as long as that access is not inconsistent with the administrative goals of the agency.

Archeological Resources Protection Act: This act prohibits the removal, sale, receipt, and interstate transportation of archeological resources obtained illegally (without permits) from public or Indian lands and authorizes agency permit procedures for investigations of archeological resources on public lands under the agency's control. Amendments state that the Secretaries of the Interior, Agriculture and Defense shall develop plans for surveying the lands under their control to determine the nature and extent of archeological resources, prepare a schedule for surveying those lands that are likely to contain the most scientifically valuable archeological resources, and develop documents for reporting suspected violations. Tribes are given 30 days to comment on permits for the excavation of archeological resources within their "aboriginal territory."

National Historic Preservation Act of 1966 (NHPA): This act established historic preservation as a national policy and defines it as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. Significance is determined by specific criteria. The National Register of Historic Places is maintained by the National Park Service.

Executive Order of April 29, 1994: This executive order established that it is the policy of the United States that formal government to government relationships shall be established between agency heads and all formally recognized tribes. This policy provides the impetus for developing protocols and memoranda of understanding between the BLM and the federally recognized tribes. BLM has also applied the policy to unrecognized Indian communities.

STATE LAWS (California and Nevada)

Porter-Cologne Water Quality Control Act: This act establishes a comprehensive water quality program for the state of California, through the State Water Resources Control Board, including a non-point source program on rangelands. This act also gives authority to nine semi-autonomous Regional Water Quality Control Boards within the state.

California Food and Agriculture Code, Section 403 and Title 3, California Code of Regulations, Section 4500: These codes provide the responsibilities and priorities governing the California Department of Food and Agriculture to protect the agricultural industry of the state by controlling weeds on all lands, including federally owned rangelands.

California Endangered Species Act: This act is administered by the California Department of Fish and Game and is patterned after the federal Endangered Species Act, by providing a state listing and protection responsibilities for species determined to be specifically protected within California.

California Native Plant Protection Act: This 1977 act provided for the California Department of Fish and Game to "preserve, protect, and enhance endangered plants in California".

EXISTING MANAGEMENT SITUATION

Air

There are a number of basic federal statutes, executive orders and state laws that direct BLM's response to air quality issues. Generally, compliance with the various laws and policy has been achieved through the NEPA process. Through the NEPA process proposed projects are evaluated as to their potential emissions and the compliance with law, and appropriate mitigation measures are identified.

ACECs

FLPMA established the authority to designate Areas of Critical Environmental Concern (ACEC) (Section 103 (a)). The Act defined an ACEC as an area within the public lands where special management attention is required. The CDCA Plan and publication in the Federal Register established 72 ACECs. Since that time several additional ACECs have been established and a few have been deleted. Within the NEMO Planning Area there are 11 ACECs remaining on BLM lands. The ACECs were designated due to historic, prehistoric, wildlife, scenic and plant values. Each ACEC has a management plan, which spells out management prescriptions necessary to meet the objectives for the area. These prescriptions include details like signing, patrol needs, monitoring, construction of facilities and possible restrictions on uses. Specific details on the ACECs can be found the individual ACEC plans.

Wildlife

A number of public laws, acts and executive orders provide direction to the BLM in managing wildlife resources. Some of these are the National Environmental Policy Act of 1969; Endangered Species Act of 1973 (as amended); Sikes Act; Executive Order No. 11514, Protection and Enhancement of Environmental Quality; Executive Orders 11644 and 11989, Off-Road Vehicles on Public Lands; Executive Order 11990, Protection of Wetlands; Executive Order 11988, Floodplain Management; and the Federal Land Policy And Management Act of 1976. The BLM has translated applicable parts of these laws, acts, and executive orders into policies and guidance, which are contained within the BLM manual system. BLM Manual 6840 provides direction to the wildlife program for Threatened and Endangered Wildlife, and Manual 6740 provides direction for Wetland-Riparian Area Protection and Management.

The CDCA Plan identifies wildlife management goals. Several management tools are available to meet the objectives of the Wildlife Element of the CDCA Plan. The principal one is activity plans such as ACEC plans and habitat management plans (HMPs) which were identified in the CDCA Plan. An approved plan of operation is required for any mining operation (with the exception of casual use) prior to commencing work in an ACEC (43 CFR Ch ll Subpart 3809-Surface Management), regardless of the size of the operation. Mining plans of operation trigger the NEPA review and compliance process. Some fish

and wildlife resources requiring special management attention can be protected in Multiple-Use Class L through the designation of routes. A fourth tool used in the CDCA Plan is designation of Special Areas (SA). This allows highlighting habitats and species known to be important for special consideration of projects in the environmental assessment process. Desert tortoise: For a detailed discussion of the desert tortoise current management situation in NEMO, see Foreman (1998)

Bats: Bat management concerns in BLM management activities center primarily around mineral and energy production issues and the management of recreation use of cave resources. Bureau policy specific to bats is based on a Master Memorandum of Understanding between the BLM and Bat Conservation International. Signed on March 20, 1993, the MOU states the joint desire of BLM and BCI to "...cooperate fully with each other in matters relating to the inventory and monitoring of key bat habitats, education, research and management improvement of bat habitats through development and maintenance activities on BLM lands." The Master MOU has resulted in specific Washington Office guidance to field offices regarding "Use of Caves Important to Bats" and "Closure of Abandoned Mines and Preservation of Bat Habitat." Instruction Memorandum No.1 93-291 states that "...State Directors should ensure that sufficient expertise is developed in each State to evaluate effects of BLM management policies and activities on bats."

In general, BLM policy requires an inventory of mines proposed for renewed mining prior to initiating mining activity. The policy also requires minimization of impacts to bat roosts and foraging habitat; and where impacts to bats are determined likely as the result of an authorized mining action, humane treatment and elimination of bat occupancy/entry into the subject mine. In areas where no active mining occurs, bats are occasionally documented in specific mine shafts and/or adits, but these bat family groups or colonies are often at risk due to human visitation disturbance and vandalism impacts. Many bat species will abandon maternity, hibernation, and/or day roosts with a single inappropriate human visitation.

Very little formalized bat inventory has occurred on public lands within the planning area. Bat use of a specific mine is occasionally documented during field visits to complete NEPA analysis on mining actions, but there is seldom adequate time to conduct appropriate surveys and/or develop meaningful mitigation unless the proposed mining action is located in a MUC L designated area. The existing MUC M designation allows locatable mining actions to be conducted under a Notice of Proposed Action. Under Code of Federal Regulations (CFR) 3809 mining notice provisions, BLM has 15 days to review the proposed mining activity and take any actions necessary to stop or modify the proposed action. When there are known special status wildlife species in an area, site surveys are necessary to evaluate the proposed action. Due to mandated time constraints, it is seldom possible to schedule and conduct the necessary inventories, recommend meaningful mitigation, and prepare supporting report documentation in the time allowed. Additionally, many special status species, like bats, have a limited time of year when adequate inventories can be conducted. When bats are documented to occur in a specific mine or

group of mines through NEPA analysis of mining actions, mitigation that is designed to secure replacement bat habitat for the habitat to be lost to mining, seldom occurs.

Desert Bighorn Sheep: Management plans for this species in southwestern deserts commonly have defined mountain sheep populations on the basis of their geographic location, usually a single mountain range (Bureau of Land Management 1986). Movement corridors and the ranges/areas in which bighorn sheep occur have been defined in the CDCA Plan.

The BLM developed the "Rangewide Plan for Managing Habitat of the Desert Bighorn Sheep on Public Lands" (1986) in which the goal was to "facilitate recovery of desert bighorn sheep in the Southwest through a balanced program of inventory, on-the-ground projects, monitoring, and research." Also the "Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska" (1995) was developed with the goal of "providing habitat of sufficient quantity and quality to sustain optimum populations and a natural abundance of wildlife on public lands..." CDFG in cooperation with BLM is preparing "metapopulation" plans for various regions of the desert. These will set population and habitat goals and prescribe management actions.

Vegetation

Vegetation, especially in the riparian areas, is affected by visitor use and authorized activities, such as mining, livestock grazing, wild horses and burros and wildlife development. These activities will continue to affect vegetation, as will wildfire. Recreation use is mostly controlled through route designations, which limit OHV access to critical sites. Except for mining notices, all proposed activities receive a NEPA review that includes field checks for special status plants and UPAs. The NEPA review includes the development of expected impacts and recommended mitigation. Minerals actions conducted on MUC class M or Class I lands under a Notice of Proposed Action receive minimal review under NEPA and do not need authorization. The minerals operator may proceed after 15 days from the filing of the notice. This does not allow adequate time to mitigate general impacts to vegetation.

The CDCA Plan identified a number of unusual plant assemblages (UPAs) and established goals to preserve their habitat and ensure the continued existence of the plant assemblage. These UPAs include areas which are unique in the desert because of size, unusual age, areas associated with water (like riparian forests, mesquite bosques and marshes) and other unique vegetation areas. The CDCA Plan states that all UPAs will be taken into account when conducting site specific NEPA analyses. The CDCA Plan also identified the need to conduct inventory to identify additional UPAs.

Special Status Plants: It is BLM’s policy to carry out management, consistent with the principles of multiple use, for the conservation of Special Status Plant Species and their habitats and will ensure that actions authorized, funded, or carried out do not contribute to the need to federally list any of the species as threatened or endangered. Potential projects, which could impact special status plant species, will normally be reviewed through the

NEPA process. If potential impacts are found the impact is avoided by modifying the project to avoid special status plants and their habitats. For MUC class M lands for small (under five acres) mining projects that can be filed under a notice, the fifteen-day review period may be insufficient to conduct record searches and field inventories and recommend mitigation measures.

Noxious Weeds: The BLM has been actively eradicating noxious weeds for a number of years. In the CDCA, much of the effort has been aimed at the eradication of salt cedar, which invades and damages riparian areas. The interest in weed management has been increasing in recent years. In February, President Clinton signed an executive order to address noxious weeds. In addition the BLM has issued several policy statements relating to noxious weeds. Most relate to detection and reducing mechanisms that spread weeds. These include: 1) the use of native seed that is certified weed free, 2) the use of weed-free mulch, 3) the requiring of weed-free hay on BLM lands (as it becomes available) and 4) the need to inventory for and report locations and acres of noxious weeds.

Water

A large number of water sources exist within the NEMO planning area. Known surface water sources in the northwestern portion of the NEMO planning area include numerous streams, springs, seeps, and a lake. Most of the mountain ranges in the northwestern area reach over 10,000 feet elevation and have numerous steep canyons that support streams. These include the Middle Park, Pleasant, Happy, Surprise, Hall, Jail and Tubor Canyons in the Panamint mountains, Thompson Canyon in the Argus Range, Craig, Hunter, Beverage, Keynot, Mc Elvoy, Pat Keys and Willow Creek Canyons in the Inyo Mountains and Weyman, Cottonwood, Toler, McAfee and Perry Akin Canyons in the White Mountains. Weyman, Cottonwood, McAfee and Perry Akin creeks all support trout fisheries and are diverted near their mouth for irrigation. Cottonwood Creek alone supplies most of the water for 1,600 acres of alfalfa (nearly 10,000 acre feet from April to November). Several large springs occur on private land in Deep Springs Valley. One, Corral Spring, has a very large flow and is one of the major sources of water for Deep Springs Lake, which covers nearly 2,000 acres, and an associated wetland. Numerous additional springs and seeps are scattered throughout the northwest portion of the planning area. Other significant water sources include the Amargosa River, Willow Creek, Grimshaw Lake, Salt Creek and Tecopa Hot Springs.

Groundwater is found underneath most of the NEMO planning area and varies greatly in depth and quality. The many groundwater basins within the NEMO planning area are recharged from surface and subsurface infiltration. Depletion of groundwater basins and diminishment of water quality are some of the concerns with this resource. Groundwater is the principle source within the NEMO planning area for desert springs, seeps, and streams. Maintenance of the groundwater' s quality and quantity is critical to the survival of desert surface waters and their associated plant and animal life.

Cultural Resources

Processes for managing and evaluating cultural resources are defined in several pieces of legislation, most notably the National Historic Preservation Act (NHPA) of 1966 (as amended). The NHPA established requirements for considering the effects of agency actions on cultural resources, proactive management of cultural resources because of their importance to the nation, and consultation with other agencies or interested parties regarding their management. The BLM has a programmatic agreement with the State Historic Preservation Officer regarding implementation of the NHPA. Significant resources are nominated to the National Register of Historic Places (NRHP) as funding and other resources permit. Determinations as to whether cultural resources are eligible for listing on the National Register are usually made on a site-by-site, ad hoc basis. Inventory and recordation primarily occur when required because of a proposed action. Additional guidelines for management of cultural resources are included in the CDCA Plan, including MUC guidelines. Certain mining activities, which can affect cultural resources, may occur 15 days after a Notice of Intent is filed, subject to resource protection measures identified within that time frame. Site-specific management for significant cultural resources is provided in ACEC management plans, where applicable.

Cultural resources at all of the very high and high sensitivity cultural sites in MUC "I" and "M" are subject to potential effect from mining actions under CFR 3809 following a 15-day period after filing of a Notice of Intent. Within this 15-day time frame the following activities may need to occur: inventory, evaluation, and identification of avoidance and/or recovery strategies for these sensitive resources. Consultations with Native Americans and with the State Office of Historic Preservation must also occur within the 15-day time period. When significant resources are identified within the 15-day period, consultation and avoidance strategies or other mitigation are identified and additional delays could occur until these evaluations are completed. However there is a high risk from inadvertent damage or destruction of such resources if they can not be identified within the 15-day time frame. Because of the low level of existing inventory data it is not possible to fully measure the potential loss of cultural, traditional, and public values in these areas from proposed actions unless these predisturbance surveys can be performed. This impact is generally irreversible and irretrievable.

Mining activity may also attract or facilitate other activities into an area if the mining activity results in improved access. Other activity attracted into the area or facilitated by it may increase the level of impacts to cultural resources in the area. The known sensitive cultural resources that need to be evaluated include historic mining complexes that may be or are known to be historically valuable and/or are popular sites for public visitation and offer excellent interpretive/heritage tourism opportunities. They also include prehistoric sites of a unique, unusual, or scientifically significant nature, or that hold sacred or cultural value to Native Americans such as rock alignments, sites at which stone was quarried for tool manufacture, or habitation sites with subsurface deposits. The CDCA Plan called for these high sensitivity areas to be adequately inventoried. Due to resource limitations less than 10% of the areas has been inventoried to date.

Minerals

Mineral Resource Management: Federal regulations recognize three methods for disposing minerals from the public lands. Saleable minerals are those mineral materials that are disposed via a sales contract (common stone, gravel, fill dirt, etc.). Such materials are also permitted to public agencies via a Free Use Permit. Leasable minerals are those minerals for which the government receives a fixed percentage of their sales price (a royalty) under the terms of a lease. Leasable minerals include oil & gas, geothermal production, coal, sodium and potassium minerals. Locatable minerals are those minerals for which one can locate a mining claim under the General Mining Law of 1872, including gold, silver, talc, etc.. In general, public lands are open to mineral exploration and development except where specifically closed or withdrawn from the public land laws.

Mineral Material Disposals (Sales & Permits): A BLM Field Manager may dispose of mineral materials upon receipt of a written request or upon his/her own initiative. These disposals include Sale Contracts, Free Use Permits (to public agencies or non-profit organizations) and Community Pits (for sales to the general public). A written request includes a mining plan that describes how the material will be removed and how the site will be reclaimed.

The Field Office staff then prepares an environmental document as required by the National Environmental Protection Act (NEPA); this generally means a Categorical Exclusion, Environmental Assessment or Environmental Impact Statement, as appropriate. At a minimum, these environmental documents generally include consideration of and mitigation measures for cultural resources and threatened and endangered species. If/when the request is approved, the contract or permit is written to include appropriate mitigation measures and reclamation standards. Performance bonds are required for sale contracts of $2000 or greater.

No mineral material disposals are issued in Wilderness or Wilderness Study Areas. Mineral materials may be disposed of in lands classified as "I", "M" or "L" in the California Desert Conservation Area Plan. An Environmental Assessment, rather than a Categorical Exclusion, is prepared for new cases affecting 5+ acres of Class L land (MUC Guidelines, CDCA Plan).

Mineral Leases: Mineral leases are generally issued by the California State Office rather than by a Field Manager. However, the lessee must submit an appropriate "Notice" or Application to the Field Manager prior to conducting operations on the lease. The Field Office staff then analyzes the proposed action and prepares an environmental document as required by NEPA (a Categorical Exclusion, Environmental Assessment or Environmental Impact Statement, as appropriate). At a minimum, such analysis includes consideration of threatened and endangered species and cultural resources. Other issues (e.g., underground aquifers, road standards, etc.) are also considered as appropriate. The field manager includes reclamation measures and mitigation measures in any authorization of the proposed action.

No mineral leases are issued in Wilderness or Wilderness Study Areas. However, if an area containing a valid lease is absorbed by the National Wilderness Preservation System, the leaseholder is accorded the rights granted under the terms of that lease. No such leases are included in any Wilderness or Wilderness Study Area in the NEMO planning area. Mineral leases can be issued in lands classified as L, M or I by the California Desert Conservation Area Plan. An environmental document, as per NEPA guidelines, is prepared when the Field Manager receives an Application/Notice for lease-related operations in Class L, M or I lands; a 60-day public comment period is provided for lease-related Environmental Assessments in Class L lands (MUC Guidelines, CDCA Plan).

