U.S. Department of the Interior
Bureau of Land Management
Arizona State Office

Kingman Resource Area

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FINAL

Black Mountain Ecosystem Management Plan and Environmental Assessment

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific and cultural values.

BLM/AZ/PL-96/012

BLACK MOUNTAIN ECOSYSTEM MANAGEMENT PLAN, ENVIRONMENTAL ASSESSMENT AND DECISION RECORD

U.S. Department of the Interior
Bureau of Land Management
Phoenix District
Kingman Resource Area

U.S. Department of the Interior
National Park Service
Lake Mead National Recreation Area

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TABLE OF CONTENTS

EXECUTIVE SUMMARY v

FOREWORD vii

INTRODUCTION
- Purpose and Need for the Proposed Action 1
- Conformance with the Land Use Plan 1
- Relationships with other Plans, Statutes and Regulations 1
- Plan Implementation 2
- Area Description 2
  - Wildlife
    - General 4
    - Species of Special Concern 7
  - Wild Burros 11
  - Livestock 12
  - Wilderness 15
  - Cultural Resources 17
  - Lands 17
  - Recreation 18
  - Area of Critical Envejonmental Concern 18
  - Minerals 18
- Resource Management Plan Guidance Pertinent to This Plan 21
- The Ecosystem Management Planning Process 23

ISSUES
- Plan Issues 25
- Issues Resolved Through Existing Guidance 26
- Issues Beyond the Scope of This Plan 28

GOALS 29

OBJECTIVES
- Vegetative Objective 1 31
  - Management Actions 31
- Vegetative Objective 2 34
  - Management Actions 34
- Biodiversity/Ecosystem Health Objective 35
  - Management Actions 35
- Recreation Objective 41
  - Management Actions 41

Wilderness Preservation Objective 45
Management Actions 45
Cultural Resources Objective 1 49
Management Actions 49
Cultural Resources Objective 2 51
Management Actions 51
Additional Actions 52

MONITORING
Monitoring for Vegetation Objectives 53
Monitoring for Biodiversity/Ecosystem Health 54
Monitoring for Recreation and Wilderness Preservation Objectives 54
Monitoring for Cultural Resource Objectives 54

RESEARCH NEEDS 57

PLAN EVALUATION 59

PLAN IMPLEMENTATION COSTS 61

COMMENT LETTERS AND RESPONSES
Letters 67
Responses 85

APPENDICES
1. List of Scientific Plant and Animal Names 97
2. Listed or Proposed Threatened or Endangered Species or Candidate Species that may Occur within the Black Mountain Ecosystem 99
3. Burro Capture Methods 100
4. Capture Methodologies for Bighorn Sheep 102
5. Existing and Abandoned Wildlife Water Developments in the Black Mountains 103
6. Range Developments in the Black Mountain Wilderness Complex 104
7. Administratively Closed Vehicle Ways in Wilderness Areas 105
8. Wildlife Population Survey Techniques 107
9. Burro Census Procedures 108
10. Full Fire Suppression Steps for Black Mountain Wilderness Areas 109
11. Rangeland Monitoring—Utilization Studies 111
12. Biological Evaluation of the Black Mountain Ecosystem Management Plan 119

GLOSSARY OF TERMS 125

REFERENCES 129

PUBLIC PARTICIPATION 134

ENVIRONMENTAL ASSESSMENT 135

LIST OF MAPS

1. Ecosystem Boundary, Joint Use and Disposal Areas 3
2. Desert Bighorn Sheep Habitat 5
3. Desert Tortoise Habitat and Biological Linkage Corridors 6
4. Grazing Allotments and Herd Management Area 13
5. Wilderness and Areas of Critical Environmental Concern 16
6. Communication Sites and Right-of-Way Corridors 19
7. Recreation 20
8. Recreation Zones and Trails 44
9. Vegetative Monitoring Sites 55

LIST OF TABLES

1. List of Species of Special Concern 7
2. Grazing Allotments within the Black Mountain Ecosystem 14
3. Estimated Current and Anticipated Motorized and Mechanized Uses in the Black Mountain Wilderness Complex 17
4. Utilization Limits (Proper Use Factors for Key Plant Species) 32
5. Desirable Forage Species that Might Increase with Reduced Grazing Pressure 32
6. Proposed Wildlife Water Developments in the Black Mountains 37
7. Standards for Wilderness Solitude and Recreational Opportunities 41
8. Settings, Facilities, and Restrictions for the Recreational Activity Zones 42
9. Trail System for the Black Mountain Ecosystem 43
10. Location of Black Mountain Parking Areas, Trailheads, and Visitor Registers for Wilderness Routes 46
11. Proposed Reclamation Measures for Abandoned Mining Sites in the Black Mountain Wilderness Areas 47
12. Location of Proposed Motor Vehicle Barriers in the Black Mountains 49
13. Plan Implementation and Cost Estimates 62

ACRONYMS USED IN THIS PLAN

ACEC	Area of Critical Environmental Concern
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
AUM	Animal Unit Month
BLM	Bureau of Land Management
BME	Black Mountain Ecosystem
EA	Environmental Assessment
FLPMA	Federal Land Policy and Management Act
EIS	Environmental Impact Statement
ESI	Ecological Site Inventory
LMNRA	Lake Mead National Recreation Area
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NPS	National Park Service
RMP	Resource Management Plan
T&E	Threatened and Endangered
USFWS	United States Fish and Wildlife Service

EXECUTIVE SUMMARY

BACKGROUND

The many resources of the Black Mountains in northwestern Arizona have created many different perspectives on how those resources should be managed. The Bureau of Land Management developed this plan in response to long-standing resource use conflicts and management controversies, especially regarding wildlife, wild burros and livestock. The plan was reviewed by a number of diverse publics.

This plan will become the primary guide for managing all public lands (including wilderness) within the Black Mountain ecosystem, and will supersede all existing activity plans which apply to the public lands of the Black Mountains.

MAIN FEATURES OF THE PLAN

- Seeks healthy functioning ecosystem and long-term viability for all species in the ecosystem. This will be accomplished by maintaining and establishing biological linkage corridors within the ecosystem and to other ecosystems, habitat continuity, water developments, and mitigating habitat loss.
- Identifies vegetation objectives to ensure ecosystem health.
- Sets utilization limits for key plant species.
- Establishes initial stocking rates for ungulates that will promote proper functioning and sustainability of the ecosystem.
- Provides for the construction of vegetation study exclosures.
- Establishes additional vegetation monitoring study sites to monitor areas used primarily by bighorn sheep.
- Prescribes completion of ecological site inventory.
- Identifies research needs.
- Prescribes procedures for wildfire suppression.
- Creates a system of recreational zones that will provide visitors with a spectrum of opportunities while protecting resources.
- Designates mountain bike routes.
- Designates a trail system ranging from unimproved routes identified on maps to fully developed trails.
- Prescribes easements for administrative and recreational access to the three wilderness areas.
- Provides for the management of wild burros as an integral part of the natural system.
- Designates a variety of other recreational facilities including interpretive sites along the Route 66 backcountry byway, trailheads, and minimally improved dirt parking areas at selected entry points to wilderness areas.

- Provides for protection and enhancement of the naturalness of the three wilderness areas through reclamation of abandoned mine sites and administratively closed motor vehicle routes, removal of abandoned items and construction of motor vehicle access barriers.

- Provides for activities in wilderness areas including continuation of desert tortoise monitoring, maintenance of existing developments, animal census and removal, and construction of new developments which meet established criteria.

- Provides for protection, enhancement and use of cultural resources with their scientific and public values.

FOREWORD
The Ecosystem Approach

As dwellers on the land and users of its resources, our attitudes have evolved perceptibly over the decades. No longer do we embrace traditional consumptive uses with the assurance that the universe was created solely for the pleasure of humans. We have begun to understand that man is but one small part of planetary life. As Chief Seattle of the Puget Sound tribe was aware:

> "Man did not weave the web of life, he is merely a strand in it. Whatever he does to the land he does to himself."

The pioneer notion that the land was endless, disposable, and replaceable, began to seem questionable. Subdivisions devoured our favorite hiking, bird watching and hunting haunts. Summer cabins sprang up on our trout streams. New roads appeared everywhere, and illegally dumped trash became abundant.

We began to realize the need to manage the land as a renewable resource, and further, that we must find ways to restore resources lost through misuse or neglect. It dawned on us that it was, if nothing else, in our own best interest to maintain the productivity of the land.

But there are further reasons, as well as economic ones, to maintain natural, healthy ecosystems. As the world becomes more crowded and technical, tensions and frustrations increase. We need a refuge—places that are tranquil and natural, places to observe wild animals in their natural habitats, places to hike, to picnic, to read a book, to recharge our internal batteries.

There is also a deeper, more intangible, perhaps a primal need, to know that wild places continue to exist. As we become wiser, we may come to understand that wild places really are an obligate ingredient in the human psyche.

As our awareness of the intrinsic value of natural systems and their function grow, so grows our awareness of the complexity of these systems. As John Muir realized, (*My First Summer in the Sierra, 1911*):

> "When we try to pick out anything by itself, we find it hitched to everything else in the universe."

And as Teddy Roosevelt, another naturalist ahead of his time, explained:

> "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased and not impaired in value."

In the Black Mountains of northern Arizona, seemingly irreconcilably perspectives of proper natural resource management resulted in the formation, in early 1993, of an Ecosystem Management Team.

What is ecosystem management? The Bureau of Land Management defines the concept as the integration of ecological, economic, and social principles to manage biological and physical systems in a manner that safeguards the long-term sustainability, natural diversity, and productivity of the landscape.

Ecosystem management is, of course, easier to define than to achieve. The Ecosystem Management Team came together as an unlikely and heterogeneous assembly of determined individuals, each with his or her own agenda to promote and ax to grind. Present at the lengthy meetings were individuals representing wilderness, wildlife, sportsmen, livestock, burros, bighorn sheep, and several government agencies.

Despite a fortuitous beginning with team-building training and exercises, many months passed with little discernible progress. Single-mindedness and inflexibility blockaded cooperation. The group was going nowhere. But then a transformation occurred. Just when communication had broken down to the point that dissolution seemed imminent, members began to listen to each other. Apparently, they had come to realize that the only hope of avoiding total failure was compromise. The team began to understand that it could not successfully approach management problems from single agenda angles, but instead would need to address the ecosystem as an inseparable whole. With this in mind, the team developed the following vision statement to guide the planning effort.

> *Manage the Black Mountain ecosystem in a cooperative manner which, over the long term, will result in the enhancement of the area's resource values.*

Ecosystem management had arrived in the Black Mountains.

The team's first appreciation of the value of the ecosystem approach occurred when it realized that a great many management problems could be solved by ensuring a healthy and diverse plant community, something that all members could support, and an important piece of common ground. A goal, objectives, and management actions were developed for the maintenance and enhancement of Black Mountain plant communities. This leap forward, a progressive departure from the narrow-minded, single-species approaches to natural resources management of the past, set the stage for other common goals, objectives, and actions designed to address remaining Black Mountains management issues. A comprehensive Black Mountain Ecosystem Management Plan emerged.

INTRODUCTION

The harsh, semi-arid environment and uniquely rugged topography of northwest Arizona's Black Mountains support a large variety of desert-adapted plants and animals. This ecosystem is home to the largest herd of wild and free-roaming burros in the country and also provides excellent habitat for one of the largest, naturally occurring herds of desert bighorn sheep found on public lands in the United States. The lower elevation foothills and valley bottoms provide a forage base for several yearlong cow-calf livestock operations.