Locatable Minerals (Mining Claims): The Location Notice for any mining claim must be filed and registered both with the county recorder of the appropriate county and the BLM State Office in Sacramento, California. In general, a valid mining claim is one which is properly located, registered, and contains a discovery of a valuable mineral deposit. A valuable mineral deposit is one that is shown to be economically valuable or can be worked as a paying mine (Maley, 1985). An operator has the responsibility to prevent unnecessary and undue degradation of Federal lands resulting from operations authorized by the mining laws. The regulations for avoiding unnecessary or undue degradation to the public lands are contained in 43 CFR 3809.

The Code of Federal Regulations recognizes three levels of Mining Law-related operations on public lands. Casual use operations are those activities that ordinarily result in only negligible disturbance of public lands and resources (gold panning, metal detecting, etc.). No approval or notification is needed for casual use activities on public lands. Activities are not considered casual use if they involve using explosives, mechanized earth-moving equipment, or motorized vehicles in an area designated as closed to off-road vehicles.

In the California Desert District, an operator must file a "Notice" prior to initiating operations that disturb 5 acres or less in Class M and I lands. Among other things, the Notice must describe the project, the reclamation measures and must be received by the Field Manager at least 15 days prior to commencing operations. Approval of a Notice by the Field Manager is not required, and properly filed Notices constitute authorization for off-road vehicle use. Notice-type operations are required to comply with all pertinent state and federal laws, including the California Surface Mining And Reclamation Act (SMARA), threatened and endangered species protection, and cultural resource protection. Existing programmatic agreements are in place for many small mining actions.

The BLM does not accept Notices for non-casual use activities in Class L land, Areas of Critical Environmental Concern, Wilderness and Wilderness Study Areas. An operator must file a Plan of Operations for any operation in these areas or which exceeds 5 acres of Class "M" or "I" lands. Among other things, a Plan of Operations must describe when, where, how and what type of operation is to be conducted and what measures will be taken to reclaim disturbed areas. The Field Office staff is required to promptly prepare an Environmental Assessment for any Plan of Operations.

Any such Environmental Assessment must include consideration for any cultural elements that may be affected, including as appropriate cultural resources and threatened and endangered species. The Field Manager cannot approve a Plan of Operations if the BLM has need to comply with section 106 of the National Historic Preservation Act or Section 7 of the Endangered Species Act. An operator must also post a financial guarantee sufficient to cover 100% of the cost of reclamation, prior to conducting operations under a Plan of Operations. This financial guarantee must either be certified by a California-registered engineer, or accepted by a state agency but in no case, can the guarantee be less than $2000/acre.

Wilderness Study Areas: Federal Regulations allow mining claim location, prospecting, and mining operations in Wilderness Study Areas (43 CFR 3802), but only in a manner that will not impair the suitability of the area for inclusion in the wilderness system. An approved Plan of Operations is required for operations within lands under wilderness review. The Field Manager acknowledges and reviews a Plan of Operations to determine if the proposed operations impair the suitability of the project area for preservation as wilderness. He/she may approve the Plan subject to mitigating measures that prevent impairment of the suitability of the area for wilderness, or notifies the operator why the Plan is not acceptable. No Plans of Operation are on file for any of the Wilderness Study Areas in the NEMO Planning Area.

Wilderness: New mining claims cannot be located in a designated wilderness area. However, a designated wilderness occasionally includes mining claims that were located prior to the date the area was included in the National Wilderness Preservation System. Federal regulations (43 CFR 8560.4-6) state that no mining operations shall be conducted on BLM-administered wilderness areas without an approved Plan of Operations as per 43 CFR 3809.

As stated above, current regulations require a Plan of Operations to include a reclamation bond as required by state and federal statutes; the bond amount must cover the cost of reclaiming the land in such a way as to prevent the impairment of their wilderness character (43 CFR 8560.4-6(h)). A Field Manager cannot approve this Plan of Operations unless or until a BLM mineral examiner completes a Validity Examination of the unpatented mining claim. As stated above, an unpatented mining claim is valid if that claim contains a discovery mineral deposit that might reasonably be developed into a paying mine; the claim is invalid if it does not contain such a discovery.

Motor Vehicle Access Management

The BLM manages motor vehicle access in the California desert consistent with FLPMA, Executive Order (EO) 11644, EO11989, Title 43 of the Code of Federal Regulations (CFR) 8340 et seq., and the CDCA Plan, as amended in 1982 and 1985. The increased popularity and widespread use of off-highway vehicles on federal lands in the 1960's and early 1970's prompted the development of a unified policy for such use. Executive Order 11644 ("Use of Off-Road Vehicles on the Public Lands") was issued on February 9, 1972 (87 FR 2877),

to establish these policies. It provided for procedures to control and direct the use of OHV's on federal lands so as to

(1) protect the resources of those lands;
(2) promote the safety of all users of those lands; and
(3) minimize conflicts among the various uses of those lands.

The order directs the agency heads responsible for managing the federal lands to issue regulations governing the designation of areas where OHV's may and may not be used. Under the order, OHV use can be restricted or prohibited to minimize:

(1) damage to the soil, watersheds, vegetation, or other resources of the federal lands;
(2) harm to wildlife or wildlife habitats; and
(3) conflicts between the use of OHVs and other types of recreation.

It also requires the federal agencies to issue OHV use regulations, inform the public of the lands' designation for OHV use through signs and maps, enforce OHV use regulations, and monitor the effects of OHV use on the land.

Executive Order 11989 ("Off-Road Vehicles on Public Lands") was issued on May 24, 1977 (42 FR 26959), and contains three amendments to the previous order. While these amendments lift restrictions on the use of military and emergency vehicles on public lands during emergencies, they otherwise strengthen protection of the lands by authorizing agency heads to:

(1) close areas or trailsto OHVs causing considerable adverse effects; and
(2) designate lands as closed to OHVs unless the lands or trails are specifically designated as open to them.

The BLM developed regulations (43 CFR 8340) in response to the executive orders. These regulations require the agency to designate areas where OHVs may be used and to manage the use of OHVs on public lands through the resource management planning process, which allows for public participation. The regulations also require the BLM to monitor the use of OHVs, identify any adverse effects of their use, and take appropriate steps to counteract such effects.

In 1980, the BLM addressed designation of areas where OHVs may be used and management of their use for the California desert in the CDCA Plan, Motor Vehicle Access Element. In the CDCA Plan, different levels of access were provided for both areas and specific routes in the desert. Areas could be "open", "closed", or "limited". Generally "open" areas are open to vehicle use throughout the area and "closed" areas are closed to vehicle use throughout the area. There are exceptions for both of these areas and these are further defined in the CDCA Plan and in other referenced legislation and regulation.

Within "limited" areas, specific route designations are to be made, and at a minimum, use will be restricted to existing routes of travel. Routes are to be designated "open", "closed", or "limited", and the guidelines are established based on Multiple-use class. Within MUC I, unless it is determined that further limitations are necessary, those areas not "open" will

be limited to use of existing routes. Within MUC M, access will be on existing routes, unless it is determined that use on specific routes must be limited further. Within MUC L, due to higher levels of resource sensitivity, vehicle access will be directed toward use of approved routes of travel. Approved routes will include primary access routes intended for regular use and for linking desert attractions for the general public as well as secondary access routes intended to meet specific user needs. Routes not approved for vehicle access will be reviewed and, after opportunity for public comment, those routes deemed to conflict with management objectives or to cause unacceptable resource damage will be given priority for closure through obliteration, barricading, or signing. (CDCA Plan, Amendment #3, 1982).

Livestock Grazing

Livestock grazing is primarily authorized under the Taylor Grazing Act as amended (43 U.S.C. 315, 315a through 315r). Additional authorities include the Federal Land Policy and Management Act of 1976, the Public Rangeland Improvement Act, several executive orders and public land orders. In addition, numerous land laws including the National Environmental Policy Act and the Endangered Species Act apply to the administration of grazing on the public lands. Grazing regulations are found in 43 CFR part 4100. The process to allocate grazing use involves a number of steps including the classification of an area as suitable for grazing, an adjudication process to determine who is eligible to graze, the determination of allocations, numbers of livestock, class of livestock (sheep, cattle and/or horses) and seasons of use. For the most part grazing use predates the Taylor Grazing Act (1934) and grazing use has been authorized under those provisions since the mid 1930s. The CDCA Plan readdressed all of these issues except for the adjudication of eligibility. In addition, it addressed additional prescriptions for grazing including monitoring needs, needs for allotment management plans (AMPs) and mitigation for resource conflicts such as sensitive wildlife species.

If an operator chooses to make less use than his full allocation he may apply for non-use (such as for droughts or other environmental reasons). If the non-use is for personal reasons (such as personal economic reasons) BLM may temporarily authorize another qualified applicant to graze the amount of authorized non-use. If an authorized operator chooses to give up his grazing authorization any qualified person may apply for the unused allocation.

All of the CDCA Plan prescriptions (including AUM allocations, seasons of use, area of use, restrictions due to resource conflicts and the need for AMPs) were issued to all of the operators as decisions in the early 1980s and have been incorporated into the grazing leases/permits. Many of the high priority allotments now have AMPs which include monitoring plans, grazing management systems and proposed range improvements to implement the AMPs. Rangeland Reform resulted in the development of a new set of Fundamentals of Rangeland Health and National Standards and Guidelines for Grazing Administration (43 CFR 4180.1-2). Currently all of the allotments are being assessed as to compliance with the Standards. Allotments that do not meet Standards due to livestock

grazing will have specific actions developed to remedy the situation that could include negative decisions being issued to the operator.

Wild Horse & Burro

Wild horses and burros are protected by the federal Wild Free-Roaming Horse and Burro Act of December 15, 1971 (16 U.S.C. 1331-1340), as amended. Implementation regulations are found in 43 CFR Part 4700. Under the act, Congress declared that wild horses and burros are protected and are an integral part of the public land resources. BLM is required to achieve and maintain population levels, which ensure an ecological balance. The areas where horses and burros were known to exist at the time of the passage of the Wild Free-Roaming Horse and Burro Act are known as Herd Areas (HAs) and provide the upper limit of potential management areas for these animals. The CDCA Plan called these areas Herd Management Areas (HMAs). It also identified concentration areas where wild horses and burros tend to concentrate based on several factors, including water, vegetation and terrain. These areas were evaluated by the CDCA Plan for available AUMs. It also recommended management number of wild horses and burros within these units. The CDCA Plan used this information to identify retention areas, where these animals are to be managed, and prescribed population levels.

BLM currently manages wild horses and burros under existing CDCA Plan and HMA Plans, where developed. Appropriate management levels (AMLs), a single number which is the upper level of an established population range, were set in the plans based on available forage and water, and other resource needs or conflicts. Since the late 1970s, many animals have been removed and placed into the BLM's National Wild Horse and Burro Adoption Program. As a result, populations have been decreased substantially since the censuses taken in the early 1970's and at the time of CDCA Plan, Several HMAs still have an excess of animals, while others no longer have herds due to changes of population dynamics of the herds.

There are no fences between BLM administered lands, most private lands, and NPS lands (Mojave National Preserve and Death Valley National Park), so there is some migration between these lands. In order to minimize migration, activities may include, but are not limited to, continuing to reduce herds where established populations exceed appropriate levels and placing them into the BLM's adoption program, moving herd management areas, erecting fencing, and/or providing additional improvements such as water sources on public lands. BLM coordinates removal of unwanted wild horses and burros from NPS land on a case-by-case basis, as requested.

WILD HORSE AND BURRO DISTRIBUTION POPULATIONS					
Herd Area - Herd Management Area	**HMA Target Population Levels**		**Existing Population Census**		**Acreage**
	Horses	**Burros**	**Horses**	**Burros**	
Waucoba - Hunter Mountain HMA	0	357	0	137	93,833
Lee Flat HMA	0	30	0	15	88,523
Panamint HA	0	0	0	106	214,450
Centennial HMA	168	0	311	150	1,023,384
Slate Range HA	0	0	0	86	492,020
Sand Springs/Last Chance HA	0	0	0	15	43,569
Piper Mountain HMA	17	82	63	0	97,435
Chicago Valley HMA	28	28	4	4	314,377
Clark Mountain HMA	0	44	0	305	233,407
Dead Mountain HMA	0	0	0	16	42,757
TOTALS	**45**	**234**	**74**	**602**	**2,643,755**

SUMMARY

This appendix has documented current policies affecting the primary resources and uses in the NEMO Planning Area. Additional information on the existing situation including resources that are specifically affected by alternatives proposed in this planning effort are discussed in Chapter 3: Affected Environment. In addition, a separate current desert tortoise management situation is available at BLM field offices with jurisdiction in the NEMO Planning Area as well as the California Desert District Office in Riverside, California.

Appendix L

Planning Criteria for the NEMO Planning Effort

The planning criteria for the NEMO planning effort include the following:

- Comply with applicable laws, Executive Orders, regulations;
- Define the planning area as public lands within the Northern and Eastern Mojave planning area boundary, and the study area as all lands within and immediately adjacent to the planning area;
- Consider all proposals in the context of their consistency with standards and guidelines;
- Develop and implement actions in all alternatives to accomplish the goals and overall objectives of USFWS recovery plans for listed species, to assist in the recovery and delisting of those species as feasible;
- Consider strategies for threatened and endangered species management to make it easier, more efficient, and more cost-effective for public land users to obtain activity and use;
- Conform desert tortoise category boundaries to the proposed Wildlife Management area boundaries. Category I lands are within recovery areas; Category III lands are outside of recovery areas. The USFWS will revise Recovery Unit boundaries and critical habitat designations in the planning area to be consistent with the selected desert tortoise alternative if other than no action;
- Address lands which have been released from wilderness review and are being assigned a multiple-use class as follows: (1) where they form small areas of less than 500 acres they will be addressed by plan maintenance to be consistent with adjacent lands. (2) those over 500 acres will be addressed by plan amendment on a case-by-case basis;
- Rely on available inventories and existing resource data in the planning area, as well as ongoing data being collected as part of the range assessment process when available, to reach sound management decisions.
- Designate routes at a minimum in desert tortoise critical habitat and also in the proposed desert tortoise Wildlife Management area (i.e., proposed Category I desert tortoise habitat).

APPENDIX M: CALIFORNIA DESERT CONSERVATION AREA PLAN MAINTENANCE ACTIONS RESULTING FROM THE CALIFORNIA DESERT PROTECTION ACT

SUMMARY OF CHANGES RESULTING FROM CDPA OF 1994

CHANGE	LOCATION	REASON	ASSOCIATED NEMO AMENDMENTS
Dinosaur Trackway ACEC Expansion	Mountain Pass Area	Boundaries modified by Congress	Plan Clarification only. Language in the CDCA Plan will be corrected to reflect currently accurate acreage and closure to mineral entry per CDPA. State lands may be acquired. No other management direction change identified.
Designation of BLM wilderness	19 Wilderness Areas partially or entirely in the planning area	Boundaries set by Congress.	Plan Clarification only. Language in the CDCA Plan will be updated to reflect class C lands as designated wilderness areas rather than BLM-recommended wilderness and will be closed to motor vehicle use in accordance with the CDCA Plan, as amended and 8342.1(d), consistent with the California Desert Protection Act.
Modification of guidance for remaining designated wilderness study areas and lands not released from wilderness review	1 Wilderness Study Area 5 Areas Not Released	Congress withdrew most areas from the land laws	Plan Clarification only. Language in the CDCA Plan will be corrected to reflect appropriate guidance for WSA and remaining areas not released from wilderness review.
Determine Multiple Use Class for Congressionally released wilderness study areas	41 Released Areas totaling 468,300 acres	Areas released by Congress.	Yes. Lands interim MUC L (limited) at this time. CDCA Plan calls for plan amendment to determine permanent MUC.
Elimination of Areas of Critical Environmental Concern	Soda Lake ACEC Fort Piute/Piute Creek ACEC 4,175 New York Mountains ACEC 54,750 Eureka Dunes ACEC Dedeckera ACEC Darwin Falls ACEC Panamint Dunes ACEC Granite Mountains Research Natural Area ACEC Cima Dome National Natural Landmark ACEC Kelso Dunes National Natural Landmark ACEC Little Sand Spring ACEC Cinder Cones National Natural Landmark ACEC	Lands no longer under BLM jurisdiction-Transferred to NPS.	Plan Clarification only.
Modification of Areas of Critical Environmental Concern	Greenwater Canyon ACEC Clark Mountains ACEC Cerro Gordo ACEC Saline Valley ACEC Surprise Canyon ACEC	Transferred to NPS.	Yes. Remaining public lands in ACECs substantially reduced in size were evaluated for deletion modification, or retention.
Elimination of Special Areas	East Mojave National Scenic Area	Transferred to NPS.	Plan Clarification only.

CHANGE	LOCATION	REASON	ASSOCIATED NEMO AMENDMENTS
Modification of Special Areas	Last Chance Canyon National Historic Site	Transferred to NPS.	Plan Clarification only.
Elimination of Herd Management Areas for management of wild horses and burros	Lave Beds HMA Cima Dome HMA Granite/Providence HMA Woods-Hackberry HMA	Transferred to NPS.	Plan Clarification only.
Modification of Herd Management Areas for management of wild horses and burros	Waucoba-Hunter Mountain HMA Lee Flat HMA Panamint HMA Centennial HMA Slate Range HMA Sand Springs/Last Chance HMA Piper Mountain HMA Chicago Valley HMA Clark Mountain HMA 41,260 Dead Mountains HMA	Transferred to NPS.	Yes. HMAs substantially reduced in size in desert tortoise habitat and/or adjacent to NPS lands were evaluated for deletion, change in area, and/or additional management strategies.
Elimination of grazing allotments	Colton Hills Allotment Gold Valley Allotment Round Valley Allotment	Transferred to NPS.	Plan Clarification only. Leases and case files have been transferred to NPS for administration.
Modification of grazing allotments	Last Chance Allotment Hunter Mountain Allotment Lacey-Cactus-McCloud Allotment Eureka Valley Allotment Valley View Allotment Valley Wells Allotment Clark Mountain Allotment Kessler Springs Allotment Piute Valley Allotment Crescent Peak Allotment	Transferred to NPS.	Yes. Rangelands substantially reduced in size in desert tortoise habitat and/or adjacent to NPS lands with grazing were evaluated for retirement, change in area, and/or additional management strategies.
Elimination of NEMO portion of Barstow to Vegas race course	From Alvord Road northeast of Barstow heading northeast, weaving back and forth across and roughly parallel to I-15, to just over the state line in NV.	A portion of corridor transferred to NPS, a portion of corridor critical desert tortoise habitat	Yes. Any changes would also affect lands in the West Mojave planning area, so proposed amendment would not be finally decided until consideration in the WEMO planning process as well. Dualsport events currently considered on designated open routes on public lands. Corridor discussed in terms of recommendations for its future in Chapter 2.
Modification of the I-15 and I-40 utility corridors	Along I-15 and I-40 where the Mojave National Preserve is adjacent to (within 2 miles) of the freeways - approximately 45 miles.	Transferred to NPS.	Plan Clarification only. Corridors were essentially narrowed by half, to 2 miles wide. It is unclear at this time whether additional corridor width will be needed to serve future demand.

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Appendix N

LAND TENURE STRATEGY FOR THE NEMO PLANNING AREA

1.0 LAND TENURE STRATEGY

How can areas of checkerboard land ownership that create habitat fragmentation be addressed? How can BLM acquire critical lands in Inyo County and address county concerns about their limited tax base? A strategy is proposed to answer these and other issues raised during the planning effort. Significant changes in land ownership patterns and management have occurred and are continuing in the planning area. A strategy of the future of public lands in the planning area is needed to complement other NEMO strategies and to identify issues and areas of concern.

2.0 LAND TENURE

This section describes the overall land tenure strategy in the NEMO Planning Area consisting of priorities and identification of areas for land acquisition and disposal.
These land acquisition and disposal actions are discussed in Chapter 4 in the context of cumulative impacts affecting the NEMO Plan area. All future implementing actions (exchanges, sales, purchases, donation) will be subject to site specific environmental analysis and public review.

2.1 MAJOR LAND TENURE ACTIONS AFFECTING THE PLANNING AREA

2.1.1 Acquisition of State of California Lands in Designated Wilderness

Land exchanges are underway to implement the provisions of the California Desert Protection Act. The CDPA requires the Secretary of the Interior to enter into an agreement with the State Lands Commission (SLC) to acquire their holdings within wilderness areas. Approximately 58,000 acres of SLC lands are involved in 16 of the 21 wilderness areas in the NEMO Planning Area.

2.1.2 Wildlands-Catellus Agreement

A January 1999 Letter of Intent between The Wildlands Conservancy, Catellus Development Corporation, and BLM California identified approximately 437,000 acres of Catellus properties throughout the CDCA to be purchased by a combination of Wildlands Conservancy funds and appropriations from the Land and Water Conservation Fund (LWCF). Congress approved fifty percent of the needed LWCF appropriations in FY 2000. The purchased land would be conveyed to the BLM and National Park Service. The lands proposed for conveyance are located within wilderness, desert tortoise critical habitat units, and recreation areas. BLM has since accepted title to approximately 103,000 acres of former Catellus lands within the NEMO

Planning Area, substantially completing the Wildlands Conservancy-Catellus exchanges in the Planning Area. These recently acquired lands are concentrated in the southern portion of the NEMO Planning Area and resulted in a significant consolidation of public lands administered by BLM, particularly in the Piute-Fenner Desert Wildlife Management Area.

2.1.3 Timbisha-Shoshone Land Transfer Study

The CDPA requires the Secretary of the Interior to conduct a study to identify lands suitable for a reservation for the Timbisha-Shoshone Tribe. One of the areas under consideration in the NEMO Planning Area consists of approximately 1,000 acres of public lands near the community of Death Valley Junction in Inyo County. The NEMO plan does not address a land tenure proposal or alternatives related to a potential transfer of public lands to the Timbisha-Shoshone Tribe. Transfer of lands to the Tribe would be by Congressional action and a separate legislative EIS is in preparation.

2.1.4 Fort Irwin Expansion

The U.S. Army first proposed a 250,000-acre southward expansion of the National Training Center (NTC) at Fort Irwin, California in 1985. This proposal included approximately 32,000 acres in the NEMO Planning Area east of the current NTC. In 1993, the U.S. Fish and Wildlife Service issued a draft jeopardy biological opinion for the desert tortoise on the Army proposal.

The Army revised the expansion proposal to an eastern configuration including an expansion of 331,000 acres into the Silurian Valley area. This proposed expansion affected approximately 273,000 acres within the NEMO Planning Area. The January 1997 release of a Draft Environmental Impact Statement on the proposed eastern expansion generated significant opposition from a wide cross-section of desert users and constituencies. In April 1999 the Army proposed a new 175,000-acre expansion consisting of elements from both the southern and the eastern expansions. The current Army proposed expansion affects approximately 25,000 acres in the NEMO Planning Area east of the current NTC.

If an expansion of the NTC were to be approved by Congress, the affect to the NEMO Planning Area could range from a minimum of 25,000 acres, to a maximum of 273,000 acres.

3.0 NEMO LAND TENURE STRATEGY

In acquisition areas, current public lands will be retained, and non-Federal lands will be acquired through exchange, purchase or donation. All acquisitions made by BLM will occur on a voluntary basis with willing property owners. The BLM will not acquire non-Federal lands through eminent domain or over the objection of property owners.

3.1 Desert Tortoise Conservation and Recovery

Public ownership of lands currently ranges from 80% to 94 % in desert wildlife management areas. Under the land tenure strategy, all desert tortoise habitat within the DWMAs would be a

high priority for land acquisition in the NEMO Planning Area. Depending upon final boundaries the acreage of acquisitions could be as much as the following:

Table N-1

Wildlife Management Area Unit	Private/State acres	Percent of Private/State Acreage
Piute-Fenner Valley	34,800	20%
Ivanpah Valley	2,240	6%
Northern Ivanpah Valley	1,750	6%
Shadow Valley	6,080	6%

3.1.1 Amargosa Vole Conservation and Recovery

Approximately 1,600 acres (35%) of critical habitat is private lands. About 500 acres are in the developed areas of Tecopa Hot Springs and Tecopa, which are not suitable habitat and will not be pursued for acquisition by BLM. In 1990, the BLM acquired approximately 380 acres on the current critical habitat area for the Amargosa vole.

In addition, other riparian and wetland habitat in the Amargosa River system that can support Amargosa vole and is proposed for conservation is approximately 92 percent public land. Under the land tenure strategy, all currently suitable and potentially restorable vole habitat within identified wildlife management areas would be a high priority for land acquisition in the NEMO Planning Area. Depending upon final boundaries, total acquisition areas could include the following: Central Amargosa Valley - 2,040 ac in six parcels; and North of Grimshaw Lake- 600 ac in one parcel.

3.1.2 Wilderness Areas

Consistent with requirements of the CDPA, the NEMO Plan goal is the acquisition of all non-Federal lands in the 24 designated wilderness areas that are entirely or partially within the NEMO Planning Area (Chapter 7, Figure 13a). Non-Federal land within these areas will be acquired by BLM either through on-going major land tenure actions discussed in this appendix or by individual acquisition actions.

3.1.3 Community Expansion

Public lands within identified disposal areas will be considered for conveyance out of Federal ownership for future private sector use and development and for necessary public purposes. Public lands within disposal areas would be conveyed by exchange or sale to support community growth and development and ensure maintenance of the private property tax base in the region.

Town of Baker (San Bernardino County)

The CDCA Plan identifies approximately 1,140 acres of public lands in and around the community of Baker as unclassified and available for future disposal out of Federal ownership.

Mesquite Valley (Inyo County)

The CDCA Plan identifies approximately 260 acres of public lands in Inyo County in the mesquite Valley as unclassified and available for future disposal. The public parcels are mixed with private lands in the area.

Community of Tecopa (Inyo County)

All public lands in and around the community of Tecopa are MUC L (limited) and not available for disposal. The preferred alternative for Amendment 5 (Amargosa vole) would reclassify 140 acres in Tecopa from MUC L to unclassified. These lands would then be available for disposal through exchange to facilitate acquisitions in the Amargosa River ACEC.

Stateline/Highway 127 (Inyo County)

All public lands in and around the Stateline area north of Death Valley Junction are currently MUC L and not available for disposal. The preferred alternative for Amendment 5 would reclassify 920 acres adjacent to private holdings from MUC L to unclassified. These lands would then be available for disposal through exchange to facilitate acquisitions in the Amargosa River ACEC.

Inyo County Landfills

Under the preferred alternatives for Amendments 13 and 14, the 29.4 acres encumbered by the Tecopa landfill and the 50 acres encumbered by the Shoshone landfill would be reclassified from MUC "L" (limited) to unclassified. Both sites would be subsequently conveyed to the County of Inyo under the Recreation and Public Purposes Act.

Appendix O

Wild and Scenic Rivers Eligibility Report For The Amargosa River

Introduction

This report presents the results of an eligibility study on potential additions to the National Wild and Scenic Rivers System for an identified riverine system in the Northern and Eastern Mojave Desert Management Planning Area. The one river considered potentially eligible for such designation within the planning area is the Amargosa River, originating near Beatty, Nevada and terminating in Death Valley National Park, California. This eligibility report evolved from the inventory and analysis that was conducted for consideration of alternatives to conserve and protect the Amargosa vole (refer to Chapter 2, Section 2.3) This report concludes with a discussion of management standards and guidelines applicable to rivers designated under the auspices of the National Wild and Scenic River Act.

Background

Federal agencies such as the Bureau of Land Management (BLM) have been mandated to evaluate potential additions to the National Wild and Scenic River System (NWSRS) per Section 5(d) of the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271-1287, *et seq*). Title 36 of the Code of Federal Regulations (CFR), Subpart 297, addresses management of Wild and Scenic Rivers. Title 43 CFR, Subpart 8350, specifically addresses designation of management areas. NWSRS study guidelines have also been published in Federal Register Volume 7, Number 173 (September 7, 1982), for public lands managed by the U.S. Departments of Agriculture and Interior. Additional guidance on wild and scenic rivers (WSR) is provided in BLM Manual 8351.

The NWSRS study process includes three regulatory steps:

1. Determination of what river(s) and/or river segment(s) are eligible for WSR designation;

2. Determination of eligible river(s) and/or segment(s) potential classification with respect to wild, scenic, recreational designation, or any combination thereof; and

3. Conducting a suitability study of eligible river(s) and/or segment(s) for inclusion into the NWSRS, via legislative action. An environmental impact statement (EIS) is commonly prepared to document the analysis needed for this suitability determination/WSR designation.

Any river or river segment on public lands found eligible for inclusion in the NWSRS is to be managed as if this river/segment were designated, until such time as a suitability determination is made. This requires management of public lands within 0.25 mile of the subject river/segment, to conform to management standards and guidelines presented in applicable Federal agency manuals for wild and scenic rivers until the suitability determination is completed.

If a river or river segment is found suitable for inclusion to the NWSRS, the U.S. Congress must then pass legislation so designating this river/segment, prior to its formal addition to the NWSRS. In addition to Federal agencies, private individuals and/or groups, as well as State governments, can nominate rivers and/or segments for inclusion.

Only the first two determinations, i.e., eligibility and classification, are documented in this report and the impacts evaluated in the attached NEMO Environmental Impact Statement. The remaining suitability determination would be completed in a separate document, and analyzed in an EIS format. The results of the suitability determination would amend the applicable land use plan, i.e., the California Desert Conservation Area (CDCA) Plan (BLM 1980, as amended).

To meet eligibility criteria for wild and scenic river designation, a river or segment must be free-flowing in nature and must possess one or more outstandingly remarkable cultural, fish/wildlife, geologic, historic, recreational or scenic values within its immediate proximity. Free-flowing, as defined in Section 16(b) of the WSRA, reflects water flowing in a natural condition without impoundment, diversion, straightening, or other modification of the waterway. However, the existence of low dams, diversion works, and other minor structures at the time of designation, does not necessarily bar consideration for inclusion on the NWSRS. Nor are there any minimum river or segment lengths necessary for inclusion. Congress has designated a riverine stretch as short as 4.25 miles. But considerations in defining study rivers and/or study river segments, should include land ownership patterns, physical changes in the river/segments and their environs, as well as the type and amount of human modification of lands bordering identified rivers/segments.

The term “outstandingly remarkable” is not clearly defined in the NWSRS, necessitating professional judgement by submitting parties. In general, the term is defined as a resource which is considered more than simply ordinary, in the context of the local region. Examples include areas supporting an “A” Scenic Quality Rating (BLM Manual 8400); habitats for threatened and/or endangered plants/animals; exemplary physiographical, ecological, geological or recreational type locations; and areas where little human modification is evident or where terrain is rugged and physically-challenging to traverse.

Description of River Under Consideration

The Amargosa River is the focal hydrologic system of the Northern and Eastern Mojave Desert (NEMO) Planning Area. The hydrologic systems of the southern Great Basin and

northern Mojave Desert are generally characterized by deep water tables. They are also considered primarily closed groundwater basins. One of only two large rivers in the Mojave Desert, the free-flowing Amargosa is largely subterranean. It begins its southerly, largely underground flow near Beatty, Nevada. A segment of the river 10 miles in length supports shallow, perennial water flow near in Oasis Valley in Nevada, but this "bitter water" river then generally flows in a sub-surface fashion as it bisects the remainder of the Amargosa Desert in Nevada. It flows adjacent to Stateline, Nevada and then southerly through the towns of Death Valley Junction, Shoshone, Hot Springs and Tecopa, in California. It crosses State Highway (SH) 127 and terminates in the lowest elevation area in the United States: Badwater Basin, within Death Valley National Park (DVNP).

Water runoff from the Bullfrog Hills, Yucca Mountain, Shoshone and Spring Mountains, in Nevada, all contribute to Amargosa River water flow in California. The latter Spring Mountain area is suspected to provide a substantial amount of this runoff contribution. The Lower Carson Slough tributary of the Amargosa serves as a primary drainage for a portion of Ash Meadows and the southern portion of the Amargosa Desert in Nevada. These watersheds contribute to a largely subterranean Amargosa River at Franklin Playa in California. Several mountain ranges and alluvial basins in California, particularly Eagle Mountain and the Resting Spring Mountain Range in the upper California reach of the river, the Nopah and Kingston Mountain Ranges, as well as California Valley, progressively add to central Amargosa River water flow. Major river tributaries include the aforementioned Lower Carson Slough in the northern reach of the river, China Ranch Wash in the central reach, and Salt Creek in the south.

The Amargosa flows extensively underground, surfacing perennially at only two areas in California (Shoshone-Hot Springs and Tecopa-Sperry). Ephemeral surface flows and salt flats are common in the Upper reaches of the Amargosa River. Shallow perennial water flow and clay-hole ponding are common in the Shoshone Segment of the river. Perennial ponding, as well as ephemeral mudflats, are common in the Grimshaw Reach of the river. A substantial perennial water flow begins in the Amargosa Canyon Segment, which continues through the Amargosa Canyon Area of Critical Environmental Concern and the Kingston Range Wilderness, to Sperry Siding. This historic railroad depot is located on the abandoned Tonopah & Tidewater Railroad (TNTRR). Between Sperry Siding and the eastern boundary of DVNP at SH 127, water flows over the years have alternated between intermittent and perennial flows, with ponding occurring in ephemeral years. Shallow, perennial flows beneath SH 127 have been recorded as the norm in recent years, following largely ephemeral flows in the early 1990's. These ephemeral and/or perennial surface water flows, contribute to the perennial subterranean flow which terminates in Badwater Basin, within DVNP.

Lands along the river in California are largely in Federal ownership, i.e., approximately 53.25 riverine miles are public lands managed by the BLM and approximately 45 additional riverine miles occur within DVNP. Substantial private ownership (3.5 riverine miles) occurs along the river in the vicinity of Shoshone, both north and south of SH 178. A degree of river diversion and modification has also occurred on the Shoshone-side of

SH 178. A total of 2.5 riverine miles are also privately owned in the Grimshaw Lake reach of the river; as is a total of 2.5 riverine miles in the Amargosa Canyon Segment.