The complexity of managing the Black Mountains requires input from a wide range of natural resource specialists and concerned publics. Special interest groups advocating wilderness, wildlife, livestock grazing, and wild burros have become active participants in the management of the Black Mountain Ecosystem.

Although the boundaries of the ecosystem were defined as much by agency jurisdictional boundaries and management issues as by geographic or biological linkages, it is in its approach to problem-solving that the plan becomes worthy of the "ecosystem" designation. "Ecosystem management" as used here describes an approach which has multi-agency, multi-discipline, and multi-interest group involvement and breadth.

The Black Mountain Ecosystem Management Team was formed in March of 1993 to help meet the challenge of developing an integrated management plan providing for multiple uses of natural resources and a properly functioning ecosystem.

The most prevalent issue in the management of this ecosystem pertains to competition, both real and perceived, between wild burros, desert bighorn sheep, mule deer, and livestock. Spatial and dietary overlap of these species has been at the center of management concerns. Other issues include wilderness management, recreation management, biodiversity, habitat continuity and sustainability, and cultural resource management.

The plan is broad in scope, issue-driven, and is not intended to address every conceivable management situation. The *Kingman Resource Management Plan* provides further guidance for management not addressed in detail in this plan.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of this plan is to facilitate multiple-use management, while ensuring the sustained health of the land. The need is to resolve long-standing resource use conflicts.

CONFORMANCE WITH THE LAND USE PLAN

This plan conforms with the *Kingman Resource Management Plan and Final Environmental Impact Statement* (1995) which guides management in the Kingman Resource Area including the Black Mountain Ecosystem.

RELATIONSHIPS WITH OTHER PLANS, STATUTES AND REGULATIONS

This document is in compliance with the Federal Land Policy and Management Act of 1976 which mandates the Bureau of Land Management to manage the public lands for multiple use on a sustained yield basis.

A check will be done on this plan during the annual evaluation to assure it is consistent with any new comprehensive plans. This plan is consistent with various Bureau strategy

plans including, but not limited to: *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep, The Range of Our Vision for Arizona* (draft), *Arizona Fish and Wildlife 2000, Arizona Wild Horse and Burro Strategy Plan* (draft), *Recreation 2000*, and the *Arizona Game and Fish Wildlife 2000 Strategic Plan.*

The *Black Mountain Ecosystem Management Plan* will be the driving document for management of public lands in the Black Mountains. It replaces the *Black Mountain Habitat Management Plan, Wildlife Operations Plan and Maintenance Plan for the Warm Springs, Mount Nutt, and Mount Wilson Wilderness Areas*, and two range improvement maintenance plans covering Mount Wilson, Warm Springs and Mount Nutt. It replaces that portion of the *Cerbat-Music Habitat Management Plan* that falls within the boundary of the *Black Mountain Herd Management Area Plan* and all previously completed allotment management plans pertaining to the ecosystem. It incorporates the *Historic Route 66 National Back Country Byway Project Plan.* All appropriate goals, objectives, actions, and monitoring from the above mentioned plans were included in this plan.

The *Black Mountain Ecosystem Management Plan* provides management direction for all uses of the public lands and, as such, precludes the need to develop additional activity plans such as wilderness management plans, area of critical environmental concern plans, cultural resource management plans, and recreation area management plans.

This plan meets the Sikes Act (1974), the Public Rangeland Improvement Act (1978), the Wilderness Act (1964), and the Arizona Desert Wilderness Act (1990) requirements.

PLAN IMPLEMENTATION

This plan was developed in a cooperative manner. Therefore, it is expected that all agencies and individuals involved in its development will be involved in implementation, monitoring, and evaluation.

AREA DESCRIPTION

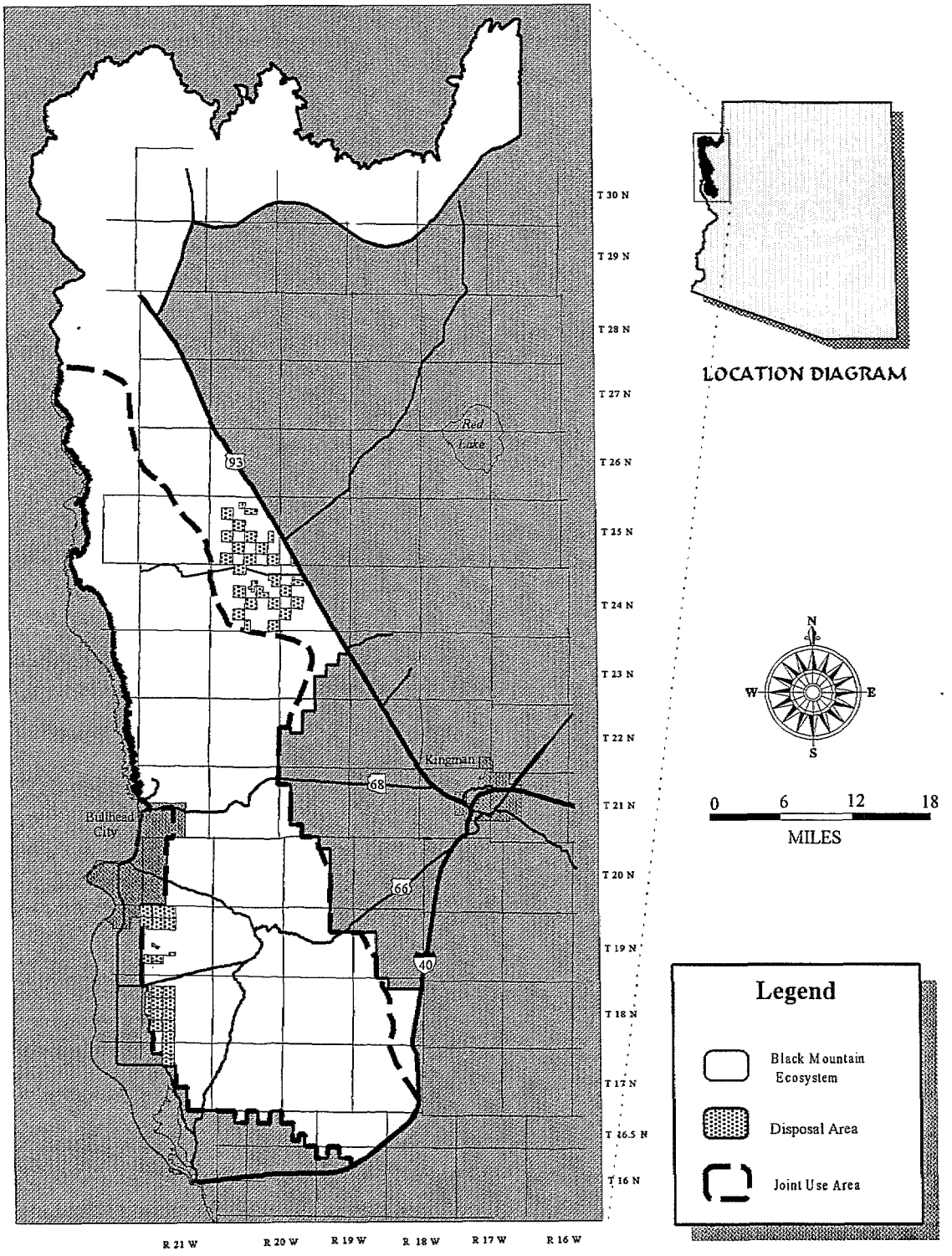
The Black Mountains occupy the western third of Mohave County in extreme northwestern Arizona. For management purposes, the ecosystem is delineated by the Colorado River on the west, Lake Mead on the north, and Interstate 40 and U.S. 93 on the south and east (Map 1). The ecosystem encompasses approximately 840,000 acres of federal, state, and private land. A subsection of the ecosystem, called the joint use area, was also delineated. This joint use area is defined as the geographical area within which species competition between burros, bighorn sheep, mule deer, or cattle is most likely to occur. Lands outside the joint use area are utilized primarily by bighorn sheep or cattle. Forage was allocated in the *Kingman Resource Management Plan* in the following initial ratios: big game - 40 percent; wild burros - 30 percent; cattle - 30 percent. Forage allocated to ungulates is intended to be only that portion (approximately 50 percent) of total forage production which can be taken without long-term adverse effects on plant condition, vigor and proper ecosystem function.

This geographic province is primarily of volcanic origin, mostly basalt, and is characterized by large mesas and ridges, steep cliffs, numerous talus slopes, rocky foothills, alluvial fans, and sandy washes. The highest point in this range is Mount Perkins at 5,456 feet. The average elevation of the Sacramento Valley to the east is 2,000 feet. The Mohave Valley to the west is much lower, with the Colorado River flowing at an average elevation of 540 feet.

The climate of the region is generally warm, windy, and dry with the extreme highs near 120 degrees Fahrenheit and the extreme lows near 25 degrees Fahrenheit. Precipitation ranges from three inches per year along the Colorado River to 12 inches on the higher peaks.

Two major plant communities predominate in the Black Mountains. The Mohave desert shrub

MAP 1 - ECOSYSTEM BOUNDARY, JOINT USE AND DISPOSAL AREAS



type, typified by white brittlebush and creosote bush, occurs from the western slopes of the Black Mountains to the Colorado River at elevations of 400 to 2,500 feet. The Grand Canyon desert shrub or eastern Mohave desert type characterized by Mohave yucca and blackbrush occurs on the upper western and eastern slopes of the Black Mountains, and throughout the Sacramento Valley at elevations of 1,500 to 5,400 feet. Scientific plant names mentioned in this document are listed in Appendix 1.

The Black Mountain ecosystem is central to several major population centers including Kingman, Golden Valley, Lake Havasu City, Bullhead City/Laughlin, Boulder City and Las Vegas. With increased urbanization comes increased demand for use of resources, and the Black Mountains are a focal point for this use.

Wildlife

General: The Black Mountains contain a rich assemblage of desert adapted wildlife species typical to Mohave desert shrub and Grand Canyon desert shrub plant communities. A sample of wildlife species found within this region include: Merriam's kangaroo rat, white-throated woodrat, black-tailed jackrabbit, gray fox, kit fox, bobcat, coyote, ringtail, desert tortoise, speckled rattlesnake, desert iguana, chuckwalla, cactus wren, black-throated sparrow, golden eagle, and prairie falcon. Small game species include Gambel's quail, mourning dove, white-winged dove, and desert cottontail. Big game species include desert bighorn sheep, mule deer, and mountain lion. See Appendix 1 for the list of scientific names.