The TNTRR, abandoned and dismantled in the 1940's, parallels the river for a majority of its length in California. This railroad once crossed the river on wooden bridges at several sites in California, though only three historic crossings occurred in the high water flow segment of the river occurring between Shoshone and Sperry Siding. A pedestrian trail now exists on the TNTRR, which is breached in many areas between Shoshone and Sperry. Few roads occur immediately adjacent to the river in the Shoshone to Sperry Siding Segment, although SH 178, Tecopa Hot Springs Road and Old Spanish Trail Highway do cross this river, widely spaced over a 21 mile span of the river. Several roads parallel and cross the river in the Sperry Siding to SH 127 Segment of the river. Further, an access road to the popular Dumont Dunes Off-highway Vehicle Area parallels the river in this segment for four miles, crossing the river once at the entrance to this public land use area.

Description of Segment(s) Under Consideration

Considerations for NWSRS eligibility are based on resource values, land ownership patterns, shoreline development, proximity of roads and previous river modifications. These standard considerations were augmented with discussions with the National Park Service at DVNP and with California's statewide river conservation group, Friends of the River.

As a consequence of the analysis documented herein, **an eligibility determination for a 26-mile length segment of the Amargosa River occurring in California, has been made**. Segments identified as eligible for consideration of Wild and Scenic River designation include the Shoshone to Tecopa Segment (10 miles), which spans the river in a southerly fashion between SH 178 and Old Spanish Trail Highway; the Tecopa to Sperry Siding Segment (9 miles); and the Sperry Siding to State Highway 127 Segment (7 miles). The required suitability study on these segments will be deferred until completion of the NEMO Plan amendment to the CDCA Plan.

Recommended NWSRS Segment Classification and Land Ownership

Once determined eligible, river segments are tentatively classified for study as either wild, scenic, or recreational, based on the degree of access and amount of development along the river area. If a river or segment is designated by Congress, the enabling legislation generally specifies the classification.

Accessibility, primitive nature, number and type of land developments, structures, water resource developments, and water quality were all considered in assigning classifications. The primary criteria for the three classifications are outlined below [from ***A Compendium of Questions & Answers Relating to Wild & Scenic Rivers*** (Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council 1999)]:

Wild River Areas: Those rivers, or sections of rivers, that are free from impoundments, generally inaccessible except by trail (no roads), with watersheds or shorelines essentially primitive, and having unpolluted waters.

Scenic River Areas: Those rivers, or sections of rivers, that are free from impoundments, having shorelines or watersheds largely primitive and undeveloped, but accessible in places by roads (i.e., roads may cross but generally not parallel [in close proximity to] the river. These rivers or segments of rivers are usually more developed than wild and less developed than recreational. This classification may or may not include scenery as a Outstandingly Remarkable Value (ORV).

Recreational River Areas: Those rivers or sections of rivers that are readily accessible by road or railroad, may have had some development of the shoreline, and may have had some impoundment or diversion in the past. This classification, does not, however, imply that recreation is an ORV.

With these criteria in mind, as well as ORV data related to differing segments of the Amargosa River, the following classifications have been recommended for that portion of the river determined eligible for inclusion to the NWSRS:

Riverine Segment	Classification	Public Land Miles	Private Land Miles
Shoshone to Tecopa	Scenic	6.25	3.75
Tecopa to Sperry Siding	Wild	6.50	2.50
Sperry Siding to SH 178	Recreational	7.00	0.00

Reasons for Consideration

The Amargosa River was considered eligible for inclusion in the NWSRS because of values identified by the BLM in the completed CDCA Plan and during development of the ongoing NEMO Plan. Strong support for such WSR designation has been offered by the California Native Plant Society, Friends of the River, The Nature Conservancy, the Sierra Club, and the local community.

Outstanding Remarkable Values

All segments identified as eligible on public lands contain Outstandingly Remarkable Scenic Values (ORVs), i.e., Class “A” scenic quality, per BLM Manual guidelines. Two specific public land areas in these segments, the Amargosa Canyon and Grimshaw Lake Natural Areas, have been previously designated as Areas of Critical Environmental Concern (ACECs) in part to their spectacular scenery. A portion of the Kingston Range

Wilderness is also encompassed by these segments. Regionally rare plant communities such as Black Willow (*Salix nigra*)-Arroyo Willow (*S. lasiolepis*) and Cottonwood (*Populus fremontii*) Riparian Galleries, Mesquite *(Prosopis glandulosa*) Bosque, as well as alkaline meadow, lacustrine, emergent and cliffside spring plant communities, can also be found in abundance along this portion of the river. Wildlife supported by these regionally rare plant communities include a high percentage of endemic species, which occur nowhere else on earth, or in very low numbers outside of this portion of the river. Several threatened and endangered species, both plant and animal, occur in or use these segments, as well as a host of sensitive and/or special concern species. Over 260 bird species have been recorded. The presence of flowing water in these segments has served to attract humans for thousands of years. The high relief, stark topography and lush riparian vegetation provided by these segments continue to offer many opportunities for non-intrusive recreation.

ORVs for this portion of the Amargosa River include the following:

Animals and Plants: The state and federally listed-endangered Amargosa vole (*Microtus californicus scirpensis*) occurs exclusively in meadow and riparian habitats along these segments, and a large portion of the central Amargosa has been designated as critical habitat for this endemic species. The similarly listed endangered Least Bells Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax trailli extimus*) also utilize these segments, with the former known to nest and the latter suspected to occur only during migration seasons. So to, with the State of California listed-threatened Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*) and Swainson's Hawk *(Buteo swainsoni*), where the former is known to nest and the latter is suspected only during migration seasons. Two desert fish species, the Amargosa Pupfish (*Cyprinodon nevadensis amargosae*) and the Amargosa Speckled Dace (*Rhynichthys osculus amargosae*), also occur in these segments and are both designated as sensitive species by the BLM. The State of California and federally listed- endangered Amargosa Niterwort (*Nitrophila mohavensis*), and possibly the federally listed-threatened Spring-loving Centaury *(Centaurium namophilum namophilum*), also occur along a portion of these segments.

Geologic: These segments of the Amargosa River have been carved into a colorful array of spires, mesas cliffs and canyons over the years by water flow of varying velocities. The ancient Tecopa lake-bed is also found in the central segment, and contains fascinating landforms and extensive fossils, including many not recorded frequently in the region.

Physiographic: Sites along these segments indicate a continuing human occupation by indigenous peoples for over 10,000 years. The Old Spanish Trail crosses the River in the central segment and was one of the few pioneer trails used for both east and west travel. Several sites along these segments are described by famed explorers such as Kit Carson and Colonel John C. Fremont. The Tonopah and Tidewater (TNT) Railroad, which traverses a majority of identified segments provided an historic support function for the

remote mining communities located in the Death Valley Region, in the early part of the 20th century.

Recreational: As one of the few surface water, riparian vegetation and high canyon density locales in the region, these segments of the Amargosa offer visitors unusual river and canyon-based opportunities. Particularly related to hiking, exploration, bird watching, photography and equestrian use, in rugged and physically challenging terrain.

Scenic: These segments of the Amargosa flow past unusual desert wetlands and hot spring creeks, ancient lake-beds, mesas and mudflats; an abandoned railroad and human ruins of all kinds; colorful rock formations and precipitous cliffs; expansive meadows and even waterfalls. The lush riparian and wetland plant communities present along these segments contrast dramatically with the surrounding stark, desert landscape.

Wilderness: The central segment would encompass a portion of the Kingston Range Wilderness, an area where little human modification of the landscape is evident. An opportunity to experience solitude in a Mojave Desert area untrammeled by man and supporting natural processes, is provided in this segment.

Interim Protection

The WSR Act and Federal guidelines require Federal agencies, upon determination of WSR eligibility, to provide interim protection and management for a river's free-flowing character and any identified outstandingly remarkable values, subject to valid existing rights, until such time as a suitability study is completed. Upon study completion, the Federal agency (BLM in this instance) then makes a recommendation to Congress, and Congress then acts on that recommendation.

Management Standards and Guidelines for National Wild and Scenic Rivers

The Wild and Scenic Rivers Act (Public Law 90-542, as amended) established a method of providing Federal protection for certain of our remaining free-flowing rivers, and preserving these locales for the use and enjoyment of present and future generations. Such designated rivers benefit from the protective management which the act provides.

Section 10(a) of the WSR Act states:

"***Each component of the NWSRS shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration, primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.***" This section is generally interpreted by the Secretary of the Interior as a stated

non-degradation and enhancement policy for all designated river areas, regardless of classification.

The following National Standards and Guidelines are summarized from BLM Manual 8351 [Wild and Scenic Rivers-Policy and Program Direction for Identification, Evaluation and Management (1992)]. These standards/guidelines are intended to apply to formally-designated rivers through incorporation into, or amendment of, resource or land use management plans. Incorporation or amendment efforts are typically completed within three years of formal WSR designation. However, these guidelines also apply, on an interim basis, as described above. For the sake of clarity, guidelines are presented for each separate river classification (wild, scenic and recreational).

Wild River Areas

-are defined by the WSR Act to include "***those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.***"

-are to be managed with a primary objective of providing primary emphasis to protection of identified ORVs, while providing consistent, river-related, outdoor recreation opportunities in a primitive setting.

-where National Management Standards/Guidelines include allowable practices such as construction of minor structures related to wildlife habitat enhancement, protection from fire, and rehabilitation or stabilization of damaged resources, provided the area will remain natural-looking and the practices or structures will harmonize with the environment. Developments such as trails, bridges, occasional fencing, natural-appearing water diversions, ditches and water management devices, may be permitted if they are unobtrusive and do not have a significant, adverse impact on the natural character of the river area. The following **Wild River Program Management Standards** apply:

a. Forestry Practices - Cutting of trees not permitted except when needed in association with a primitive recreation experience (such as clearing trails, for visitor safety purposes, or for fire control). Timber outside the boundary, but within visual corridors, should where feasible, be managed and harvested in a manner designed to provide special emphasis on visual quality.

b. Water Quality - Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. Hydroelectric Power and Water Resource Development - No such development would be permitted in the channel or river corridor. All water supply dams and major diversions are prohibited. The natural appearance and essentially primitive character of the river area must be maintained. Federal agency groundwater development for range,

wildlife, recreation or administrative facilities may be permitted if there are no adverse effects on ORVs.

d. Mining - New mining claims and mineral leases are prohibited within 0.25 mile of the river. Valid existing claims would not be abrogated and, subject to existing regulations, e.g., 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, existing mining activity would be allowed to continue. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims beyond 0.25 mile of the river, but within the wild river boundary, and perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. Road and Trail Construction - No new roads or other provisions for overland motorized travel would be permitted within a narrow incised river valley or, if the river valley is broad, within 0.25 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area and unobtrusive trail bridges may be permitted.

f. Agricultural Practices and Livestock Grazing - Agricultural use is restricted to a limited amount of domestic livestock grazing and hay production to the extent currently being practiced. Row crops are prohibited.

g. Recreation Facilities - Major public use areas, such as campgrounds, interpretive centers, or administrative headquarters are located outside of wild river areas. Simple comfort and convenience facilities, such as toilets, tables, fireplaces, shelters and refuse containers may be provided as necessary within the river area. These should harmonize with the surroundings. Unobtrusive hiking and equestrian trail bridges could be allowed on tributaries, but would not normally cross the designated river.

h. Public Use and Access - Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in wild river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance wild river values.

i. Rights-of-Way - New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on wild river area-related values and fully evaluated during the site selection process.

j. Motorized Travel - Although this use can be permitted, it is generally not compatible with this river classification. Normally, motorized use will be prohibited in a wild river

area. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Scenic River Areas

-are defined by the WSR Act to include *"**those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.**"*

-are to be managed with a primary objective of maintaining and providing outdoor recreation opportunities in a near-natural setting. The basic distinctions between "wild" and "scenic" classifications, involve varying degrees of development, types of land use, and road accessibility. In general, a wide range of agricultural, water management, silvicultural and other practices could be compatible with scenic classification values, providing such practices are carried out in a manner not resulting in a substantial adverse effect on the river and its immediate environment.

-where National Management Standards/Guidelines include the same considerations set forth for wild rivers, except that motorized vehicle use may in some cases be appropriate and that development of larger scale public-use facilities within the river area, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters would be compatible, if such facilities were screened from the river. The following **Scenic River Program Management Standards** apply:

a. Forestry Practices - Silvicultural practices, including timber harvesting could be allowed, provided that such practices are carried out in such a way that there is no substantial adverse effect on the river and its immediate environment. The river should be maintained in its near-natural condition.

Timber outside the boundary, but within the visual screen area, should be managed and harvested in a manner designed to provide special emphasis on visual quality. Preferably, reestablishment of tree cover would be through natural revegetation. Cutting of dead and down materials for fuelwood will be limited. Where necessary, restrictions on the use of wood for fuel may be prescribed.

b. Water Quality - Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. Hydroelectric Power and Water Resource Development - No such development would be permitted in the channel or river corridor. Flood control dams and levees would be prohibited. All water supply dams and major diversions are prohibited. Maintenance of existing facilities and construction of some new structures would be permitted, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. Mining - Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river boundary, and perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. Road and Trail Construction - Roads may occasionally bridge the river and short stretches of conspicuous or lengthy stretches of inconspicuous and well-screened roads would be allowed. Maintenance of existing roads and any new roads will be based on the type of use for which the roads are constructed and the type of use that will occur in the river area.

f. Agricultural Practices and Livestock Grazing - In comparison to wild river areas, a wider range of agricultural and livestock grazing uses are permitted, to the extent currently being practiced. Row crops are not considered as much of an intrusion of the "largely primitive" nature of scenic corridors, as long as there is not a substantial adverse effect on the natural-like appearance of the river area.

g. Recreation Facilities - Larger-scale public use areas, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters, are allowed if such facilities are screened from the river.

h. Public Use and Access - Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in scenic river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance scenic river values.

i. Rights-of-Way - New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on scenic river area-related values and fully evaluated during the site selection process.

j. Motorized Travel - This use, on land or water, could be permitted, prohibited or restricted to protect river values. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Recreational River Areas

-are defined by the WSR Act to include ***"those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their***

shorelines, that may have undergone some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

-are to be managed with an objective of protecting and enhancing existing recreational values. The primary objective is to provide opportunities for the public to participate in recreation activities dependent on, or enhanced by, the largely free-flowing nature of the river.

-where National Management Standards/Guidelines include allowable practices such as construction of recreation facilities in proximity to the river, although recreational river classification does not require extensive recreational developments. Such facilities are still to be kept to a minimum, with visitor services provided outside the river area. Future construction of impoundments, diversions, straightening, rip-rapping and other modification of the water way or adjacent lands would not be permitted, except where such developments would not have a direct and adverse effect on the river and its immediate environment. The following **Recreational River Program Management Standards** apply:

a. Forestry Practices - Silvicultural practices, including timber harvesting could be allowed under standard restrictions to avoid adverse effects on the river environment and its associated values.

b. Water Quality - Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. Hydroelectric Power and Water Resource Development - No such development would be permitted in the channel or river corridor. Existing low dams, diversion works, rip rap and other minor structures may be maintained, provided the waterway remains generally natural in appearance. New structures may be allowed, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. Mining - Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river area boundary perfected after the effective date of designation can be patented only as to the mineral estate and not the surface estate.

e. Road and Trail Construction - Existing parallel roads can be maintained on one or both river banks. There can be several bridge crossings and numerous river access points.

f. Agricultural Practices and Livestock Grazing - In comparison to scenic river areas, lands may be managed for a full range of agricultural and livestock grazing uses, consistent with current practices.

g. Recreation Facilities - Interpretive centers, administrative headquarters, campgrounds and picnic areas may be established in proximity to the river. However, recreational classification does not require extensive recreation development.

h. Public Use and Access - Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in recreational river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance recreational river values.

i. Rights-of-Way - New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on recreational river area-related values and fully evaluated during the site selection process.

j. Motorized Travel - This use, on land, will generally be permitted, on existing roads. Controls will usually be similar to that of surrounding lands. Motorized travel on water will be in accordance with existing regulations or restrictions.

Management Objectives Common to All Wild, Scenic and Recreational Rivers

a. Wilderness and Wilderness Study Areas - Management of river areas which overlap designated wilderness areas or wilderness study areas will meet whichever standard is highest. If an area is released from wilderness study area status and the associated Interim Management Policy, the applicable river classification standards and guidelines would then apply.

b. Fire Protection and Suppression - Management and suppression of fires within a designated river area will be carried out in a manner compatible with contiguous Federal lands. On wildfires, suppression methods will be utilized that minimize the long term impacts on the river and river area. Pre-suppression and prevention activities will be conducted in a manner which reflects management objectives for the specific river segment. Prescribed fire may be utilized to maintain or restore ecological condition or meet objectives of the river plan.

c. Insects, Diseases and Noxious Weeds - The control of forest and rangeland pests, diseases and noxious weed infestations will be carried out in a manner compatible with the intent of the WSR Act and management objectives of contiguous Federal lands

d. Cultural Resources - Historic and prehistoric resource sites will be identified, evaluated and protected in a manner compatible with the objectives of the river and in

accordance with applicable regulations and policies. Where appropriate, historic or prehistoric sites will be stabilized, enhanced and interpreted.

e. Fish and Wildlife Habitat Improvement - The construction and maintenance of minor structures for the protection, conservation, rehabilitation and enhancement of fish and wildlife habitat are acceptable, provided they do not affect the free-flowing characteristics of the river, are compatible with the classifications, that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

Appendix P

Development of Standards for Public Land Health and Grazing Management Guidelines

Congress passed the Taylor Grazing Act in 1934 to direct occupancy and use of public rangelands, to preserve natural resources from destruction or unnecessary injury, provide for the orderly use, improvement, and development of rangelands. Since enactment of the Taylor Grazing Act, several studies and reports have identified problems on the western rangelands. The Public Rangelands Improvement Act (PRIA, 1978) identified that rangelands are producing below their potential, rangelands will remain in an unsatisfactory condition and some areas may decline further under present levels of funding, and these unsatisfactory conditions present a high risk of soil loss, water loss, loss of or threats to fish and wildlife habitat, loss of forage for livestock and grazing animals, and unpredictable and undesirable long term local and regional climatic and economic changes.

Resource conditions have improved since passage of PRIA, but many riparian areas continue to be degraded and are not functioning properly. The Director of the Bureau of Land Management requested the agency's National Public Lands Advisory Council to recommend ways to improve BLM's rangeland management program. In 1991, the Council commissioned a blue-ribbon panel of professional ecologists and rangeland managers who produced a report titled *Rangeland-Program Initiatives and Strategies*. Their report concluded that BLM's primary objectives should be to protect the basic components of rangelands: soil, water, and vegetation.

The BLM initiated a new effort, in 1993, commonly referred to as "Rangeland Reform 94." The focus of this effort is to enhance the environmental health of public rangelands. This effort was initiated with the publication of *Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands*, 1994. The report was published by the Committee on Rangeland Classification, Board of Agriculture, of the National Research Council. The report explained criteria and indicators of rangeland health, assessment practices, and inventory and monitoring requirements.

The "Rangeland Reform" initiative culminated in a national environmental impact statement to provide grazing management direction to improve ecological conditions while providing for sustainable development on the land. In 1995, the Secretary of the Interior developed new grazing regulations to implement needed changes in BLM's rangeland management program.

Purpose and Need

The "Rangeland Reform 94" effort resulted in the publication of a final rule for Grazing Administration of Public Lands, on February 22, 1995, that became effective August 21, 1995. Under section 4108.2 of these regulations the BLM State Director is required to

develop State or regional standards and guidelines for grazing administration in consultation with a BLM Resource Advisory Council (District Advisory Council), other agencies, and the public. The purpose of the standards and guidelines is to ensure the long-term health of public rangelands as indicated by the following quotations from the Federal Register, Vol. 60, No. 35, page 9956, dated February 22, 1995:

> "The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands".
>
> "The Department intends that the standards and guidelines will result in a balance of sustainable development and multiple use along with progress towards attaining healthy, properly functioning rangelands".
>
> "The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of Subpart 4180.1 and the guiding principles of Subpart 4180.2, the long-term health of public rangelands can be ensured".

Fundamentals of Rangeland Health

In its report, the Committee for the National Research Council defined rangeland health as "...the degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained, " and in particular those "ecological processes that are most important in sustaining the capacity of rangeland to satisfy values and produce commodities." The committee from the Council recommended "...the determination of whether a rangeland is healthy, at risk, or unhealthy should be based on the evaluation of three criteria: degree of soil stability and watershed function, integrity of nutrient cycles and energy flow, and presence of functioning recovery mechanisms" (Ibid). When the factors of a healthy rangeland site are met, then values and commodities will be conserved. The "Rangeland Health Matrix" developed by the National Research Council is presented at the end of this section.

Title 43 of the Code of Federal Regulation, Section 4180 of the grazing regulations directs the authorized officer to ensure the following conditions of rangeland health exist and that each of these components are addressed during the development of regional standards:

(a) Watersheds are in or are making significant progress toward properly functioning physical condition, including their upland, wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and the timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making

significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being restored or maintained for Federal threatened and endangered species, Federal Proposed, Federal Candidate and other special status species.

Items (a) and (b) prescribe physical and biological characteristics of rangeland health. Items (c) and (d) describe legal requirements that will be met when healthy rangelands are properly functioning (43 CFR 4180.1). In addition, habitat quality for native plant and animal populations and communities is identified as an ecological component that must be addressed in 43 CFR 4180.2 when developing regional standards.

Attributes for Standards and Guidelines

The fundamentals of rangeland health, guiding principles for standards and the fallback standards address ecological components that are affected by all uses of public rangelands, not just livestock grazing. However, the scope of this final rule, and therefore the fundamental of rangeland health of part 4180.1, and the standards and guidelines to be made effective under part 4180.2, are limited to grazing administration (Federal Register, Vol. 60, No. 35, pg. 9970-9971). The following are characteristics of standards and guidelines.

Standard:
(1) is criterion regarding a resource quality or quantity upon which a judgement or decision is based (e.g., a statement concerning expected ecosystem or rangeland health);
(2) is measurable;
(3) establishes parameters within which resource uses and management activities can be conducted; and
(4) should have observable indicators.

Guideline:
(1) describes a practice, prescription, method or technique used to ensure that grazing management activities meet standards;
(2) is either a set of management practices from which one or more practices is selected; or is a specific, required management practice;
(3) could be adapted or changed when monitoring or other information indicates the guidelines are not effective or a better means of meeting applicable standard exists.

At a minimum State or regional guidelines must address the following:

(1) maintain or promote adequate amounts of vegetative ground cover, including standing plant material and litter, to support infiltration, maintain soil moisture storage, and stabilize soils;

(2) maintain or promote subsurface soil conditions that support permeability rates, appropriate to climate and soils;
(3) Maintain, improve or restore riparian-wetland functions including energy dissipation, sediment capture, groundwater recharge and stream bank stability;
(4) Maintain or promote stream channel morphology (e.g. gradient width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform;
(5) Maintain or promote the appropriate kinds and amounts of organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;
(6) Promote the opportunity for seedling establishment of appropriate plant species when climate conditions and space allow;
(7) Maintain, restore or enhance water quality to meet management objectives, such as meeting wildlife needs;
(8) Restore, maintain or enhance habitats to assist in the recovery of Federal threatened or endangered species;
(9) Restore, maintain or enhance habitats of Federal Proposed, Category 1 and 2 Federal candidate, and other special status species to promote their conservation;
(10) Maintain or promote the physical and biological conditions to sustain native populations and communities;
(11) Emphasize native species in the support of ecological function; and
(12) Incorporate the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

Resource Advisory Council Direction

Under the February 22, 1995, rulemaking, the Secretary of the Interior called for the formation of Resource Advisory Councils (RACs) to advise the BLM about defining areas and the development of standards and guidelines for those areas. The RACs will advise the BLM concerning preparation, amendment, and implementation of land use plans. The existing California Desert District Advisory Council (DAC) will serve as the California Desert District's Resource Advisory Council. The rulemaking directs the State Director to coordinate with Indian tribes, the public, and affected State and Federal agencies during development of standards and guidelines.

The staffs in areas once defined as the Bakerfield, Ukiah, and Susanville Districts, coordinated on a state-wide planning effort called *Rangeland Health Standards and Guidelines for California and Northwestern Nevada, Environmental Impact Statement* to adopt regional standards for rangeland health and guidelines for grazing management on BLM-administered lands. The DAC chose not to initiate a new planning process for the express purpose of analyzing livestock standard and guidelines nor contribute staff to the statewide effort. The Council preferred instead to develop standards for all public land uses through several ongoing planning efforts. In addition, they felt it would be more efficient to address standards at the planning area level instead of desert-wide, and the CDCA Plan primarily conforms to the fundamentals of rangeland health. These planning efforts include the Western Mojave Coordinated Management Plan, Northern and Eastern

Mojave Planning Effort, Coachella Valley Habitat Conservation Plan, Northern and Eastern Colorado Desert Coordinated Management Plan, and Plan Amendments for the South Coast Resource Management Plan and the Eastern San Diego County Management Framework Plan.

The DAC is actively involved in development of Standards for Public Land Health and Guidelines for Grazing Management. Early in the process a subcommittee was formed to develop a proposal for standards and guidelines, their recommendations are listed at the end of this section. Upon completion of the Northern and Eastern Mojave Planning Effort the State Director will submit a set of standards and guidelines for approval by the Secretary of the Interior. Adoption of the regional standards will occur when the Secretary concurs. Until adoption of the regional standards, the fallback standards and guidelines or existing planning and activity plan guidance will be utilized, depending on which one more closely matches the fundamentals of rangeland health.

Standards and Guidelines- Constraints and Development

1. The standards for public land health apply to resource uses and activities undertaken on the public lands. The guidelines for livestock grazing apply only to livestock grazing management practices. Guidelines for activities other than livestock grazing are not proposed at this time; however, BLM intends to formulate additional guidelines in the future as opportunities present themselves.

2. The standards and the guidelines for livestock grazing are subject to the approval of the Secretary of Interior. Pending Secretarial approval, the National Fallback Standards and Guidelines apply.

3. The intent of the standards and guidelines is to ensure a balance of sustainable development and multiple use along with progress toward attaining healthy, properly functioning ecosystems.

4. The standards and applicable guidelines will be implemented through terms and conditions of permits, leases, and other authorizations or actions issued or undertaken in accordance with BLM's approved land use plans.

5. To the extent possible, implementation will be determined and applied through collaborative management approaches with other land owners, organizations, and agencies on a regional or watershed scale, or in relation to discreet land use plan units such as areas designated for OHV use as open, limited, or closed.

6. At a minimum, implementation will be coordinated and in consultation with the affected permitees/lessees, the appropriate State agencies, tribes, and interested public.

7. BLM's grazing regulations require that "appropriate action" be taken when "existing grazing management practices or levels of grazing use..are significant

factors in failing to achieve the standards and... guidelines". BLM will take corrective action as practicable for other management practices or uses not meeting the standards.

8. Some areas may require years to fully achieve the standards, due to natural factors such as climatic conditions, soils, presence of naturalized non-native plant species, and other related factors.

9. The values and demand for use of the public lands will continue to increase and be diverse.

In applying the standards and any applicable guidelines, BLM will emphasize a balanced approach to resource management, taking into account such factors as context and intensity of impacts and the opportunities for restoration.

Standards and Guidelines - DAC Recommendations

Standards

Soils:
Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, landform, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor, and provide a stable watershed.

As indicated by:

- Canopy and ground cover are appropriate for the site;
- There is diversity of plant species with a variety of root depths;
- Litter and soil organic matter are present at suitable sites;
- Maintain the presence of microbiotic soil crusts that are in place;
- Evidence of wind or water erosion does not exceed natural rates for the site; and
- Hydrologic and nutrient functions maintained by permeability of soil and water infiltration are appropriate for precipitation.

Native Species:
Healthy, productive and diverse habitats for native species, including special status species (Federal T&E, Federal proposed, Federal candidates, BLM sensitive, or California State T&E, and CDD UPAs) are maintained in places of natural occurrence.

As indicated by:

- Photosynthetic and ecological processes continue at levels suitable for the site, season, and precipitation regimes;
- Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment;
- Plant communities are producing litter within acceptable limits;
- Age class distribution of plants and animals are sufficient to overcome mortality fluctuations;

- Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events;
- Alien and noxious plants and wildlife do not exceed acceptable levels;
- Appropriate natural disturbances are evident; and
- Populations and their habitats are sufficiently distributed to prevent the need for listing special status species.

Riparian/Wetland and Stream Function:
Wetland systems associated with subsurface, running, and standing water, function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained.

As indicated by:

- Vegetative cover will adequately protect banks, and dissipate energy during peak water flows;
- Dominant vegetation is an appropriate mixture of vigorous riparian species;
- Recruitment of preferred species is adequate to sustain the plant community;
- Stable soils store and release water slowly;

- Plant species present indicate soil moisture characteristics are being maintained;
- There is minimal cover of invader/shallow-rooted species, and they are not displacing deep-rooted native species;
- Maintain shading of stream courses and water sources for riparian dependent species;
- Stream is in balance with water and sediment being supplied by the watershed;
- Stream channel size and meander is appropriate for soils, geology, and landscape; and
- Adequate organic matter (litter and standing dead plant material) is present to protect the site and to replenish soil nutrients through decomposition.

Water Quality:
Water quality will meet State and Federal standards including exemptions allowable by law.

As indicated by:

- Dissolved oxygen levels, aquatic organisms and plants (e.g., macro invertebrates, fish and algae) indicate support of beneficial uses;
- Chemical constituents, water temperature, nutrient loads, fecal coliform and turbidity are appropriate for the site or source; and
- Best Management Practices will be implemented.

Guidelines for Grazing Management

1. Management activities will maintain or promote canopy or ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability

appropriate for each plant community. The ground cover should maintain soil organisms and plants and animals to support energy flow, and hydrologic and nutrient cycles and energy flow.

2. When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments may be designed and implemented to attain improvement.

3. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform.

4. Grazing management practices maintain sufficient residual vegetation (if suitable) on both upland riparian sites to protect the soil from wind water erosion, to assist in maintaining appropriate soil infiltration and permeability, and to buffer temperature extremes.

5. Best Management Practices and other scientifically developed practices that enhance land and water quality should be used in the development of land use activity plans.

6. Grazing management practices promote healthy plant communities by providing for one or more of the following:
   * periodic rest or deferment from grazing during critical growth periods;
   * appropriate levels of plant consumption;
   * adequate recovery and regrowth periods; and
   * opportunity for seed dissemination and seedling establishment under favorable climatic conditions.

7. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency, and intensity of grazing use and livestock's health.

8. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where seeding is required, on land treatment efforts, emphasis will be placed on using native plant species, or established alien species.

9. Grazing on designated ephemeral (annual and perennial species included) rangeland may be authorized if the following conditions are met:

* ephemeral vegetation is present in draws, washes, and under shrubs and has grown to usable levels at the time grazing begins;
* sufficient surface and subsurface soil moisture exists for continued plant growth;
* water sources, t the extent practical, will provide proper grazing distribution;
* sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed, wildlife, wild horses and burros); and
* monitoring is conducted during grazing season to determine if objectives are being met.

10. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, and thus minimizing habitat fragmentation.

11. Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats.

12. Develop practices to maintain, restore, or improve water quality for the enhancement of plant and animal resources in conformance with State or Federal standards.

13. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions.

14. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.

15. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland sites.

16. Grazing management will occur in a way that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of weed control, livestock may used where feasible as a tool to inhibit or stop the spread of noxious weeds.

BLM Preferred Standards – Changes in DAC Recommendations

The Desert Advisory Council proposed four standards, which, as modified, are the preferred alternative for adoption in the California Desert District, including the NEMO planning area. The BLM has made minor editorial changes to the wording proposed by the DAC in some instances, to clarify meaning, and these are not discussed. Other additions, deletions, or changes to the DAC Recommendations follow, with a short explanation after each modification (deletions are in strikethrough, additions are underlined and bolded):

1. Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, ~~and~~ geology, **and land use;** -- *This addition was made to acknowledge that past land uses may affect site potential for these soil factors, for the reasonably foreseeable future.*
2. **Alien and noxious plants do not exceed acceptable levels;** --*This addition was made in response to BLM policy to address this issue as a critical element of the human environment, in recognition of the many direct and indirect roles these plants have in interfering with the attainment and maintenance of diverse biological communities.*
3. ~~Water quality is improved or maintained at the highest level feasible.~~ – *This was deleted as it was considered potentially unattainable, based on cost consideration alone. The benefits to wetland systems which would be derived from water quality maintenance or improvements provide the better standard to judge whether the BLM should pursue, them, and these would be based on the indicators outlined.*
4. Vegetative cover ~~of no less than 70 percent for a stream reach or the percentage that will~~ adequately protect**s** banks, and dissipates energy during peak water flows; -- *This indicator was twofold, a quantitative indicator that was optional, or a qualitative indicator that was a requirement, i.e. that cover adequately protect banks. It matters as much where as how much cover there is. The qualitative indicator with a site-specific analysis is a more appropriate desert-wide standard (see also next standard).*
5. **Shading of stream courses and water sources support riparian vertebrates and invertebrates;** -- *This was added to supplement the vegetative cover indicator to assure optimal temperatures are maintained that sustain biotic communities within wetland systems.*
6. ~~If present, point bars are vegetated;~~ -- *This was deleted as it was considered potentially unattainable, based on site potential. Site-specific analysis can more appropriately determine whether point bars will sustain vegetation, given the frequency and size of flooding and soil depositional events.*
7. Water Quality will meet State and Federal standards **including exemptions allowable by law.** – *This addition acknowledges that various uses of the public lands are covered by exemptions, under certain circumstances, and that those exemptions will be recognized.*

Appendix Q

NORTHERN AND EASTERN MOJAVE PLAN ROUTE DESIGNATION PROCESS & METHODOLOGY

ROUTES OF TRAVEL: PROCESS

Upon initiation of the Northern and Eastern Mojave Plan (NEMO Plan), it was determined that one product of the planning effort would be to designate all routes of travel, inclusive of washes inside of critical habitat for the Federally and State threatened desert tortoise. The scope of route designation was modified slightly in the Ivanpah area to reflect the boundary of the proposed conservation area. Completion of route designation will accomplish the objectives established in the California Desert Conservation Area (CDCA) Plan (1980), as amended. A NEMO Plan goal is to designate all routes of travel as "open", "limited" or "closed" within the scope of the designation effort. The Motorized-Vehicle Access element of the CDCA Plan will require an amendment relative to MUC "M" in which access is allowed on "existing" routes. (In MUC "L," access is directed toward use of approved routes of travel [i.e., designated as "open" or "limited"].