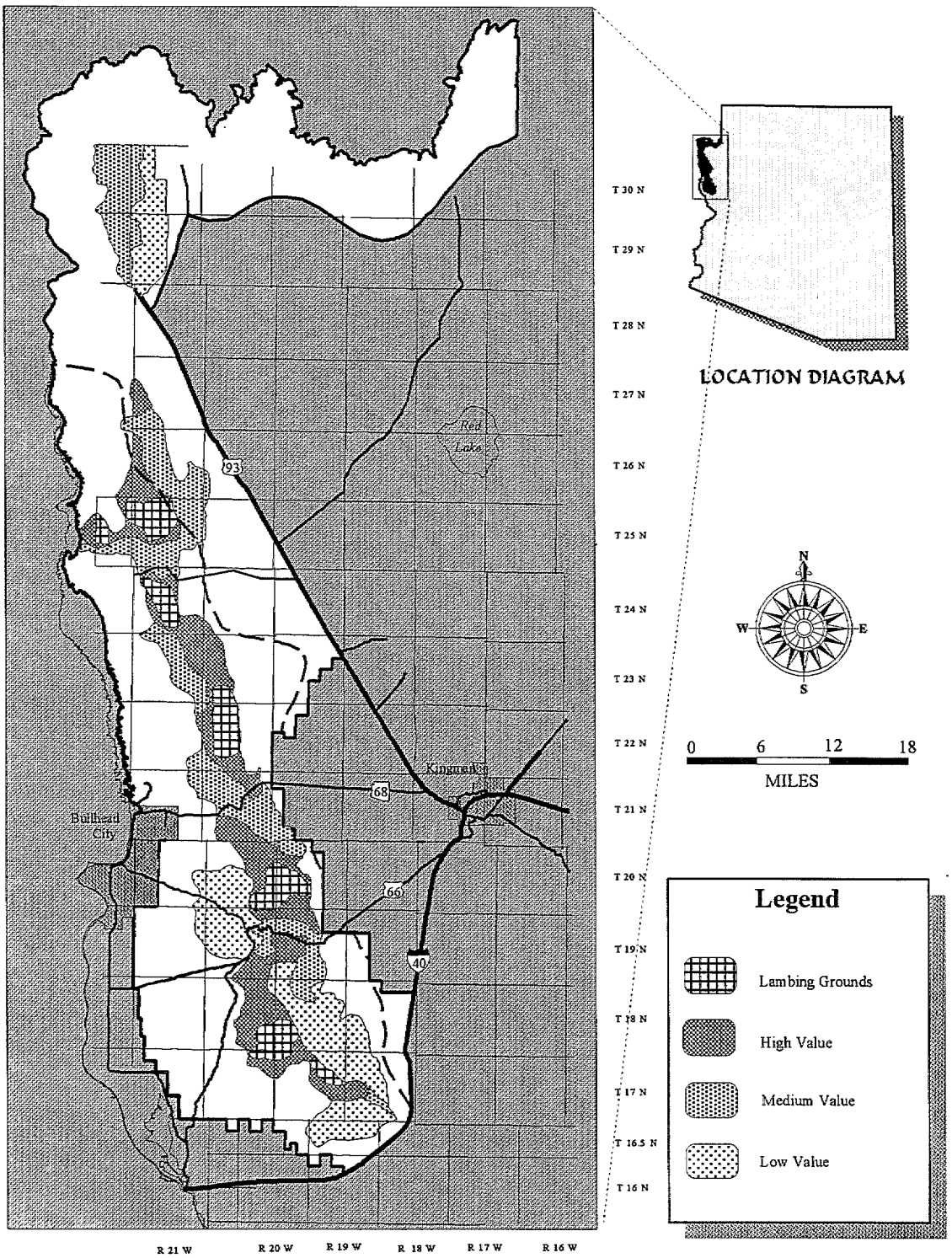
The Black Mountains support one of the largest desert bighorn sheep populations on the continent. In 1994, a total of 1,778 bighorn sheep were estimated to inhabit the ecosystem (includes Arizona Game and Fish Department management units: 15BW: 504 sheep; 15CN: 480 sheep; 15CS: 307 sheep; 15D: 487 sheep). An estimated 992 desert bighorn sheep inhabited the Black Mountains south of El Dorado Canyon (all within the joint use area), and an estimated 786 desert bighorn sheep occur north of El Dorado Canyon (outside of the joint use area). Data used to determine population estimates of bighorn are gathered annually by the Arizona Game and Fish Department in the fall and sometimes spring. The herd provides animals for transplant to other areas in Arizona and out of state. Bighorn sheep have been captured from the Black Mountains every year since 1979 (except 1992). As of 1995, 502 bighorn sheep have been removed from the ecosystem, primarily for reintroduction or herd augmentation purposes. In 1994, 38 ram-only bighorn hunting permits were issued by the Arizona Game and Fish Department in the ecosystem. Bighorn sheep habitat (Map 2) on public land has been categorized as follows:

Bighorn Habitat Categories	Acreage
Lambing Grounds	38,807
High Value	80,258
Medium Value	95,154
Low Value	82,180
Total	**296,399**

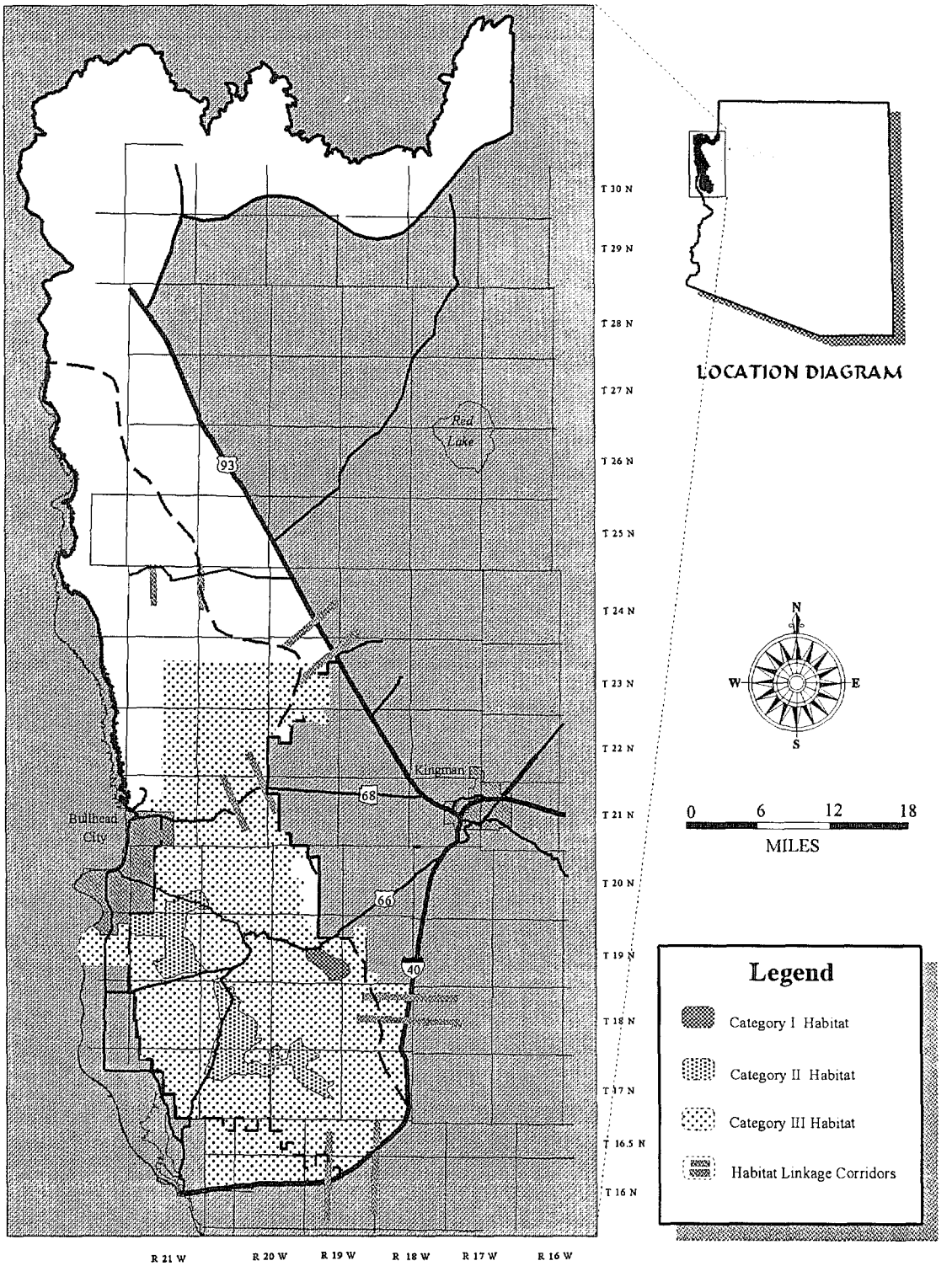
Mule deer inhabit the Black Mountains at low densities and the population is estimated to be as high as 300 animals (personal communication, Arizona Game and Fish Department Region 3, 1994). Mule deer are counted only incidentally during the fall desert bighorn sheep surveys. Approximately 25 buck mule deer hunting permits are issued annually in the ecosystem. Hunter success averages approximately 30 percent.

There are six designated biological linkage corridors in the ecosystem established to facilitate wildlife and plant movement within and between adjacent ecosystems. These are the Cerbat, Hualapai, Cottonwood Road, Union Pass, Thumb Butte, and Buck Mountain Wash corridors (Map 3).

MAP 2 - DESERT BIGHORN SHEEP HABITAT



MAP 3 - DESERT TORTOISE HABITAT AND HABITAT LINKAGE CORRIDORS



Corridors range between one and three miles in width. Public land within these corridors would remain in public ownership; actions and development within the corridor are restricted or mitigated to allow movement of plants and animals. Habitat fragmentation will be minimized by restricting development within these areas.

Species of Special Concern: The species in Table 1 are known, or may potentially exist, in the Black Mountain Ecosystem. Information on occurrence and habitat needs for many of these species is limited. The scientific names for these species can be found in Appendix 1. Appendix 2 is a species list developed by the U.S. Fish and Wildlife Service.

Table 1. List of Species of Special Concern*

Species (known)	Status	
American peregrine falcon	Federally listed	Endangered**
southwestern willow flycatcher	Federally listed	Endangered
desert tortoise	Federal Candidate	Category 2†
chuckwalla	Federal Candidate	Category 2
fringed myotis	Federal Candidate	Category 2
Yuma myotis	Federal Candidate	Category 2
California leaf-nosed bat	Federal Candidate	Category 2
greater western mastiff bat	Federal Candidate	Category 2
Townsend's big-eared bat	Federal Candidate	Category 2
Allen's lappet-browed bat	Federal Candidate	Category 2
Kingman springsnail	Federal Candidate	Category 2
two-color beard-tongue	Federal Candidate	Category 2
white-margined penstemon	Federal Candidate	Category 2
Mohave sandpaper bush	Sensitive Species•	
crownless milkweed vine	Sensitive Species	
desert antelopebrush	Sensitive Species	
Mohave cottonthorn	Sensitive Species	
three-hearts	Sensitive Species	
yellow-flowered bear poppy	Sensitive Species	
shrubby senna	Sensitive Species	
Species (potential)		
bald eagle	Federally listed	Endangered
Yuma clapper rail	Federally listed	Endangered
brown pelican	Federally listed	Endangered
California black rail	Federal Candidate	Category 1***
ferruginous hawk	Federal Candidate	Category 2
western burrowing owl	Federal Candidate	Category 2
cave myotis	Federal Candidate	Category 2
pocket free-tailed bat	Federal Candidate	Category 2
small-footed myotis	Federal Candidate	Category 2
long-legged myotis	Federal Candidate	Endangered
spotted bat	Federal Candidate	Category 2
Hualapai southern pocket gopher	Federal Candidate	Category 2
rosy boa	Federal Candidate	Category 2
Arizona toad	Federal Candidate	Category 2
cheese-weed moth lacewing	Federal Candidate	Category 2
California floater	Federal Candidate	Category 2
bonytail	Federally listed	Endangered
razorback sucker	Federally listed	Endangered

* This list was developed using information from the TEDS data base in BLM's Kingman Resource Area, the Arizona Game and Fish Department Heritage Data Base, and the U.S. Fish and Wildlife Service Memorandum #AESO/SE 2-21-95-I-308.