Route Inventory

To accomplish route designation, it was necessary to first identify the network of "existing" routes within desert tortoise critical habitat (also known as desert wildlife management area (DWMA)). According to the 1982 CDCA Plan amendment of the Motorized-Vehicle Access element, an existing route of travel is a route established before approval of the CDCA Plan in 1980 with a minimum width of two feet, and showing significant surface evidence of prior vehicle use or, for washes, having a history of prior use. However, an accurate inventory of routes existing in 1980 was not available. Thus, it was decided that a base line inventory of existing routes would be necessary for the NEMO Plan, and would become the inventory to which the route designation process would be applied.

In general, the process of route inventory began with a review of 7.5-minute USGS topographical maps and Desert Access Guides. The presence of every route appearing on a map was to be verified through an on-the-ground "survey" to affirm its location.

It was clear at the beginning of the route inventory process, that because of the large number of washes within DWMAs conforming to the definition of a wash as a route of travel according to the CDCA Plan, it would be virtually impossible to survey each wash in the inventory on the ground. Only those that have conventionally been used as routes of travel on a regular basis were actually surveyed. The first consideration for all washes was their suitability as desert tortoise habitat. The wash was then examined and a case had to be made

that they provided a primary recreational access linkage. The final decisions in this regard would not be made until analyses of conflicts and the issues became more clearly defined.

The Needles Field Office began the NEMO Plan route inventory effort with a base inventory as appears on USGS quadrangles and Desert Access Guides. In 1993, the inventory effort began with a full-time volunteer along with field office staff collecting route location data through on-the-ground examination. The objective was to drive every route within the planning area and record their locations. Initially, the data were transferred to MOSS (an early version of a Geographic Information System Database). Later, conversion to ARC/INFO (the current Geographic Information System Database) resulted in the loss of some information such as route identification numbers. As the inventory progressed through 1995, MOSS was no longer used and data were transferred directly to ARC/INFO.

Another effort to gather on-the-ground data commenced in the early part of 1998. BLM staff collected route data by driving as many of the routes in the largest DWMA (Piute-Fenner). For the two smaller DWMAs (Shadow Valley and Ivanpah), information regarding designation was based upon previous inventories, augmented with staffs' knowledge of the areas. Private landowners, user and interest groups were given the opportunity to review and comment on early route inventories and recommendations.

Route Designation

Criteria established for route designation through the NEMO Plan to accomplish its goals must conform to Title 43 Code of Federal Regulations (CFR) Subpart 8342--Designation of Areas and Trails. Designation criteria per 43 CFR 8342.1 are as follow:

(a) Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.

(b) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

(c) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same of neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

(d) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such

locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

The Bureau recognizes the value of a motorized recreational touring network as identified through the NEMO Plan, and/or specific access requirements granted through the right-of-way process or other such authorizations. These specific requirements are generally reflected by the presence of paved and/or maintained dirt roads, the following categories of routes are designated "open" as exceptions to the designation criteria prescribed above:

(a) paved roads
(b) maintained County dirt roads
(c) recreational touring routes

If the 43 CFR are applied and criteria do not apply, the routes are appropriate to designate "open", other factors may necessitate limiting or closing them to access (e.g., protection of cultural resource values). The criteria do not apply to routes outside proposed DWMAs; all existing routes outside proposed DWMAs are designated "open" unless other factors necessitate limiting or closing them to access or they have been evaluated through a route designation process..

Alternatives to closure of routes include the following through a designation of "limited" (from 1982 CDCA Plan amendment of the Motorized-Vehicle Access element):

(a) number of vehicles allowed;
(b) types of vehicles allowed;
(c) time or season of vehicle use [e.g., seasonal opening of washes in proposed conservation areas for hunting purposes];
(d) permitted or licensed vehicle use only; and
(e) establishment of speed limits.

Access for wildlife management such as guzzler maintenance-can be afforded through a designation of "limited", with access limited to authorized users only.

Routes, which were recommended for closure, were reviewed using several criteria including:

(a) Is the route a redundant route? Redundant routes are those which are "excess" or "more than are needed." In identifying redundant routes, the following definition is to be considered: A redundant route is one whose purpose is seemingly identical to that of another route, inclusive of providing the same or very similar recreation opportunities or experiences; and upon designating such a route as "closed," the use thereby redirected to another route or routes would be in accordance with the route designation criteria at 43 CFR 8342.1.

(b) Is the route a problem route? A route that once furnished access to a point that now occurs in wilderness (a) could provide access to the boundary of that wilderness area, or (b) has become a management "problem" in that motorized access into wilderness has continued and no purpose would be served in establishing a trail head at that point. Existing access to cultural or other sensitive resources may have resulted in degradation of the resources.

(c) Is the route considered a non-existent route? Non-existent routes are defined in the context of the NEMO Plan as routes that are no longer used and have been substantially reclaimed by the forces of nature. Some routes that are delineated on the most recent versions of 7.5-minute USGS maps cannot be located due to complete or near-complete natural reclamation. Some of these are intermittently visible, encouraging cross-country travel where surface evidence of the route disappears or, although still visible, travel upon them would require the crushing of substantial vegetation.

There is a loosely defined recreational touring network throughout the NEMO Planning Area. Recreational touring involves the traditional use of certain washes as part of that route network. The following exceptions to the designation criteria that would generally prohibit use of wash routes in DWMAs apply, allowing specific washes to be designated "open" or "limited":

(a) washes which are identified as part of the recreational touring network as identified through the NEMO Plan;

(b) washes which have traditionally been heavily used as motorized thoroughfares; and

(c) washes occurring in areas where certain issues unreasonably complicate manageability (e.g., "checkerboard" pattern of public and private land ownership, particularly with high numbers of different owners).

In the context of motorized-vehicle access, the term "wash" is defined as a watercourse, ether dry or with running or standing water, which by its physical nature (width, soil, slope, topography, vegetative cover, etc.) permits the passage of motorized vehicles. With respect to designation criterion (b), washes which exhibited significant evidence of motorized use at the time of the on-the-ground route inventory phase were generally identified as routes of travel on the draft inventory maps. For the purpose of route designation relative to the NEMO Plan, all wash routes identified on the draft inventory maps are categorized as "heavily used" thoroughfares and, therefore, are available for use if they are a primary recreational access linkage. All recreational touring routes that occur in washes appear on the draft inventory maps. All washes within proposed DT critical habitat which have not been identified as routes of travel on the draft inventory maps are not considered as being "heavily used" and, therefore, are not available for use.

It is acknowledged that due to the nature of washes--flowing water, as well as strong winds, can erase surface evidence of vehicular travel, especially where the washes are sandy--it was difficult to determine during the field survey if many of the washes traditionally receive motorized use. In other words, the presence of vehicle tracks as the only indicator of significant use may have resulted in some washes being left off the inventory if they did not exhibit sufficient evidence of such use at the time of the field survey.

In accordance with proposed management prescriptions for the NEMO Plan relative to motorized use of washes, as identified above, only those washes, which show significant evidence of having traditionally been used as motorized thoroughfares are available for use within proposed DWMAs. This results in the closure of an undetermined number of washes to motorized use.

Upon application of these criteria in the route designation process, routes which would warrant closure will be reviewed relative to identified access needs for a variety of public land users. Upon solicitation, these users provided information in 1998 and 1999 about routes that are necessary for the continued operation of their facility or facilities. Based on this information, recommendations pertaining to route designation in light of the need for access were developed.

APPENDIX R

LIST OF G-E-M RESOURCE AREAS

No.	Area	No.	Area	No.	Area
1	Adobe Mountain	**26**	Fish Lake Valley	**51**	Palo Verde Mountains
2	Alvord Mountain	**27**	Granite Mountains	**52***	Panamint
3	Avawatz Mountain	**28**	Greenwater Range	**53***	Picacho
4	Bighorn Mountains	**29***	Hackberry	**54**	Piute Mountains
5*	Big Maria Mountains	**30**	Haiwee Reservoir	**55**	Providence Mountains
6	Boron	**31***	Halloran	**56***	Pyramid Peak
7	Borrego Springs	**32***	Homer Mountain	**57**	Red Mountain
8	Bristol Lake	**33**	Imperial Valley	**58***	Resting Spr. Range
9*	Bristol Mountains	**34***	Inyo Mountains	**59**	Riverside Mountains
10	Cadiz/Danby Lake	**35**	Iron Mountain	**60***	Rodman Mountains
11*	Cady Mountains	**36**	Ivanpah Valley	**61**	Sacramento Mtns
12*	Calico Mountains	**37**	Jawbone Canyon	**62***	Saline Range
13*	Chuckwalla	**38**	Kingston Range	**63***	Saline Mountains
14	Cima Dome	**39***	Last Chance Range	**64**	Saline Mountains
15*	Clark Mountain	**40**	Marble Mountains	**65**	Santa Rosa Mountains
16	Coachella	**41**	Mojave Valleyles	**66***	Searles
17	Copper Mountain	**42**	Morongo Valley	**67**	Sierra Pelona
18	Dale Lake	**43**	New York Mountains	**68**	Soledad/~osamond
19*	Darwin/Slate Range	**44***	Old Dad Mountain	**69**	Stepladder Mountains
20*	Dumont Dunes	**45**	Old Woman Mountains	**70**	Stoddard
21	Eagle Mountain	**46**	Ord Mountain	**71***	Talc City Hills
22	East Mesa-North	**47**	Orocopia Mountains	**72**	Turtle Mountains
23	East Mesa-South	**48**	Owens Peak	**73**	Vallecito Mountains
24	El Paso Mountains	**49***	Owlshead Mountains	**74***	Whipple Mountains
25*	Eureka Valley	**50***	Palen/~cCoy Mountains	**75**	Yuha Basin

***GRAs analyzed with a formal mineral report: (7,596,160 acres)**

BLM
3031 - ENERGY AND MINERAL RESOURCE ASSESSMENT

Mineral Potential Classification System*

I. Level of Potential

O. The geologic environment, the inferred geologic processes, and the lack of mineral occurrences do not indicate potential for accumulation of mineral resources.

L. The geologic environment and the inferred geologic processes indicate low potential for accumulation of mineral resources.

M. The geologic environment, the inferred geologic processes, and the reported mineral occurrences or valid geochemical/geophysical anomaly indicate moderate potential for accumulation of mineral resources.

H. The geologic environment, the inferred geologic processes, the reported mineral occurrences and/or valid geochemical/geophysical anomaly, and the known mines or deposits indicate high potential for accumulation of mineral resources. The "known mines and deposits" do not have to be within the area that is being classified, but have to be within the same type of geologic environment.

ND. Mineral(s) potential not determined due to lack of useful data. This notation does not require a level-of-certainty qualifier.

II. Level of Certainty

A. The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.

B. The available data provide indirect evidence to support or refute the possible existence of mineral resources.

C. The available data provide direct evidence but are quantitatively minimal to support or refute the possible existence of mineral

D. The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

For the determination of No Potential use O/D. This class shall be seldom used, and when used it should be for a specific commodity only. For example, if the available data show that the surface and subsurface types of rock in the respective area is batholithic (igneous intrusive), one can conclude, with reasonable certainty, that the area does not have potential for coal.

* As used in this classification, potential refers to potential for the presence (occurrence) of a concentration of one or more energy and/or mineral resources. It does not refer to or imply potential for development and/or extraction of the mineral resource(s). It does not imply that the potential concentration is or may be economic, that is, be extracted profitably.

Appendix S

Wild and Scenic Rivers Eligibility Report For Cottonwood Creek

Introduction

This report presents the results of an eligibility study on potential additions to the National Wild and Scenic Rivers System for an identified riverine system in the Northern and Eastern Mojave Desert Management Planning Area. This eligibility report evaluates Cottonwood Creek in the White Mountains under the guidelines presented in the National Wild and Scenic River Act and within BLM Manual 8351. This report concludes with a discussion of management standards and guidelines applicable to rivers designated under the auspices of the National Wild and Scenic River Act.

Background

Federal agencies such as the Bureau of Land Management (BLM) have been mandated to evaluate potential additions to the National Wild and Scenic River System (NWSRS) per Section 5(d) of the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271-1287, *et seq*). Title 36 of the Code of Federal Regulations (CFR), Subpart 297, addresses management of Wild and Scenic Rivers. Title 43 CFR, Subpart 8350, specifically addresses designation of management areas. NWSRS study guidelines have also been published in Federal Register Volume 7, Number 173 (September 7, 1982), for public lands managed by the U.S. Departments of Agriculture and Interior. Additional guidance on wild and scenic rivers (WSR) is provided in BLM Manual 8351.

The NWSRS study process includes three regulatory steps:

1. Determination of what river(s) and/or river segment(s) are eligible for WSR designation;

2. Determination of eligible river(s) and/or segment(s) potential classification with respect to wild, scenic, recreational designation, or any combination thereof; and

3. Conducting a suitability study of eligible river(s) and/or segment(s) for inclusion into the NWSRS, via legislative action. An environmental impact statement (EIS) is commonly prepared to document the analysis needed for this suitability determination/WSR designation.

Any river or river segment on public lands found eligible for inclusion in the NWSRS is to be managed as if this river/segment were designated, until such time as a suitability determination is made. This requires management of public lands within 0.25 mile of the subject river/segment, to conform to management standards and guidelines presented in

applicable Federal agency manuals for wild and scenic rivers until the suitability determination is completed.

If a river or river segment is found suitable for inclusion to the NWSRS, the U.S. Congress must then pass legislation so designating this river/segment, prior to its formal addition to the NWSRS. In addition to Federal agencies, private individuals and/or groups, as well as State governments, can nominate rivers and/or segments for inclusion.

Only the first two determinations, i.e., eligibility and classification, are documented in this report and the impacts evaluated in the attached NEMO Environmental Impact Statement. The remaining suitability determination would be completed in a separate document, and analyzed in an EIS format. The results of the suitability determination would amend the applicable land use plan, i.e., the California Desert Conservation Area (CDCA) Plan (BLM 1980, as amended).

To meet eligibility criteria for wild and scenic river designation, a river or segment must be free-flowing in nature and must possess one or more outstandingly remarkable cultural, fish/wildlife, geologic, historic, recreational or scenic values within its immediate proximity. Free-flowing, as defined in Section 16(b) of the WSRA, reflects water flowing in a natural condition without impoundment, diversion, straightening, or other modification of the waterway. However, the existence of low dams, diversion works, and other minor structures at the time of designation, does not necessarily bar consideration for inclusion on the NWSRS. Nor are there any minimum river or segment lengths necessary for inclusion. Considerations in defining study rivers and/or study river segments, should include land ownership patterns, physical changes in the river/segments and their environs, as well as the type and amount of human modification of lands bordering identified rivers/segments.

The term “outstandingly remarkable” is not clearly defined in the NWSRS, necessitating professional judgement by submitting parties. In general, the term is defined as a resource which is considered more than simply ordinary, in the context of the local region. Examples include areas supporting an “A” Scenic Quality Rating (BLM Manual 8400); habitats for threatened and/or endangered plants/animals; exemplary physiographical, ecological, geological or recreational type locations; and areas where little human modification is evident or where terrain is rugged and physically-challenging to traverse.

Description of River Under Consideration

Cottonwood Creek is the longest perennial stream on the East Side of the White Mountains. The headwaters originate at over 11,000 feet in the Inyo National Forest and flow for 17.4 miles before entering the public lands. This initial segment, from the headwaters to the forest boundary, was recommended as suitable for scenic designation by the U.S.F.S. in 1993. The 4.7 miles on public land evaluated in this report runs from the forest boundary to the mouth of Cottonwood Canyon.

The creek segment evaluated in this report is within Inyo County at the far northern edge of the California Desert Conservation Area. The nearest rural communities are Big Pine approximately 25 miles to the southwest and Bishop, California, 30 miles to the west. This segment is completely on lands managed by the BLM, Ridgecrest Field Office.

Modification has occurred at the far eastern boundary of this segment, where Cottonwood Creek has been diverted for agricultural uses.

Description of Segment(s) Under Consideration

Considerations for NWSRS eligibility are based on resource values, land ownership patterns, shoreline development, proximity of roads and previous river modifications.

As a consequence of the analysis documented herein, an eligibility determination for a 4.7-mile long segment of the Cottonwood Creek occurring in California, has been made. The required suitability study on these segments will be deferred until completion of the NEMO Plan amendment to the CDCA Plan.

Recommended NWSRS Segment Classification and Land Ownership

Once determined eligible, river segments are tentatively classified for study as either wild, scenic, or recreational, based on the degree of access and amount of development along the river area. If Congress designates a river or segment, the enabling legislation generally specifies the classification.

Accessibility, primitive nature, number and type of land developments, structures, water resource developments, and water quality were all considered in assigning classifications. The primary criteria for the three classifications are outlined below [from *A Compendium of Questions & Answers Relating to Wild & Scenic Rivers* (Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council 1999)]:

Wild River Areas: Those rivers, or sections of rivers, that are free from impoundments, generally inaccessible except by trail (no roads), with watersheds or shorelines essentially primitive, and having unpolluted waters.

Scenic River Areas: Those rivers, or sections of rivers, that are free from impoundments, having shorelines or watersheds largely primitive and undeveloped, but accessible in places by roads (i.e., roads may cross but generally not parallel [in close proximity to] the river. These rivers or segments of rivers are usually more developed than wild and less developed than recreational. This classification may or may not include scenery as a Outstandingly Remarkable Value (ORV).

Recreational River Areas: Those rivers or sections of rivers that are readily accessible by road or railroad, may have had some development of the shoreline, and may have had some impoundment or diversion in the past. This classification, does not, however, imply that recreation is an Outstandingly Remarkable Value (ORV).

With these criteria in mind, as well as ORV data related to differing segments of Cottonwood Creek, the following classifications have been recommended for that portion of the river determined eligible for inclusion to the NWSRS:

Riverine Segment	Classification	Public Land Miles	Private Land Miles
USFS Boundary to Canyon Entrance	Recreational	4.7	0.00

Reasons for Consideration

Cottonwood Creek was considered eligible for inclusion in the NWSRS because of values identified by the BLM in the completed CDCA Plan and during development of the ongoing NEMO Plan.

Outstandingly Remarkable Values

ORVs for this portion of the Cottonwood Creek include the following:

Animals and Plants: Cottonwood Creek supports Willow/ Cottonwood Riparian Woodland considered an Unusual Plant Assemblage in the California Desert Conservation Area Plan. Wildlife supported by this plant community include a number of special status and/or sensitive bird species such as yellow warbler, yellow-breasted chat, prairie falcon, and sharp-shinned and Cooper's hawk. The basin is potentially suitable habitat for the southwestern willow flycatcher, a Federally endangered species. This segment of Cottonwood Creek supports over 70 species of birds.

The lower segment of Cottonwood Creek is also important habitat for Spotted bat, a Federal and California special concern species.

Paiute cutthroat trout, a Federally threatened species, inhabit the north fork of Cottonwood Creek in the Inyo National Forest. The recovery plan for the Paiute cutthroat trout calls for the expansion of the population throughout the Cottonwood Basin and into this segment. At present, the segment is habitat for brown trout, a popular game species.

Recreational: The presence of a perennial stream of this size in such an arid region offers visitors a unique and outstanding semi-primitive water-based recreation opportunity. Activities include trout fishing, hiking, bird watching, primitive camping, four-wheel drive exploration, upland game bird and mule deer hunting, photography, mountain biking and equestrian uses.

Scenic: The Cottonwood Creek segment identified as eligible on public lands has been inventoried as having a Class "A" (Excellent) scenic quality rating, per BLM Visual Resource Management guidelines. The lush riparian plant community along the creek bottom contrasts dramatically with the surrounding stark and primitive White Mountain

Wilderness Study Area located to the north and south of the drainage. Designation of these lower 4.7 miles, in addition to the upper segments on the Inyo National Forest, would provide protection for nearly the entire reach of the Cottonwood Creek drainage, a span of over 22 miles. With designation, these two segments of Cottonwood Creek would form the only Wild & Scenic River in the Great Basin Geographic Province protected entirely from the headwaters to its terminus.

Interim Protection

The WSR Act and Federal guidelines require Federal agencies, upon determination of WSR eligibility, to provide interim protection and management for a river's free-flowing character and any identified outstandingly remarkable values, subject to valid existing rights, until such time as a suitability study is completed. Upon study completion, the Federal agency (BLM in this instance) then makes a recommendation to Congress, and Congress then acts on that recommendation.

Management Standards and Guidelines for National Wild and Scenic Rivers

The Wild and Scenic Rivers Act (Public Law 90-542, as amended) established a method of providing Federal protection for certain of our remaining free-flowing rivers, and preserving these locales for the use and enjoyment of present and future generations. Such designated rivers benefit from the protective management which the act provides.

Section 10(a) of the WSR Act states:
"**Each component of the NWSRS shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration, primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area."** This section is generally interpreted by the Secretary of the Interior as a stated non-degradation and enhancement policy for all designated river areas, regardless of classification.

The following National Standards and Guidelines are summarized from BLM Manual 8351 [Wild and Scenic Rivers-Policy and Program Direction for Identification, Evaluation and Management (1992)]. These standards/guidelines are intended to apply to formally-designated rivers through incorporation into, or amendment of, resource or land use management plans. Incorporation or amendment efforts are typically completed within three years of formal WSR designation. However, these guidelines also apply, on an interim basis, as described above. For the sake of clarity, guidelines are presented for each separate river classification (wild, scenic and recreational).

Wild River Areas

- are defined by the WSR Act to include "those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America."

- are to be managed with a primary objective of providing primary emphasis to protection of identified ORVs, while providing consistent, river-related, outdoor recreation opportunities in a primitive setting.

- where National Management Standards/Guidelines include allowable practices such as construction of minor structures related to wildlife habitat enhancement, protection from fire, and rehabilitation or stabilization of damaged resources, provided the area will remain natural-looking and the practices or structures will harmonize with the environment. Developments such as trails, bridges, occasional fencing, natural-appearing water diversions, ditches and water management devices, may be permitted if they are unobtrusive and do not have a significant, adverse impact on the natural character of the river area. The following Wild River Program Management Standards apply:

a. Forestry Practices: Cutting of trees not permitted except when needed in association with a primitive recreation experience (such as clearing trails, for visitor safety purposes, or for fire control). Timber outside the boundary, but within visual corridors, should where feasible, be managed and harvested in a manner designed to provide special emphasis on visual quality.

b. Water Quality: Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. Hydroelectric Power and Water Resource Development: No such development would be permitted in the channel or river corridor. All water supply dams and major diversions are prohibited. The natural appearance and essentially primitive character of the river area must be maintained. Federal agency groundwater development for range, wildlife, recreation or administrative facilities may be permitted if there are no adverse effects on ORVs.

d. Mining: New mining claims and mineral leases are prohibited within 0.25 mile of the river. Valid existing claims would not be abrogated and, subject to existing regulations, e.g., 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, existing mining activity would be allowed to continue. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims beyond 0.25 mile of the river, but within the wild river boundary, and

perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. Road and Trail Construction: No new roads or other provisions for overland motorized travel would be permitted within a narrow incised river valley or, if the river valley is broad, within 0.25 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area and unobtrusive trail bridges may be permitted.

f. Agricultural Practices and Livestock Grazing: Agricultural use is restricted to a limited amount of domestic livestock grazing and hay production to the extent currently being practiced. Row crops are prohibited.

g. Recreation Facilities: Major public use areas, such as campgrounds, interpretive centers, or administrative headquarters are located outside of wild river areas. Simple comfort and convenience facilities, such as toilets, tables, fireplaces, shelters and refuse containers may be provided as necessary within the river area. These should harmonize with the surroundings. Unobtrusive hiking and equestrian trail bridges could be allowed on tributaries, but would not normally cross the designated river.

h. Public Use and Access: Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in wild river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance wild river values.

i. **Rights-of-Way:** New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on wild river area-related values and fully evaluated during the site selection process.

j. Motorized Travel - Although this use can be permitted, it is generally not compatible with this river classification. Normally, motorized use will be prohibited in a wild river area. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Scenic River Areas

- are defined by the WSR Act to include **"those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."**

- are to be managed with a primary objective of maintaining and providing outdoor recreation opportunities in a near-natural setting. The basic distinctions between "wild" and "scenic" classifications, involve varying degrees of development, types of land use, and road accessibility. In general, a wide range of agricultural, water management,

silvicultural and other practices could be compatible with scenic classification values, providing such practices are carried out in a manner not resulting in a substantial adverse effect on the river and its immediate environment.

-where National Management Standards/Guidelines include the same considerations set forth for wild rivers, except that motorized vehicle use may in some cases be appropriate and that development of larger scale public-use facilities within the river area, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters would be compatible, if such facilities were screened from the river. The following Scenic River Program Management Standards apply:

a. **Forestry Practices:** Silvicultural practices, including timber harvesting could be allowed, provided that such practices are carried out in such a way that there is no substantial adverse effect on the river and its immediate environment. The river should be maintained in its near-natural condition.

Timber outside the boundary, but within the visual screen area, should be managed and harvested in a manner designed to provide special emphasis on visual quality. Preferably, reestablishment of tree cover would be through natural revegetation. Cutting of dead and down materials for fuel wood will be limited. Where necessary, restrictions on the use of wood for fuel may be prescribed.

b. **Water Quality:** Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. **Hydroelectric Power and Water Resource Development**: No such development would be permitted in the channel or river corridor. Flood control dams and levees would be prohibited. All water supply dams and major diversions are prohibited. Maintenance of existing facilities and construction of some new structures would be permitted, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. **Mining:** Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river boundary, and perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. **Road and Trail Construction:** Roads may occasionally bridge the river and short stretches of conspicuous or lengthy stretches of inconspicuous and well-screened roads would be allowed. Maintenance of existing roads and any new roads will be based on the

type of use for which the roads are constructed and the type of use that will occur in the river area.

f. **Agricultural Practices and Livestock Grazing:** In comparison to wild river areas, a wider range of agricultural and livestock grazing uses are permitted, to the extent currently being practiced. Row crops are not considered as much of an intrusion of the "largely primitive" nature of scenic corridors, as long as there is not a substantial adverse effect on the natural-like appearance of the river area.

g. **Recreation Facilities**: Larger-scale public use areas, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters, are allowed if such facilities are screened from the river.

h. **Public Use and Access:** Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in scenic river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance scenic river values.

i. **Rights-of-Way:** New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on scenic river area-related values and fully evaluated during the site selection process.

j. **Motorized Travel:** This use, on land or water, could be permitted, prohibited or restricted to protect river values. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Recreational River Areas

- are defined by the WSR Act to include ***"those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, that may have undergone some development along their shorelines, and that may have undergone some impoundment or diversion in the past."***

-are to be managed with an objective of protecting and enhancing existing recreational values. The primary objective is to provide opportunities for the public to participate in recreation activities dependent on, or enhanced by, the largely free-flowing nature of the river.

-where National Management Standards/Guidelines include allowable practices such as construction of recreation facilities in proximity to the river, although recreational river classification does not require extensive recreational developments. Such facilities are

still to be kept to a minimum, with visitor services provided outside the river area. Future construction of impoundments, diversions, straightening, rip-rapping and other modification of the water way or adjacent lands would not be permitted, except where such developments would not have a direct and adverse effect on the river and its immediate environment. The following Recreational River Program Management Standards apply:

a. **Forestry Practices:** Silvicultural practices, including timber harvesting could be allowed under standard restrictions to avoid adverse effects on the river environment and its associated values.

b. **Water Quality:** Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. **Hydroelectric Power and Water Resource Development:** No such development would be permitted in the channel or river corridor. Existing low dams, diversion works, rip rap and other minor structures may be maintained, provided the waterway remains generally natural in appearance. New structures may be allowed, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. **Mining:** Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river area boundary perfected after the effective date of designation can be patented only as to the mineral estate and not the surface estate.

e. **Road and Trail Construction:** Existing parallel roads can be maintained on one or both riverbanks. There can be several bridge crossings and numerous river access points.

f. **Agricultural Practices and Livestock Grazing:** In comparison to scenic river areas, lands may be managed for a full range of agricultural and livestock grazing uses, consistent with current practices.

g. **Recreation Facilities:** Interpretive centers, administrative headquarters, campgrounds and picnic areas may be established in proximity to the river. However, recreational classification does not require extensive recreation development.

h. **Public Use and Access:** Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in recreational river areas to the extent consistent with

the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance recreational river values.

i. **Rights-of-Way:** New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on recreational river area-related values and fully evaluated during the site selection process.

j. **Motorized Travel:** This use, on land, will generally be permitted, on existing roads. Controls will usually be similar to that of surrounding lands. Motorized travel on water will be in accordance with existing regulations or restrictions.

Management Objectives Common to All Wild, Scenic and Recreational Rivers

a. **Wilderness and Wilderness Study Areas:** Management of river areas which overlap designated wilderness areas or wilderness study areas will meet whichever standard is highest. If an area is released from wilderness study area status and the associated Interim Management Policy, the applicable river classification standards and guidelines would then apply.

b. **Fire Protection and Suppression:** Management and suppression of fires within a designated river area will be carried out in a manner compatible with contiguous Federal lands. On wildfires, suppression methods will be utilized that minimize the long term impacts on the river and river area. Pre-suppression and prevention activities will be conducted in a manner which reflects management objectives for the specific river segment. Prescribed fire may be utilized to maintain or restore ecological condition or meet objectives of the river plan.

c. **Insects, Diseases and Noxious Weeds:** The control of forest and rangeland pests, diseases and noxious weed infestations will be carried out in a manner compatible with the intent of the WSR Act and management objectives of contiguous Federal lands

d. **Cultural Resources:** Historic and prehistoric resource sites will be identified, evaluated and protected in a manner compatible with the objectives of the river and in accordance with applicable regulations and policies. Where appropriate, historic or prehistoric sites will be stabilized, enhanced and interpreted.

e. **Fish and Wildlife Habitat Improvement:** The construction and maintenance of minor structures for the protection, conservation, rehabilitation and enhancement of fish and wildlife habitat are acceptable, provided they do not affect the free-flowing characteristics of the river, are compatible with the classifications, that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

Appendix T

Wild and Scenic Rivers Eligibility Report For Surprise Canyon

Introduction

This report presents the results of an eligibility study on potential additions to the National Wild and Scenic Rivers System for an identified riverine system in the Northern and Eastern Mojave Desert Management Planning Area. This eligibility report evaluates Surprise Canyon in the Panamint Mountains under the guidelines presented in the National Wild and Scenic River Act and within BLM Manual 8351. This report concludes with a discussion of management standards and guidelines applicable to rivers designated under the auspices of the National Wild and Scenic River Act.

Background

Federal agencies such as the Bureau of Land Management (BLM) have been mandated to evaluate potential additions to the National Wild and Scenic River System (NWSRS) per Section 5(d) of the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271-1287, *et seq*). Title 36 of the Code of Federal Regulations (CFR), Subpart 297, addresses management of Wild and Scenic Rivers. Title 43 CFR, Subpart 8350, specifically addresses designation of management areas. NWSRS study guidelines have also been published in Federal Register Volume 7, Number 173 (September 7, 1982), for public lands managed by the U.S. Departments of Agriculture and Interior. Additional guidance on wild and scenic rivers (WSR) is provided in BLM Manual 8351.

The NWSRS study process includes three regulatory steps:

1. Determination of what river(s) and/or river segment(s) are <u>eligible</u> for WSR designation;

2. Determination of eligible river(s) and/or segment(s) potential <u>classification</u> with respect to wild, scenic, recreational designation, or any combination thereof; and

3. Conducting a <u>suitability</u> study of eligible river(s) and/or segment(s) for inclusion into the NWSRS, via legislative action. An environmental impact statement (EIS) is commonly prepared to document the analysis needed for this suitability determination/WSR designation.

Any river or river segment on public lands found eligible for inclusion in the NWSRS is to be managed as if this river/segment were designated, until such time as a suitability determination is made. This requires management of public lands within 0.25 mile of the

subject river/segment, to conform to management standards and guidelines presented in applicable Federal agency manuals for wild and scenic rivers until the suitability determination is completed.
If a river or river segment is found suitable for inclusion to the NWSRS, the U.S. Congress must then pass legislation so designating this river/segment, prior to its formal addition to the NWSRS. In addition to Federal agencies, private individuals and/or groups, as well as State governments, can nominate rivers and/or segments for inclusion.

Only the first two determinations, i.e., eligibility and classification, are documented in this report and the impacts evaluated in the attached NEMO Environmental Impact Statement. The remaining suitability determination would be completed in a separate document, and analyzed in an EIS format. The results of the suitability determination would amend the applicable land use plan, i.e., the California Desert Conservation Area (CDCA) Plan (BLM 1980, as amended).

To meet eligibility criteria for wild and scenic river designation, a river or segment must be free-flowing in nature and must possess one or more outstandingly remarkable cultural, fish/wildlife, geologic, historic, recreational or scenic values within its immediate proximity. Free-flowing, as defined in Section 16(b) of the WSRA, reflects water flowing in a natural condition without impoundment, diversion, straightening, or other modification of the waterway. However, the existence of low dams, diversion works, and other minor structures at the time of designation, does not necessarily bar consideration for inclusion on the NWSRS. Nor are there any minimum river or segment lengths necessary for inclusion. Considerations in defining study rivers and/or study river segments, should include land ownership patterns, physical changes in the river/segments and their environs, as well as the type and amount of human modification of lands bordering identified rivers/segments.

The term “outstandingly remarkable” is not clearly defined in the NWSRS, necessitating professional judgement by submitting parties. In general, the term is defined as a resource which is considered more than simply ordinary, in the context of the local region. Examples include areas supporting an “A” Scenic Quality Rating (BLM Manual 8400); habitats for threatened and/or endangered plants/animals; exemplary physiographical, ecological, geological or recreational type locations; and areas where little human modification is evident or where terrain is rugged and physically-challenging to traverse.

Description of River Under Consideration

Surprise Canyon is the longest perennial stream in the Panamint Mountains, a region known for its extreme aridity. The upper basin for Surprise Canyon originates within Death Valley National Park where the watercourse is an intermittent stream, appearing and disappearing beneath the canyon surface. At Brewery Spring, just within the National Park, the flow reappears and flows essentially as a perennial stream to the mouth of the canyon below Chris Wicht Camp. The stream flow is often 100-150 cfs in the canyon narrows, which is a substantial flow for a watercourse in the Mojave Desert.

The 5.0 miles of stream evaluated in this report, runs from the National Park boundary west to the mouth of Surprise Canyon.

The stream is within Inyo County and the California Desert Conservation Area and is entirely on lands managed by the BLM, Ridgecrest Field Office. The nearest rural community is Trona, approximately 25 miles to the southwest.

Description of Segment(s) Under Consideration

Considerations for NWSRS eligibility are based on resource values, land ownership patterns, shoreline development, proximity of roads and previous river modifications.