** Endangered: Species that are in danger of extinction throughout all or a significant part of their range.

*** Candidate Category 1: Species for which the U.S. Fish and Wildlife Service has enough information to support proposal to list.

† Candidate Category 2: Species for which the U.S. Fish and Wildlife Service has information that indicates listing may be appropriate, but for which adequate information to support or refute the proposal is lacking.

• Sensitive Species: Species for which BLM keeps records because of concerns for population status. Some of these species are also tracked by the Arizona Game and Fish Department Heritage Data Management System.

Desert Tortoise: This species inhabits the entire ecosystem but is more often found south of Portland Mine and Sugarloaf Mountain (Map 3). There are several tortoise records at the Lake Mead National Recreation Area, but to date, no inventory has been conducted. Tortoise are uncommon throughout most of the ecosystem with the exception of locally abundant habitat pockets on the west and east sides of the Black Mountains south of Secret Pass Canyon. Tortoise in the Black Mountains are classified as Sonoran, although recent genetic research shows that they are more related to the Mohave tortoise. They have a maternal linkage to Mohave tortoise that occur on the west side of the Colorado River (1995, McLuckie et. al.). Research into morphologic and behavior characteristics suggests that there may be a gradation between Sonoran and Mohave populations in the Black Mountain ecosystem.

Two tortoise studies are ongoing in the Warm Springs Wilderness Area. The first is the Eastern Bajada Desert Tortoise Permanent Study Plot. This population trend study covers one square mile in T19N R19W section 26. This plot was evaluated as part of a 45-60 day census in 1990 and 1993.

The second desert tortoise study is the Eastern Bajada Desert Tortoise Ecology Study, located on about 4,200 acres mostly in the southwest quarter of T19N R19W. This unique research effort involves the BLM, University of Arizona, Arizona Game and Fish Department, and the Transwestern Pipeline Company. It will help determine if the genetic, morphological, and ecological affinities of the Black Mountain tortoises are Sonoran, Mohave, or an intergrade. In addition, ecological attributes including habitat selection, burrow locations, activity patterns, movements, home range sizes, and reproductive parameters will be evaluated.

Tortoise habitat has been rank-categorized by relative importance, with Category I being the most important, and Category III being the least important (BLM 1988b, *Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan*).

Desert Tortoise Habitat Categories*	Acres
I	3,895
II	38,031
III	424,556
TOTAL	476,482

*Does not include NPS lands.

American peregrine falcon: This endangered species breeds in the ecosystem along the Colorado River on National Park Service lands. Although potential nesting habitat for the American peregrine falcon occurs within the ecosystem, an inventory conducted by the Arizona Game and Fish Department and the BLM in 1992-1993 found no nesting peregrines on public lands in the Black Mountains. Aerial inventory of nesting habitat may periodically be conducted by low-level helicopter. If a nest is located, ground crews will intensively monitor the site. Aerial survey days may total one day per wilderness area every 5-10 years. Actual flight time in the wilderness area will be between one and three hours per flight. No aerial surveys are planned at this time.

Southwestern willow flycatcher: Only one documented record of this endangered species in the Lake Mead National Recreation Area exists at present (USFWS, 1993). Habitat for this species is limited to dense patches of riparian vegetation such as tamarisk, willow, seepwillow, arrowweed, and cottonwoods. There are few such areas in the ecosystem that fit this description, and most occur along the Lake Mead and Colorado River shorelines on Park Service land. Although potential habitat on BLM land exists at Burn Springs, inventories of this species in the Black Mountain Ecosystem have been very limited (USFWS, 1993).

Yuma clapper rail: This endangered bird is limited to marsh habitats along the Colorado River and its tributaries. Within this ecosystem, this habitat type is rare and small in extent where it does exist. Potential habitat occurs in small isolated patches along Lake Mead shoreline and the Colorado River. There are no records of occurrence for this species in the ecosystem. The closest record is from Topock Marsh which is not within the ecosystem boundaries. No surveys have been conducted for this species within the ecosystem.

Bald eagle: This endangered species may be found fishing, perching, and roosting along the Colorado River and adjacent riparian zones. Riparian habitat occurs in small isolated patches along Lake Mead shoreline and the Colorado River on Park Service land.

Chuckwalla: This species is found on boulder-strewn hillsides and washes in the ecosystem. There are very few records of this species in the ecosystem; no inventory has been completed.

Bats: The bats listed in Table 1 are found in mine shafts, adits, and caves in the ecosystem.

Kingman springsnail: This species of endemic snail is known only from Burns Spring, Cool Spring, and Dripping Spring in the Black Mountains (Hershler and Landye, 1980).

Two-color beard-tongue: This plant is found in limited areas in volcanic hill canyons in the northern half of the ecosystem.

White-margined penstemon: This plant is found near the town of Yucca in the extreme southern end of the ecosystem.

Crownless milkweed vine: This plant is found near the towns of Dolan Springs, Yucca and Hardyville (Bullhead City).

Desert antelopebrush: This plant is found north of Union Pass near Burns Well.

Shrubby senna: This plant is found on the west side of the Black Mountains at Willow Beach and Cottonwood Valley in the Lake Mead National Recreation Area.

Mohave cottonthorn: This plant is found in Detrital Valley on the east side of the Black Mountains.

Three-hearts: This plant is found in Sacramento Valley southwest of Kingman.

Mohave sandpaper bush: This plant is found widely scattered on volcanic slopes.

Yellow-flowered desert poppy: This plant is found in the Lake Mead National Recreation Area.

Other species: The ferruginous hawk, western burrowing owl, California black rail, spotted bat, Hualapai southern pocket gopher, Arizona toad, rosy boa, cheese-weed moth lacewing, and California floater, species of special concern, have distributions that may include the Black Mountains, but at present are undocumented here. These species are not likely to be adversely affected by any action proposed by this plan because the plan is designed to enhance habitat and watershed quality.

The brown pelican, bonytail, and razorback sucker are aquatic species which are known to inhabit the Colorado River. These species are also unlikely to be adversely affected by the plan for the same reason.

For a more detailed description of wildlife resources found within the Black Mountains, see the *Black Mountain Habitat Management Plan* (1981). Objectives from this habitat management plan were considered in the development of objectives for this plan.

Wild Burros

Burros were introduced to the Black Mountains by miners and prospectors beginning in the 1860s. The animals have thrived in this environment, independent of man, ever since. Burros were given protection under the Wild Horse and Burro Act of 1971, which mandates that BLM manage the animals as an integral part of the natural environment. The Black Mountain Wild Burro Herd Management Area (Map 4) was designated, and a herd management plan was completed in 1981. This plan established vegetation monitoring studies, and also prescribed an appropriate management level of 400 burros. This number is no longer legally applicable because it was rather arbitrarily derived. The Interior Board of Land Appeals has subsequently ruled that the establishment of the appropriate management level of wild horses or burros in a herd management area will be affirmed where it is predicated on an analysis of monitoring data such as grazing utilization, trend in range condition, actual use, and other factors. Although the number of burros prescribed by the Black Mountain Herd Management Area no longer applies, the plan contains a useful discussion of burro history and ecology.

Burros presently inhabit all but a few of the northern-most areas of the ecosystem. Although burros can, at times, be found in all types of terrain and habitat, they prefer foothill areas. While distribution during the hot months is dependent on the availability of water, burros do not appear to have the demanding habitat requirements of some other large mammal species. Bighorn sheep, for instance, have specific habitat requirements which include escape and thermal cover. Conversely, burros, perhaps because of their long evolutionary history on the continent, thrive in a much wider variety of habitat types.

Burro populations appear to be relatively unaffected by drought or predation. Mortality for most age classes of burros is low, however, morality apparently increases dramatically for animals approaching six or seven years of age. This phenomenon of Black Mountain burro ecology is as yet unexplained; it is puzzling in light of the fact that the animals commonly live as long as 30 years in domestic life.

Population estimates of burros, using a helicopter and a modified mark/recapture technique, are made at three-year intervals, the most recent having been completed in July 1994. Historically, excess wild burros have been removed periodically in an attempt to balance animals with the forage base. Black

Mountain burro numbers are currently being maintained at 817. These burro population levels were established as the appropriate management level by environmental assessments AZ-025-91-057 (August 1991) and AZ-025-92-068 (January 1993). Gathered animals are placed into the BLM adoption program.

Burros on National Park Service land are managed under the guidance of a burro management plan developed by the Lake Mead National Recreation Area (NPS, 1995).

Livestock

Livestock grazing has occurred in the Black Mountain ecosystem for more than 100 years. As early as the 1870s, there were more livestock on the western ranges than the range could support (BLM, 1988c). This marked a period of overuse from which western rangelands are slowly recovering. Passage of the Taylor Grazing Act in 1934 was the first concerted effort by the federal government to manage and improve the nation's rangelands. This legislation eventually led to the establishment of grazing allotments and the construction of some range improvements.

Livestock grazing continues on a yearlong basis on most of the allotments. The joint use area supports a livestock grazing preference of 235 cattle. Environmental impacts of livestock grazing and Kingman Resource Area's rangeland management program were analyzed in the Cerbat/Black Mountains Environmental Impact Statement (1978). This document defined general multiple-use objectives to guide livestock management in the planning area. These objectives were to:

- Sustain livestock production by providing more and better quality forage.
- Improve wildlife habitat by providing more forage, cover, and water, and reduce competition between wildlife and livestock by periodically excluding livestock from pastures.
- Improve recreational values by increasing the abundance and vigor of vegetation, thereby reducing dust and erosion, and increasing the potential for wildlife observation and study.
- Reduce soil erosion and increase water infiltration by increasing vegetative cover and litter.

The actions to be carried out to achieve these multiple-use objectives were:

- Initial adjustments to stocking rates based on range survey.
- Development of allotment management plans in cooperation with grazing permittees based on site-specific conditions.
- Construction of range improvements as needed.

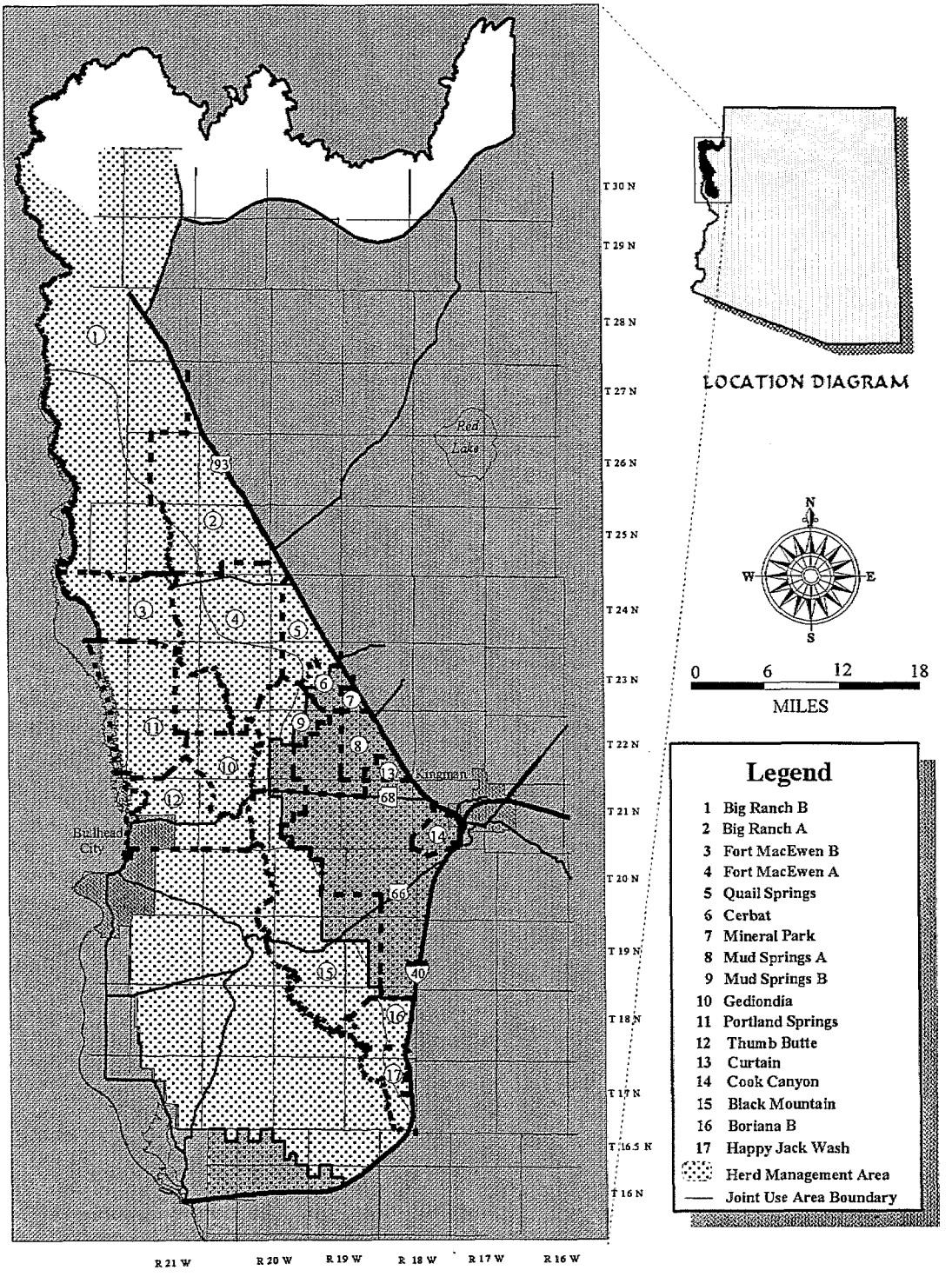
The document set use levels for perennial allotments and identified other allotments where grazing would be authorized on a seasonal basis only.

By 1980, stocking rate adjustments had been completed; by 1985, all but two of the allotments within the ecosystem had allotment management plans in place. Numerous range improvement projects have been constructed on public lands to facilitate implementation of allotment management plans.

All or portions of 14 federal grazing allotments occur within the Black Mountain ecosystem (Table 2). Of these, five are designated for ephemeral use only and livestock grazing is permitted on a seasonal basis only in years of abundant annual forage production. The remainder are designated perennial/ephemeral and are authorized for yearlong use. These perennial/ephemeral allotments provide the forage base for several yearlong cow/calf operations. One perennial/ephemeral allotment and portions of three others occur within the joint use area (Map 4).

Allotments are closed to the grazing of domestic or feral sheep or goats on public lands within nine miles of surrounding desert bighorn habitat. Unless a cooperative agreement has been reached between BLM and the

MAP 4 - GRAZING ALLOTMENTS AND HERD MANAGEMENT AREA



livestock owner, domestic sheep and goats will be trucked rather than trailed when trailing would bring sheep and goats closer than nine miles to occupied desert bighorn ranges. Allotments are also closed to the grazing of domestic burros and horses.

Table 2. Grazing Allotments within the Black Mountain Ecosystem

Allotment Name	Forage Availability	Management Category	AMP	Within Joint Use Area
Big Ranch A	P/E	I	Yes	No
Big Ranch B	E	C	NA	Yes
Fort MacEwen A	P/E	I	Yes	Yes
Fort MacEwen B	E	C	NA	Yes
Quail Springs	P/E	I	Yes	No
Cerbat	P/E	I	Yes	No
Mud Springs	P/E	I	Yes	Yes
Gediondia	P/E	M	No	Yes
Black Mountain	P/E	I	Yes	Yes
Mineral Park	P/E	I	Yes	No
Happy Jack Wash	P/E	C	No	No
Portland Springs	E	C	NA	Yes
Thumb Butte	E	C	NA	Yes
Boriana B	E	C	NA	Yes

P/E = Perennial/Ephemeral Use
E = Ephemeral Use Only
M = Maintain current resource conditions
I = Improve current resource conditions
C = Custodially manage existing resource values

Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. The five standard criteria used in categorizing allotments are range condition, resource potential, resource use conflicts, opportunity for positive economic return on public investments, and present management situation. Allotments in the "Improve" category receive the highest priority. "Maintain" category allotments are the next highest priority and allotments in the "Custodial" category receive the lowest priority.

Wilderness

The three wilderness areas—Warm Springs, Mount Nutt, and Mount Wilson—in the Black Mountain ecosystem (Map 5) are profiled below.

The 112,400-acre **Warm Springs Wilderness** is located about 20 miles southwest of Kingman. Elevation ranges from 4,300 feet in the northwest corner of the area to about 950 feet in the extreme southwestern corner. A complex topography divides the area into several distinct land forms dominated by 10-mile long Black Mesa. The mesa extends from the north to the south-central boundary and rises approximately 800 feet above the surrounding area. Numerous canyons dissect, the largest being Warm Springs Canyon. The canyon mouth at Warm Springs opens into a wide valley. The south-central region contains steep cliffs, jagged peaks and ridges, hidden canyons, and spires. The vegetation is predominantly characteristic of the Mohave desert shrub community with a Sonoran desert influence on the southern end.

The 27,655-acre **Mount Nutt Wilderness** is located about 15 miles west of Kingman and 10 miles east of Bullhead City. The unique topography of this area is formed from a highly dissected, thick volcanic flow that features a collection of mesas and buttes. The area is noted for its dramatic, brightly colored terrain, picturesque pinnacles, spires, deep canyons, precipitous cliff faces, and caves. Elevation ranges from the a high of 5,216 feet on Nutt Mountain to a low of 2,300 feet on the west side of the wilderness. The vegetation in the area varies from Mohave desert shrub communities to interior chaparral. The chaparral area supports a juniper-chaparral community and is characterized by California juniper, beargrass, banana yucca, and turbinella oak. A number of ephemeral and perennial springs support cottonwood-willow communities and unique associations of plants such as the communities found at Grapevine Spring, Dripping Springs, and Cottonwood Spring.

The 23,900-acre **Mount Wilson Wilderness** is located about 50 miles northwest of Kingman. It encompasses a major section of the Wilson Ridge, the most prominent topographic feature in the Hoover Dam area. Because the steep ridge dominates the wilderness, it reduces opportunities for certain types of primitive and unconfined recreation. Views from the higher points of the ridge include the Grand Canyon, Lake Mead, and the El Dorado and Spring mountain ranges in Nevada. Mount Wilson is the highest point in the wilderness at 5,445 feet. The lowest point is 1,960 feet in Detrital Valley on the eastern edge of the wilderness area. Vegetation is sparse throughout with slight variability. The dominant vegetative type is a creosote bush-bursage community. Catclaw predominates in many of the washes. Other common species include Mormon tea, bladderpod, flattop buckwheat, cactus species, and an assortment of annual grasses and forbs. The Missouri Springs area provides a riparian zone containing a sparse population of coyote willow.

Human alterations in the wilderness include wildlife water developments, livestock waters, fences, pipelines, administratively closed motor vehicle routes, 17 permanently located vegetative monitoring sites, illegal solid waste dumps, mining evidence, structures, foot trails, and the remains of two airplane crashes.

Motorized and mechanized uses are restricted in the wilderness and must be approved beforehand. Aerial activity will be conducted in accordance with the BLM-Arizona Game and Fish Department Master Memoranda of Understanding. Estimated current and anticipated uses of motorized vehicles and mechanized equipment are found in Table 3 (BLM 1994a).

MAP 5 - WILDERNESS AND ACECS

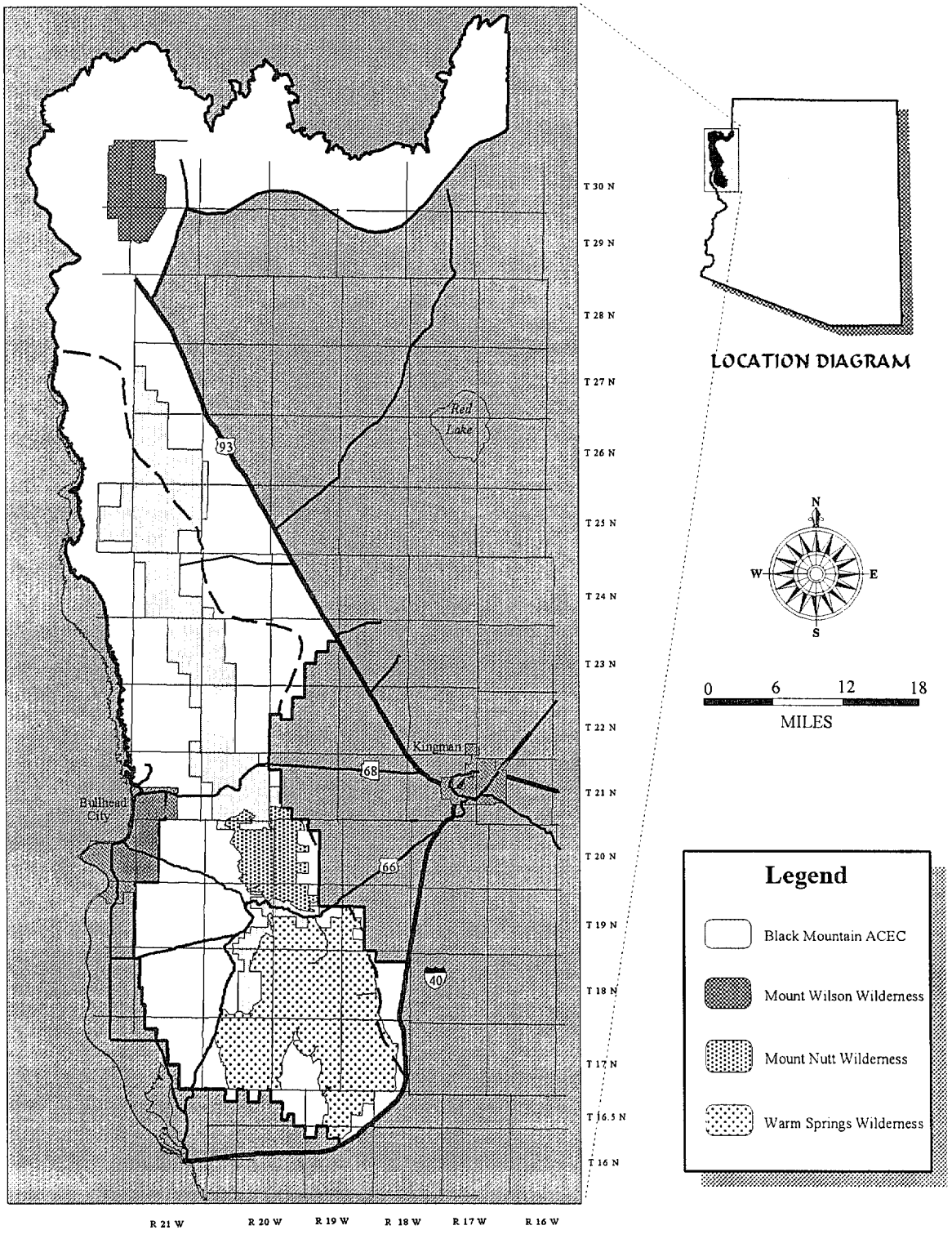


Table 3. Estimated Current and Anticipated Motorized and Mechanized Uses in the Black Mountain Wilderness Complex

Program	Description of Activity	Frequency	Season/Duration
Wildlife	Wildlife population surveys using low-level fixed-wing or helicopter flights (Appendix 8). Incidental inspections of developments may occur during these flights.	Annually.	Surveys normally occur September-October and average 3-5 hour flight days over each wilderness area over a 1-3 day period.
Wildlife	Bighorn sheep capture (Appendix 4).	Variable—may be annual.	Variable.
Wildlife	Inventory of peregrine falcon nesting habitat using low-level helicopter flights.	One day every three years.	Normally 1-3 hours of flight time per wilderness area.
Wildlife	Low-level aerial inspection of wildlife water sources using aircraft overflights.	Annually.	Normally two hours flight time over each wilderness area. No landings allowed.
Wildlife	Major maintenance, water hauling, and emergencies.	Variable.	On a case-by-case basis as needs arise. Minimum tool applies.
Wild Burro	Wild burro populations survey done with low-level helicopter flights.	Every three years.	An average of 30-40 overflight hours covering the Warm Springs and Mount Nutt wilderness areas.
Wild Burro	Wild burro capture and removal using low-level helicopter flights.	Annually.	Flight time varies according to the number of animals to be removed and typically occurs during the summer months. Approximately 50 hours of flight are anticipated.
Livestock Management	Emergency situations threatening public land resources, livestock, or property.	Variable.	On an as needed basis generally not expected to occur more than once every five years per wilderness area.
Law Enforcement	Surveillance flights to detect illegal activities.	Annually.	Variable timing due to sensitive nature of flight. Normally would not exceed one hour per wilderness area per year.
Law Enforcement Fire Search and Rescue	Wilderness entry using helicopter (occasional landing), fixed-wing aircraft, or ground vehicle to protect resources, public health and safety, or pursuit of criminal law violators.	Variable.	Not expected to occur more than twice annually per wilderness area.

Cultural Resources

The Black Mountain ecosystem includes the Kingman Resource Area's most significant and abundant cultural resources. Rock shelters and rock art are plentiful and include Bighorn Cave, a significant site with occupations dating back 3,500 years. Sites are concentrated near springs and seeps. Historic sites include a Mohave Indian trail which later became the Beale Wagon Road. There are also segments of two historic railroads that crossed the area. Along the Silver Creek road are located several stone cabins dating from the early 1860s. A 36-square-mile area around Bullhead City was a primary homeland of the Mohave Indians and contains an extensive and assorted group of cultural resources.

Lands

The Kingman Resource Area has an active lands and realty program. The program has a primary goal of adjusting land ownership to improve manageability of the public lands and their resources. The objectives for the lands

program are to acquire lands with high natural resource values, block up federal ownership through exchange or purchase, provide for uses of public lands in accordance with regulations and compatibility with other resources, and to provide lands for community expansion through land exchanges and Recreation and Public Purposes Act leases and patents.

Lands near growing communities are set aside (identified for exchange) to provide areas for urban growth. These lands are generally in small isolated parcels or in checkerboard areas where management is difficult for BLM, state land managers, and private landowners. Often, natural resource values are lower or have already been degraded as a result of urban pressures. These lands also have a high value for urban development and can be used to exchange for lands with higher natural resource values. The BLM seeks acquisition of lands, through exchange, especially where private lands are intermingled with public lands, in order effectively manage the resources.

Two Black Mountain land disposal areas have been identified (Map 1) for potential exchanges.

Communication sites, hosting a variety of telecommunications equipment, occupy four Black Mountain peaks (Map 6). No other mountaintops will be used for this purpose.

The Black Mountains are crossed by nine designated right-of-way utility corridors. These corridors accommodate natural gas and coal slurry pipelines, communication cables, electric lines, and highways.

Recreation

The ecosystem provides excellent opportunities for recreation such as camping, hiking, hunting, backpacking, picnicking, horseback riding, off-highway vehicle use, wildlife observation, and photography. Expanding human populations in the vicinity put increasing pressure on the ecosystem. The three wilderness areas attract people seeking solitude or primitive and unconfined recreation. There are no developed user facilities, although five scenic overlook/interpretive areas and one day-use area (Map 7) with a trailhead in the Thimble Butte area are planned and have been identified in the *Kingman Resource Management Plan.*

The Bullhead Four Wheelers have adopted the Sleeping Princess four-wheel drive trail to maintain the challenging nature of this road. Between three and seven hunting outfitters operate under permit in the Black Mountains. A commercial horseback riding operation is also conducted under permit.

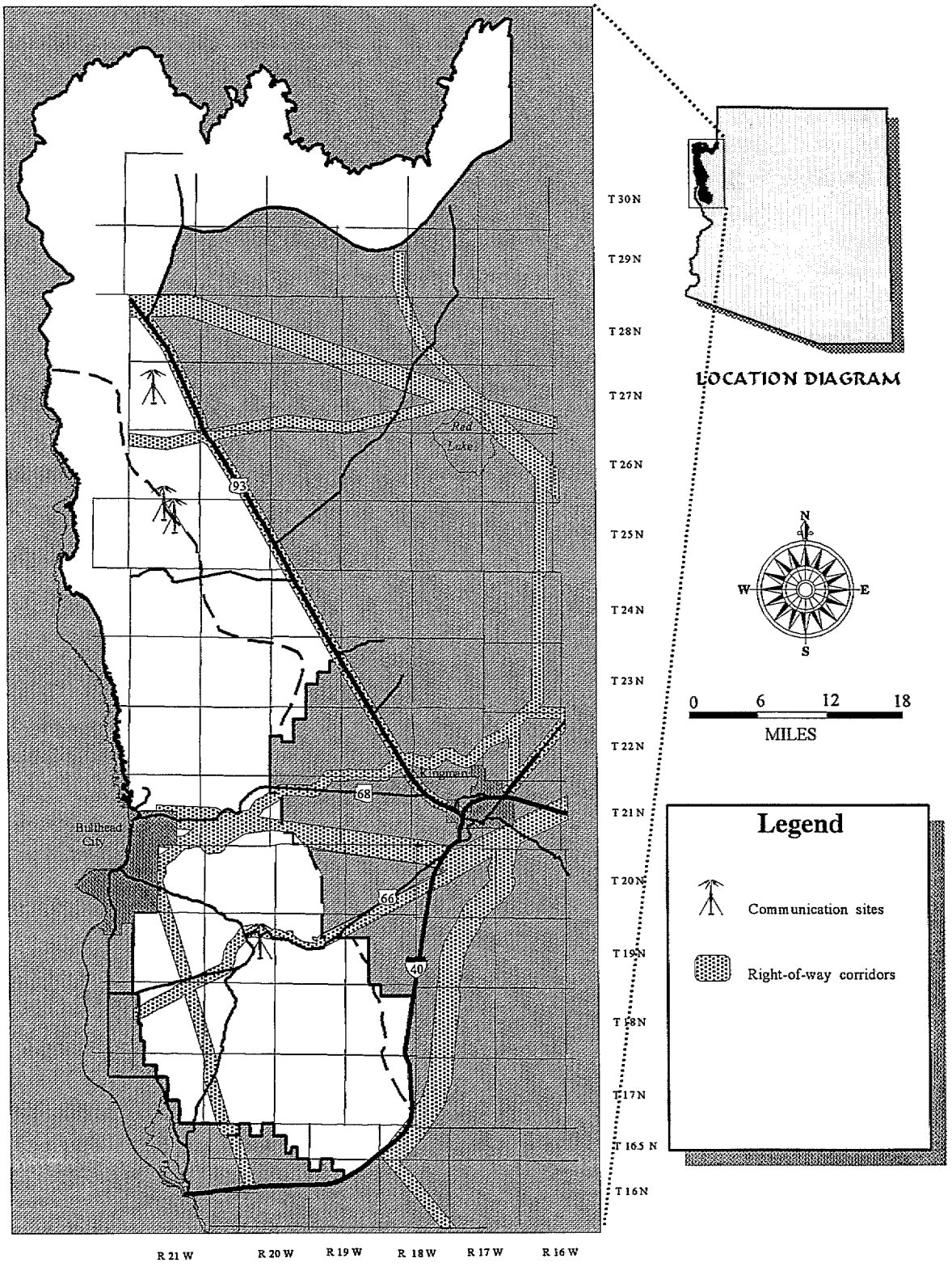
Areas of Critical Environmental Concern

The Black Mountain Area of Critical Environmental Concern, a block of 218,056 acres (Map 5), was established by the *Kingman Resource Management Plan* to better protect the diverse resources within its boundaries by balancing competing uses. ACEC designation affords an area less protection than wilderness designation, but more protection than is afforded public lands in general.

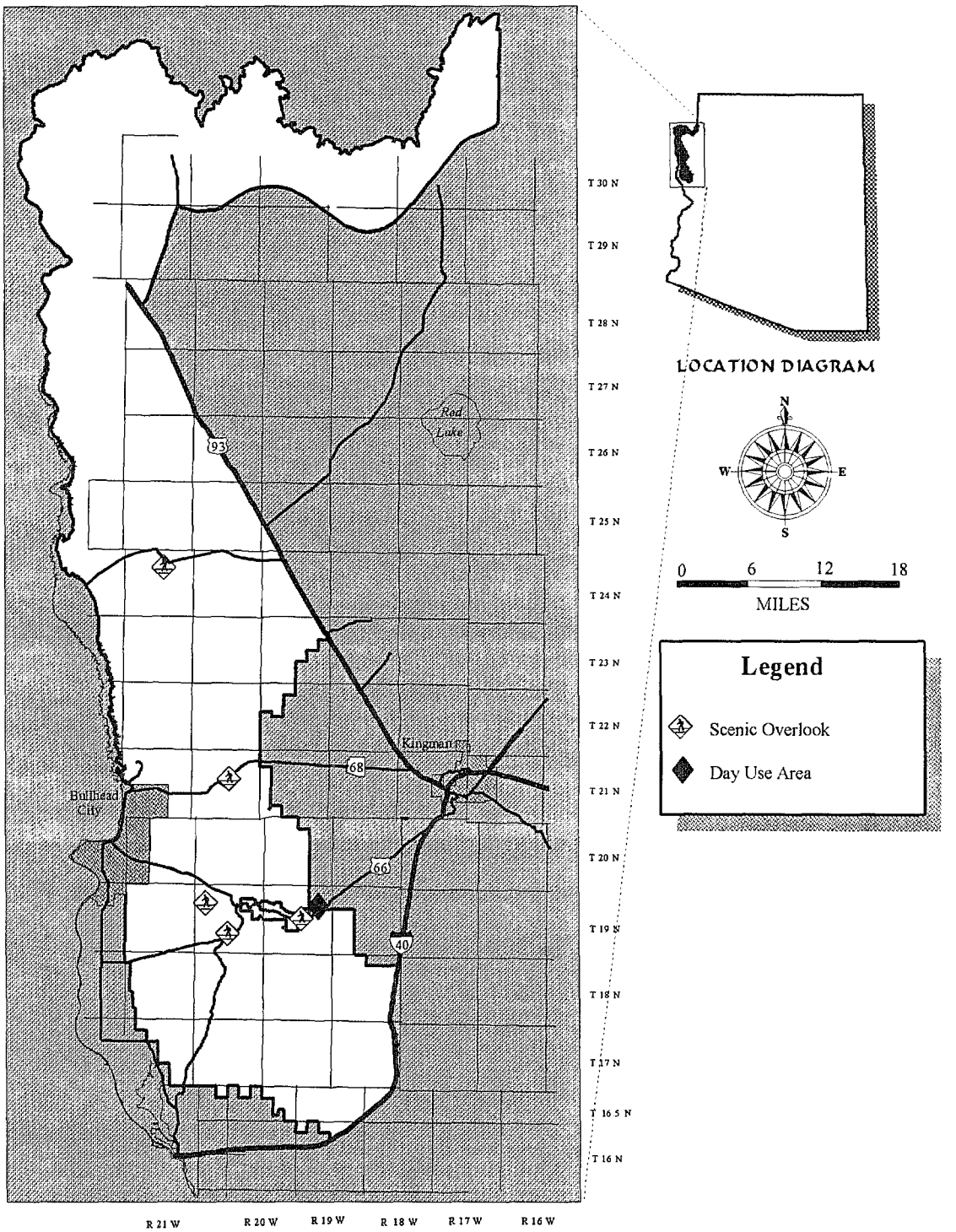
Minerals

The Black Mountains contain several historic mining districts. The Union Pass District was active from 1865-1943. In the northern end of the range, the Pilgrim District was a gold and silver producer from 1929-45. The Oatman District was Arizona's third largest gold producer. It began in the 1860s, but production did not reach peak levels until the 1900s with the opening of the Tom Reed, Goldroad, and United Eastern mines. The Oatman District extends about 12 miles north-south and seven miles east-west. Numerous shafts, pits, structures, and tunnels have been left abandoned. Other mining operations occur throughout the ecosystem in lower densities. Commodities sought in the past include gold, silver, zeolite, perlite, fire agate, kaolin clay, lead, mercury, molybdenum, and sand and

MAP 6 - COMMUNICATION SITES AND RIGHT-OF-WAY CORRIDORS



MAP 7 - RECREATION



gravel. Deposits of gypsum and halite are known to exist in the very northern end of the ecosystem west of the Detrital Wash, but have not been developed.

There are two large active mines in the ecosystem—Addwest in the south, and Klondyke/Golden Door in the north. There are seven active mining claims in the Mount Nutt Wilderness Area. There are no active claims in the Warm Spring or Mount Wilson wilderness areas.

RESOURCE MANAGEMENT PLAN GUIDANCE PERTINENT TO THIS PLAN

The following guidance from the Kingman RMP will be implemented as part of this plan and is brought forward for clarity. These actions require no further environmental analysis.

1. Maintain closure of all allotments or pastures within the Black Mountain Ecosystem to the grazing of domestic sheep, goats, horses and burros.
2. Preserve designated plant and animal biological linkage corridors—Cerbat, Hualapai, Cottonwood Road, Union Pass, Thumb Butte, Buck Mountain Wash—(Map 3) by maintaining public ownership and restricting actions and development that would limit movement in these areas. Identify additional corridors within the ecosystem and between the Black Mountain and adjacent ecosystems.
3. Monitor and maintain existing waters. (Existing wildlife water developments are listed in Appendix 5.) Approximately 34 waters have been developed in the ecosystem to date.
4. Mitigate impacts resulting from rights-of-ways, mining disturbances, recreational impacts, etc. Specific mitigation measures are addressed and approved in the environmental analysis document (required under the National Environmental Policy Act) which is prepared for each project.
5. Fence the Burns Springs Wash riparian area on public lands below the spring to enhance riparian area recovery and to protect the habitat of the Kingman springsnail. If access to water is completely fenced, then water for livestock and burros will be provided outside of the exclosure.
6. In two-color beard-tongue habitat, limit off-highway vehicle use to existing roads and trails and route temporary access roads for mineral activities out of washes and other potentially occupied habitats.
7. Ensure that proposed actions do not imperil species of special concern. Conduct management of candidate species in such a way as to avoid the need to federally list these species as threatened or endangered.
8. Require compensation for any land use actions resulting in a net loss to the quality or quantity of any desert tortoise habitat (BLM, 1988, *Desert Tortoise Rangewide Plan*).
9. In Categories I and II desert tortoise habitat, permit only range improvements, (i.e., water developments, fences, shipping and handling facilities, vegetation manipulation, etc.) for livestock which will not conflict with tortoise populations or habitat. An improvement will be allowed if the effects can be mitigated so that the net effect of the improvement is positive or neutral to the tortoise.
10. Remove, modify, or mitigate, as opportunities arise, improvements which conflict with the objectives of tortoise habitat management, (i.e., roads, corrals, and waters).
11. In the Black Mountain ACEC, manage locatable mineral activities subject to the following:
    - Manage mining exploration and development activities to minimize the impacts on desert bighorn sheep lambing grounds from December 1

through May 31. When wild burro foaling grounds are identified, impacts from the above activities would be minimized in these areas from May 1 through July 31.

- Recommend seasonal restrictions on mining activities to avoid disturbance of bat roosting sites, maternity colonies, and winter shelters.
- Close roads (other than main public access roads) associated with inactive mines to help prevent precedent-setting off-highway vehicle use into previously unroaded areas.
- When no longer needed by the miner or when mines become inactive, temporary access roads would be reclaimed and made impassable by deep ripping, pulling in of berms, boulder placement, etc.

12. On public lands in the Black Mountain ACEC, allow mineral leasing subject to the following stipulations designed to protect resource values:
    - No surface occupancy in desert bighorn sheep lambing grounds from December 1 through May 31.
    - No surface occupancy in wild burro foaling grounds, where identified, during the hot dry season from May 1 through July 31, to ease access to water sources by jennies and foals.
    - Close temporary mine access roads to the public to prevent precedent-setting off-highway vehicle use into previously unroaded areas.
    - When no longer needed by the lessee, temporary access roads would be reclaimed and made impassable by deep ripping, pulling in of berms, boulder placement, etc.
    - To avoid harassment and undue disturbance of desert bighorn sheep, workers would not be allowed to live on site.
    - Limit oil and gas well spacing to no closer than 1/4 mile apart.
    - Prohibit oil and gas production facilities inside the boundaries of lambing grounds in the Black Mountain ACEC.
13. Mineral material disposal will be authorized in the Black Mountain ACEC only when no reasonable management alternative can be identified and the disposal would not conflict with resource objectives for the area.
14. Ensure that the removal of native plants in the Black Mountain ACEC is compatible with other resource values, or limitations or exclusions will be applied.
15. Prohibit the grazing of domestic or feral sheep or goats on public lands within nine miles of surrounding desert bighorn habitat unless a cooperative agreement has been reached to the contrary. Domestic sheep and goats will be trucked rather than trailed when trailing would bring sheep and goats closer than nine miles to occupied desert bighorn ranges.
16. Prohibit the grazing of *domestic* sheep, goats, horses and burros on public lands within the Black Mountain Ecosystem (*Kingman Resource Management Plan,* 1995) with the exception of Oatman "town" burros.
17. Determine the absence or presence of bat roosts and winter shelters in the ecosystem and develop recommendations, such as gating, to maintain these habitat features.
18. Prohibit activities (excluding work on locatable minerals claims) which could harm lambing or rearing of newborn bighorn sheep in the Black Mountains from December 1 to May 31. Mitigate impacts to bighorn sheep caused by mineral activities when developing mining plans of operation.
19. The Topock OHV open area (Map 7) has been designated for open OHV use in the Kingman RMP. Opening the area is contingent upon compliance with Section 106 of the National Historic Preservation

Act, Section 7 of the Endangered Species Act and development of a management plan for this area.

20. Limit off-highway use to existing roads, trails and navigable washes on public land not included in special management areas of designated wilderness areas.

THE ECOSYSTEM MANAGEMENT PLANNING PROCESS

The Bureau of Land Management and the Ecosystem Management Team followed a prescribed procedure in formulating this plan. First, **Issues and Opportunities** to be addressed in the plan were identified by scoping. Secondly, an **Ecosystem Analysis** was performed utilizing all existing information and expertise in order to provide a better understanding of ecosystem functions and processes. Specific **Resource Objectives** were developed from this analysis which address the pertinent issues, and articulate the desired future conditions of the ecosystem. A list of **Management Actions** was then developed that, when implemented, will accomplish the resource objectives. **Monitoring Studies** were designed to measure resource conditions and to assure that objectives are being met, and that issues are being resolved. Finally, an **Evaluation Schedule** was established so that all monitoring information can be analyzed to determine if management has been successful.

This planning process is designed to address existing issues and opportunities. New issues and opportunities not currently identified will be addressed during the formal evaluation. The evaluation results will be used to update the plan.

ISSUES

Issues were identified by the public in cooperation with National Park Service, Arizona Game and Fish Department and BLM staff. The BLM interdisciplinary team compiled the final list of issues.

Identified issues are separated into three categories: 1) Plan Issues (section A); 2) Issues Solved Through Policy (section B); and 3) Issues Beyond the Scope of this Plan (section C). Plan Issues are:

- Vegetation Management
- Biodiversity/Ecosystem Health
- Wilderness Preservation
- Recreation
- Cultural

A. PLAN ISSUES

1. Vegetation Management

Vegetation management is a cornerstone in the solution of many Black Mountain management issues. Decisions will be made to answer the following questions:

- How will forage be allocated?
- What are acceptable forage utilization rates?
- What are the desired plant communities?
- How many vegetation monitoring sites will be established and where will they be?

2. Biodiversity/Ecosystem Health

Addressing the following issues will provide the best management approach to ecosystem health, and to long-term population viability for Black Mountain life forms.

- How will fire be managed?
- What new waters will be developed?
- What numbers and distribution of livestock will be permitted within the joint use area?
- How will impacted areas be reclaimed?
- What provisions will be made for biological linkage corridors?
- How will habitat loss be minimized or mitigated?
- What inventories will be conducted for species of special concern?

3. Wilderness Preservation

All uses of wilderness are managed with the underlying principle that wilderness characteristics will be protected. To ensure this, the following questions will be answered:

- What new developments will be allowed?
- How will private inholdings be addressed to contend with their potential impacts to naturalness?
- What existing human impacts will be mitigated to enhance naturalness?
- What actions will be taken to prevent unauthorized motor vehicle use?
- How will livestock be managed to minimize impacts to naturalness?

4. Recreation

Resolving the following issues will provide for recreational uses of the Black Mountains while protecting other resources.

- What types of recreation will be allowed?
- How will recreation be managed to help meet other resource objectives?
- How will wild burros be managed to minimize conflict with use of Lake Mead National Recreation Area beaches?
- How will commercial outfitters be managed?

5. Cultural

Cultural resources will be interpreted, enjoyed, and protected by addressing the following issues.

- How will adverse impacts to cultural resources be minimized?
- How will cultural resources be allocated for scientific, interpretive, and other purposes?
- How will Native American concerns about cultural resources be addressed?

B. ISSUES RESOLVED THROUGH EXISTING GUIDANCE

The following issues were raised during the scoping process and are resolved through existing laws, policies, manuals and federal regulations cited below.

1. ***How will BLM and NPS work together to solve issues?***
   The BLM and NPS have entered into a cooperative management agreement for the purpose of burro management (IA-8360-94-0003, July 1994).
2. ***Will hunting continue in the ecosystem?***
   Yes, it will continue to be managed by the Arizona Game and Fish Department. Special rules may apply on National Park Service lands.
3. ***How will new rights-of-way be issued?***
   The *Kingman Resource Management Plan* identifies six right-of-way corridors through the Black Mountain ecosystem that will be used for utilities. All other minor rights-of-way are issued on a case-by-case basis.
4. ***How will access to private lands be granted?***
   The Alaska Native Claims and Settlement Act as well as BLM Manual 2801 guide the process of issuing rights-of-way to private lands.
5. ***How will Recreations and Public Purposes Act lease conflicts with desert tortoise habitat be resolved?***
   Guidance document I.M. 92-46 requires that BLM be compensated by the applicant for recreation and public purpose leases on public land in Category I, II, and III habitat.
6. ***Where will communications sites be located?***
   The Kingman RMP designates four existing communication sites in the Black Mountain ecosystem located at Willow Beach, Oatman, Mount Perkins, (helicopter and solar power only) and Mount Perkins North. Installation of new developments will be limited to these four designated sites.
7. ***What is the effect of management induced stress on burros?***
   This is addressed by standard capture operating procedures designed to minimize stress on individuals. The effect of capture operations on herd social structure is addressed in existing scientific literature.
8. ***How will isolated small tracts in Oatman area be managed?***
   The tracts are isolated by patented mining claims and are all less than one acre in size. The Kingman RMP (p.70) has identified these areas for disposal.
9. ***How will forage be initially allocated among the major mammals?***
   The record of decision in the Kingman RMP states that 30 percent of public land forage will be allocated to livestock, 30 percent to burros, and 40 percent to big game. Forage allocated to large ungulates represents 50 percent of total annual production. The remaining 50 percent is reserved for soil and watershed enhancement, physiological needs of plants and non-ungulate species.
10. ***Will the plan be in compliance with all laws and regulations?***
    All laws and regulations will be complied with in the development of this plan and in day-to-day management activities by all agencies.
11. ***How will new fencing projects be mitigated?***
    If new fences are warranted in the ecosys-

tem, their construction on public lands will be guided by BLM manual 1741.

12. ***What forage equivalencies will be used for major mammals?***
The BLM policy establishes that one animal unit of forage is equivalent to one cow, two burros, four deer, or five bighorn sheep.

13. ***Can forage be legally allocated by BLM for different animals?***
The Federal Land Policy and Management Act of 1976 (section 202) gave BLM the authority to make such decisions in its land use plans. Further guidance can be found in planning regulations (43 CFR 1600).

14. ***Will agencies cooperate in the formulation and implementation of the plan?***
Affected agencies and interested parties have participated in producing this plan. By signing on as contributors, all agree that interagency cooperation is essential to success.

15. ***What will be done with feral predators (domestic dogs) and other feral animals (goats and sheep)?***
Feral goats and sheep will be removed as soon as possible upon receipt of information confirming their presence. The removals will occur in cooperation between the BLM, Arizona Game and Fish Department, National Park Service and the animal owners. Mohave County is responsible for the enforcement of leash laws. The removal of feral dogs on public lands is conducted by the Department of Agriculture, Animal Damage Control. Trapping of feral dogs as a method of removal will be considered only if there is a documented public health and safety threat.

16. ***How will the Route 66 project plan interface with this plan?***
The actions of the Route 66 project plan are brought over to this plan and will be implemented.

17. ***How will wilderness management plans be incorporated into this ecosystem plan?***
Management direction for the Warm Springs, Mount Nutt, and Mount Wilson wilderness areas is part of the plan.

18. ***Does the BLM compile data on sensitive and unique habitats?***
The BLM currently maintains data bases on special-status plans and animals, bighorn sheep habitat, wild horses and burros, and riparian areas.

19. ***How will plan implementation be funded?***
Funding will be derived from BLM's base budget. To enhance the implementation of this plan, other funding sources such as Heritage Grants, Arizona State Parks, National Park Service and Arizona Game and Fish Department budgets, as well as contributions from user groups such as the Arizona Desert Bighorn Sheep Society and the International Society for the Protection of Mustangs and Burros will also be sought.

20. ***How will most cultural resources be managed?***
The majority of cultural resources in the planning area are allocated to scientific use under the Management for Information Potential category. Proposals for study will be authorized on a case-by-case basis subject to compliance with Section 106 of the National Historic Preservation Act. Proposals for study of cultural properties within wilderness areas will be guided by existing policy in BLM Manual 8560.32. Inventory to identify and evaluate cultural properties will be done throughout the planning area in compliance with Section 110 of the National Historic Preservation Act.

C. ISSUES BEYOND THE SCOPE OF THIS PLAN

Four issues were identified that are beyond the scope of this plan to solve. These are listed and addressed below.

1. ***Is the wild horse and burro program too costly to administer?***
   The BLM is under legal obligation to manage wild horses and burros under the auspices of the Wild Horse and Burro Act of 1971. As with other programs of national scale, decisions about the costs and benefits of the wild horse and burro program were made at levels of government well above the regional level.
2. ***Do variations in interpretation of the Wilderness Act by different BLM offices cause confusion among agencies?***
   An effort within the BLM in Arizona is being made to minimize variations in the interpretations of the Wilderness Act of 1964. The Kingman Resource Area and Phoenix District Office will base wilderness management on the existing guidance found in the Wilderness Act, the Code of Federal Regulations, planning manuals, and other applicable guidance such as the International Association of Fish and Wildlife Agencies Instruction Memorandum 86-665 (AGFD and BLM, 1987). Differences in management may still be found among the different wilderness areas of the state.
3. ***Are wild equids found on public lands in North America of native origin?***
   Although horses and burros evolved to essentially modern form in North America, they became extinct on the continent about 10,000 years ago. Whether this evolutionary history endows them with native status is a matter of unresolved debate in both scientific and lay circles. But that debate is largely irrelevant to this plan. The BLM is mandated by the Wild Horse and Burro Act of 1971 to manage burros on public land as an integral part of the natural community. The National Park Service, on the other hand, has directives which encourage the elimination of life forms that is considers non-native (including the burro) from lands under its jurisdiction. Both agencies have agreed to the management prescriptions proposed in this plan for the joint use area (Map 1) in the interest of a coherent management strategy which transcends jurisdictional boundaries.
4. ***What are the specific habitat requirements for all species and how will these requirements affect management?***
   Although BLM and other resource management agencies are attempting to identify requirements for actively managed species of special concern, it is unrealistic to expect that specific habitat requirements for all species can be determined.

GOALS

The following goals were developed to guide management toward the conditions conceived in the Black Mountain Vision Statement found in the Foreword section of this document.

1. Manage vegetative resources to:
   - Ensure that the physiological needs of plants are met.
   - Increase the diversity of the native vegetative community.
   - Increase the abundance of highly palatable (and therefore heavily used) native species.

2. Maintain the biological diversity, health, function, and habitat continuity of the Black Mountain ecosystem.

3. Manage the Black Mountains as an integrated part of a collection of associated ecosystems by maintaining essential biological linkage corridors and providing for the movement of plant and animal species being considered.

4. Provide for a broad spectrum of recreational opportunities, from hiking to motorized activities.

5. The following goals apply to Black Mountain wilderness areas:
   - Provide for the long-term protection and preservation of the area's wilderness character under a principle of non-degradation.
   - Manage the wilderness for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment as wilderness.
   - Manage the area using the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective.
   - Manage nonconforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character.

6. Increase knowledge about the life-forms of the Black Mountain ecosystem.

7. Protect, enhance, and use cultural resources within the ecosystem consistent with their scientific and public values.

OBJECTIVES

VEGETATION OBJECTIVE 1

(This **short-term** objective addresses Goals 1 and 2.)

Once the plan is approved, limit utilization on key species (Table 4) within key areas (areas between 0.25 -0.75 miles of permanent water sources) in the Black Mountain ecosystem over the life of the plan.

Rationale: Data suggest that over the past five years, stocking rates for ungulates in the Black Mountains have exceeded available forage production.

It is apparent that a single utilization limit for all key plant species is inappropriate. Since these key species are used at different intensities, separate utilization limits are needed for each key plant species.

The utilization limits proposed in Table 4 were derived from Phoenix District Proper Use Factor tables, and were further refined through analysis of Black Mountain utilization data collected yearly since 1981. Proper use factors are utilization limits, established for relatively abundant plant species, at a level which will ensure that other, more palatable, but less abundant species are not overutilized. Utilization monitoring data will be evaluated as data collection in the Black Mountains continues. Further refinement of utilization limits (proper use factors) on key species may be necessary.

A list of plant species (Table 5) was examined that might be better indicators of environmental impacts than the key species currently selected. It became apparent that in most places the relative frequency of alternative species are not sufficiently abundant to serve this purpose. In some areas, additional species can be used as key species if they are abundant enough.

Applying the proposed utilization limits should result in reduced grazing and browsing pressure on more palatable species, allowing for increased seed production and seedling establishment of the plant species listed in Table 5. Lower usage should result in greater plant diversity. These utilization limits would also ensure that adequate and suitable perennial and ephemeral forage and cover would remain available for soil and watershed protection.

Since key areas can be expected to receive heaviest use, limiting utilization at these points should ensure that overutilization will not occur elsewhere in the ecosystem.

The Final Environmental Impact Statement for Burro Management for Lake Mead National Recreation Area (February 1995) sets initial utilization limits for key species at 33 percent, except in areas north of the Cottonwood East Road. Here, utilization is held to 20 percent. The recreation area recognizes that the utilization levels identified within this plan are statistically indistinguishable from those of the recreation area's *Burro Management Plan*, and are an appropriate starting point for monitoring ecosystem response.

Management Actions

1. Include a stipulation in the terms and conditions of all grazing permits with pastures within the ecosystem that incorporates the new utilization levels.

   Rationale: In order to be meaningful, utilization limits must apply to all livestock, wild burros and big game species.

Table 4. Utilization Limits (Proper Use Factors for Key Plant Species)			
White bursage	Ambrosia dumosa	AMDU	20%
Flattop buckwheat	Eriogonum fasciculatum	ERFA	15%
Big galleta	Hilaria rigida	HIRI	35%
Mormon tea	Ephedra nevadensis	EPNE	40%
Globe mallow	Sphaeralcea ambigua	SPAM	40%
Desert rock-pea	Lotus rigida	LORI	30%
Chuckwalla's delight	Bebbia juncia	BEJU	15%
Shrubby buckwheat	Eriogonum wrightii	ERWR	40%

Table 5. Desirable Forage Species that Might Increase with Reduced Grazing Pressure

Scientific name	Common name
Acacia greggii	catclaw
Bebbia juncia	chuckwalla's delight
Bouteloua curtipendula	