As a consequence of the analysis documented herein, **an eligibility determination for two segments of Surprise Canyon have been made. These segments cover a total distance of 5.0 miles and are entirely within the State of California.** The required suitability study on these segments will be deferred until completion of the NEMO Plan amendment to the CDCA Plan.

Recommended NWSRS Segment Classification and Land Ownership

Once determined eligible, river segments are tentatively classified for study as either wild, scenic, or recreational, based on the degree of access and amount of development along the river area. If a river or segment is designated by Congress, the enabling legislation generally specifies the classification.

Accessibility, primitive nature, number and type of land developments, structures, water resource developments, and water quality were all considered in assigning classifications. The primary criteria for the three classifications are outlined below [from ***A Compendium of Questions & Answers Relating to Wild & Scenic Rivers*** (Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council 1999)]:

Wild River Areas: Those rivers, or sections of rivers, that are free from impoundments, generally inaccessible except by trail (no roads), with watersheds or shorelines essentially primitive, and having unpolluted waters.

Scenic River Areas: Those rivers, or sections of rivers, that are free from impoundments, having shorelines or watersheds largely primitive and undeveloped, but accessible in places by roads (i.e., roads may cross but generally not parallel [in close proximity to] the river. These rivers or segments of rivers are usually more developed than wild and less developed than recreational. This classification may or may not include scenery as a Outstandingly Remarkable Value (ORV).

Recreational River Areas: Those rivers or sections of rivers that are readily accessible by road or railroad, may have had some development of the shoreline, and may have had some impoundment or diversion in the past. This classification, does not, however, imply that recreation is an Outstandingly Remarkable Value (ORV).

With these criteria in mind, as well as ORV data related to differing segments of Surprise Canyon, the following classifications have been recommended for that portion of the river determined eligible for inclusion to the NWSRS:

Riverine Segment	Classification	Public Land Miles	Private Land Miles
Death Valley National Park Boundary to Chris Wicht Camp	Scenic	4.0	0.00
Chris Wicht Camp to Surprise Canyon ACEC West Boundary	Recreational	1.0	0.00

Reasons for Consideration: Surprise Canyon was considered eligible for inclusion in the NWSRS because of values identified by the BLM in the completed CDCA Plan and during development of the ongoing NEMO Plan.

Outstandlying Remarkable Values: ORVs for this portion of the Surprise Canyon include the following:

Animals and Plants: The Canyon was designated as an Area of Critical Environmental Concern in the California Desert Conservation Area Plan in recognition of the area's significant natural and cultural resources. The area is also within the larger West Panamint Mountains Wildlife Habitat Management Area identified in the CDCA Plan.

Surprise Canyon supports an extensive Cottonwood/Willow Streamside Woodland, considered an Unusual Plant Assemblage in the CDCA Plan. This multistoried woodland covers approx. 2.0 miles of the total stream reach and is the most extensive riparian system in the Panamint Mountains. The remaining three miles of the stream reach is composed of other riparian/wetland dependant vegetation.

The Canyon also supports a Basic Saxicole Plant Assemblage, another Unusual Plant Assemblage identified in the CDCA Plan. The component species of this UPA are calciphytes, plants found almost exclusively on calcareous substrates, usually dolomites or limestones. Several Federal sensitive species have been located in Surprise Canyon in these limestone outcrops including Panamint dudleya *(Dudleya saxosa ssp. saxosa*) and Death Valley round-leaved phacelia (*Phacelia mustelina*).

The talus slopes in the canyon also support another Federal sensitive species endemic to the Panamint Mountains, the Panamint daisy (*Enceliopsis covillei*).
The diversity of vegetative communities in Surprise Canyon contribute to providing niches for a diverse wildlife community, "perhaps one of the most diverse and significant in the California Desert Conservation Area" (Surprise Canyon ACEC Plan pg. 20). Important species of wildlife include:

Reptiles: The Panamint alligator lizard (*Gerrhonatus panamintinus*) inhabits the rocky canyon bottom near permanent water overgrown with riparian vegetation. This lizard is a California BLM sensitive species and a California Department of Fish & Game special concern and protected species. The Panamint alligator lizard population in Surprise Canyon is a relict population, having been isolated here since the Pleistocene epoch.

Birds: Bird species inventories conducted in 1978 and 2000 have reported a rich assemblage of species for this five mile long canyon bottom. Over 70 species have been reported in the Surprise Canyon riparian area including several California BLM sensitive species - yellow warbler and prairie falcon. The canyon is also potentially suitable habitat for the Southwestern willow flycatcher, a Federal endangered species.

Mammals: The desert bighorn sheep, a California BLM sensitive species and California Department of Fish & Game fully protected species, inhabits the region surrounding the canyon. The water sources in Surprise Canyon are an essential resource for the desert bighorn sheep population in the Panamints.

The canyon also provides excellent foraging and roosting habitat for a variety of bat species which are California BLM and California D.F.G. sensitive species. These include the spotted bat, western mastiff bat, Townsend's big-eared bat, pallid bat, fringed myotis, Western small-footed myotis and Long-eared myotis. A rarely-seen mammal, the ringtail cat - a CDFG protected species, occurs in the rocky portions of the canyon.

Recreational: Surprise Canyon provides for an exceptional semi-primitive recreation opportunity. The canyon bottom forms a corridor thru the rugged 29,180 acre Surprise Canyon Wilderness. The eligible segments of Surprise Canyon offer outstanding hiking, birdwatching, botanizing, photography and backpacking opportunities. The hike from Chris Wicht Camp along this perennial stream and thru the narrow slot canyon to the abandoned ghost town of Panamint City, is one of the most outstanding treks in the California Desert.

Scenic: Using the Bureau's Visual Resource Management System, Surprise Canyon received the highest Scenic Quality Rating available (Class A). This was a reflection of the continued stream flow and riparian vegetation and the narrow slot canyon and waterfalls. At the far eastern edge of this eligible segment, along the north wall of the canyon, is a remarkable seep formation known as Limekiln Spring. This spring has a shaded grotto that is covered with thick growths of maidenhair fern and moss and is fed by a steady dripping curtain of water - a spectacular verdant feature set against the rough and parched canyon wall.

Interim Protection: The WSR Act and Federal guidelines require Federal agencies, upon determination of WSR eligibility, to provide interim protection and management for a river's free-flowing character and any identified outstandingly remarkable values, subject to valid existing rights, until such time as a suitability study is completed. Upon study completion, the Federal agency (BLM in this instance) then makes a recommendation to Congress, and Congress then acts on that recommendation.

Management Standards and Guidelines for National Wild and Scenic Rivers

The Wild and Scenic Rivers Act (Public Law 90-542, as amended) established a method of providing Federal protection for certain of our remaining free-flowing rivers, and preserving these locales for the use and enjoyment of present and future generations. Such designated rivers benefit from the protective management which the act provides.

Section 10(a) of the WSR Act states:
"**Each component of the NWSRS shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration, primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area."** This section is generally interpreted by the Secretary of the Interior as a stated non-degradation and enhancement policy for all designated river areas, regardless of classification.

The following National Standards and Guidelines are summarized from BLM Manual 8351 [Wild and Scenic Rivers-Policy and Program Direction for Identification, Evaluation and Management (1992)]. These standards/guidelines are intended to apply to formally-designated rivers through incorporation into, or amendment of, resource or land use management plans. Incorporation or amendment efforts are typically completed within three years of formal WSR designation. However, these guidelines also apply, on an interim basis, as described above. For the sake of clarity, guidelines are presented for each separate river classification (wild, scenic and recreational).

Wild River Areas

- are defined by the WSR Act to include "those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America."

- are to be managed with a primary objective of providing primary emphasis to protection of identified ORVs, while providing consistent, river-related, outdoor recreation opportunities in a primitive setting.

- where National Management Standards/Guidelines include allowable practices such as construction of minor structures related to wildlife habitat enhancement, protection from fire, and rehabilitation or stabilization of damaged resources, provided the area will remain natural-looking and the practices or structures will harmonize with the environment. Developments such as trails, bridges, occasional fencing, natural-appearing water diversions, ditches and water management devices, may be permitted if they are unobtrusive and do not have a significant, adverse impact on the natural

character of the river area. The following Wild River Program Management Standards apply:

a. Forestry Practices: Cutting of trees not permitted except when needed in association with a primitive recreation experience (such as clearing trails, for visitor safety purposes, or for fire control). Timber outside the boundary, but within visual corridors, should where feasible, be managed and harvested in a manner designed to provide special emphasis on visual quality.

b. Water Quality: Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. Hydroelectric Power and Water Resource Development: No such development would be permitted in the channel or river corridor. All water supply dams and major diversions are prohibited. The natural appearance and essentially primitive character of the river area must be maintained. Federal agency groundwater development for range, wildlife, recreation or administrative facilities may be permitted if there are no adverse effects on ORVs.

d. Mining: New mining claims and mineral leases are prohibited within 0.25 mile of the river. Valid existing claims would not be abrogated and, subject to existing regulations, e.g., 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, existing mining activity would be allowed to continue. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims beyond 0.25 mile of the river, but within the wild river boundary, and perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. Road and Trail Construction: No new roads or other provisions for overland motorized travel would be permitted within a narrow incised river valley or, if the river valley is broad, within 0.25 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area and unobtrusive trail bridges may be permitted.

f. Agricultural Practices and Livestock Grazing: Agricultural use is restricted to a limited amount of domestic livestock grazing and hay production to the extent currently being practiced. Row crops are prohibited.

g. Recreation Facilities: Major public use areas, such as campgrounds, interpretive centers, or administrative headquarters are located outside of wild river areas. Simple comfort and convenience facilities, such as toilets, tables, fireplaces, shelters and refuse containers may be provided as necessary within the river area. These should harmonize with the surroundings. Unobtrusive hiking and equestrian trail bridges could be allowed on tributaries, but would not normally cross the designated river.

h. Public Use and Access: Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in wild river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance wild river values.

i. Rights-of-Way: New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on wild river area-related values and fully evaluated during the site selection process.

j. Motorized Travel - Although this use can be permitted, it is generally not compatible with this river classification. Normally, motorized use will be prohibited in a wild river area. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Scenic River Areas

- are defined by the WSR Act to include **"those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."**

- are to be managed with a primary objective of maintaining and providing outdoor recreation opportunities in a near-natural setting. The basic distinctions between "wild" and "scenic" classifications, involve varying degrees of development, types of land use, and road accessibility. In general, a wide range of agricultural, water management, silvicultural and other practices could be compatible with scenic classification values, providing such practices are carried out in a manner not resulting in a substantial adverse effect on the river and its immediate environment.

-where National Management Standards/Guidelines include the same considerations set forth for wild rivers, except that motorized vehicle use may in some cases be appropriate and that development of larger scale public-use facilities within the river area, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters would be compatible, if such facilities were screened from the river. The following Scenic River Program Management Standards apply:

a. **Forestry Practices:** Silvicultural practices, including timber harvesting could be allowed, provided that such practices are carried out in such a way that there is no substantial adverse effect on the river and its immediate environment. The river should be maintained in its near-natural condition.

Timber outside the boundary, but within the visual screen area, should be managed and harvested in a manner designed to provide special emphasis on visual quality. Preferably, reestablishment of tree cover would be through natural revegetation. Cutting

of dead and down materials for fuel wood will be limited. Where necessary, restrictions on the use of wood for fuel may be prescribed.

b. **Water Quality:** Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. **Hydroelectric Power and Water Resource Development**: No such development would be permitted in the channel or river corridor. Flood control dams and levees would be prohibited. All water supply dams and major diversions are prohibited. Maintenance of existing facilities and construction of some new structures would be permitted, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. **Mining:** Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river boundary, and perfected after the effective date of designation, can be patented only as to the mineral estate and not the surface estate.

e. **Road and Trail Construction:** Roads may occasionally bridge the river and short stretches of conspicuous or lengthy stretches of inconspicuous and well-screened roads would be allowed. Maintenance of existing roads and any new roads will be based on the type of use for which the roads are constructed and the type of use that will occur in the river area.

f. **Agricultural Practices and Livestock Grazing:** In comparison to wild river areas, a wider range of agricultural and livestock grazing uses are permitted, to the extent currently being practiced. Row crops are not considered as much of an intrusion of the "largely primitive" nature of scenic corridors, as long as there is not a substantial adverse effect on the natural-like appearance of the river area.

g. **Recreation Facilities**: Larger-scale public use areas, such as moderate-sized campgrounds, interpretive centers, or administrative headquarters, are allowed if such facilities are screened from the river.

h. **Public Use and Access:** Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in scenic river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance scenic river values.

i. **Rights-of-Way:** New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where

no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on scenic river area-related values and fully evaluated during the site selection process.

j. **Motorized Travel:** This use, on land or water, could be permitted, prohibited or restricted to protect river values. Prescriptions for management of motorized use may allow for search and rescue/emergency situations.

Recreational River Areas

- are defined by the WSR Act to include *"**those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, that may have undergone some development along their shorelines, and that may have undergone some impoundment or diversion in the past.**"*

-are to be managed with an objective of protecting and enhancing existing recreational values. The primary objective is to provide opportunities for the public to participate in recreation activities dependent on, or enhanced by, the largely free-flowing nature of the river.

-where National Management Standards/Guidelines include allowable practices such as construction of recreation facilities in proximity to the river, although recreational river classification does not require extensive recreational developments. Such facilities are still to be kept to a minimum, with visitor services provided outside the river area. Future construction of impoundments, diversions, straightening, rip-rapping and other modification of the water way or adjacent lands would not be permitted, except where such developments would not have a direct and adverse effect on the river and its immediate environment. The following Recreational River Program Management Standards apply:

a. **Forestry Practices:** Silvicultural practices, including timber harvesting could be allowed under standard restrictions to avoid adverse effects on the river environment and its associated values.

b. **Water Quality:** Conditions will be maintained or improved to meet Federal criteria or federally-approved State Standards. River management plans shall prescribe a process for monitoring water quality on a scheduled basis.

c. **Hydroelectric Power and Water Resource Development:** No such development would be permitted in the channel or river corridor. Existing low dams, diversion works, rip rap and other minor structures may be maintained, provided the waterway remains generally natural in appearance. New structures may be allowed, provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.

d. **Mining:** Subject to existing regulations, e.g. 43 CFR 3809, and any future regulations the Secretary of the Interior may prescribe to protect the rivers included in the NWSRS, new mining claims and mineral leases can be allowed. All mineral activity on federally administered land must be conducted in a manner that minimizes surface disturbance, water sedimentation, pollution and visual impairment. Reasonable mining claim and mineral lease access will be permitted. Mining claims within the wild river area boundary perfected after the effective date of designation can be patented only as to the mineral estate and not the surface estate.

e. **Road and Trail Construction:** Existing parallel roads can be maintained on one or both riverbanks. There can be several bridge crossings and numerous river access points.

f. **Agricultural Practices and Livestock Grazing:** In comparison to scenic river areas, lands may be managed for a full range of agricultural and livestock grazing uses, consistent with current practices.

g. **Recreation Facilities:** Interpretive centers, administrative headquarters, campgrounds and picnic areas may be established in proximity to the river. However, recreational classification does not require extensive recreation development.

h. **Public Use and Access:** Recreation use including, but not limited to, hiking, fishing, hunting and boating is encouraged in recreational river areas to the extent consistent with the protection of the river environment. Public use and access may be regulated and distributed where necessary to protect and enhance recreational river values.

i. **Rights-of-Way:** New transmission lines, natural gas lines, water lines, etc., are discouraged unless specifically prohibited outright by other plans, orders or laws. Where no reasonable alternative exits, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are unavoidable, locations and construction techniques will be selected to minimize adverse effects on recreational river area-related values and fully evaluated during the site selection process.

j. **Motorized Travel:** This use, on land, will generally be permitted, on existing roads. Controls will usually be similar to that of surrounding lands. Motorized travel on water will be in accordance with existing regulations or restrictions.

Management Objectives Common to All Wild, Scenic and Recreational Rivers

a. **Wilderness and Wilderness Study Areas:** Management of river areas which overlap designated wilderness areas or wilderness study areas will meet whichever standard is highest. If an area is released from wilderness study area status and the associated Interim Management Policy, the applicable river classification standards and guidelines would then apply.

b. **Fire Protection and Suppression:** Management and suppression of fires within a designated river area will be carried out in a manner compatible with contiguous Federal lands. On wildfires, suppression methods will be utilized that minimize the long term impacts on the river and river area. Pre-suppression and prevention activities will be conducted in a manner which reflects management objectives for the specific river segment. Prescribed fire may be utilized to maintain or restore ecological condition or meet objectives of the river plan.

c. **Insects, Diseases and Noxious Weeds:** The control of forest and rangeland pests, diseases and noxious weed infestations will be carried out in a manner compatible with the intent of the WSR Act and management objectives of contiguous Federal lands

d. **Cultural Resources:** Historic and prehistoric resource sites will be identified, evaluated and protected in a manner compatible with the objectives of the river and in accordance with applicable regulations and policies. Where appropriate, historic or prehistoric sites will be stabilized, enhanced and interpreted.

e. **Fish and Wildlife Habitat Improvement:** The construction and maintenance of minor structures for the protection, conservation, rehabilitation and enhancement of fish and wildlife habitat are acceptable, provided they do not affect the free-flowing characteristics of the river, are compatible with the classifications, that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment.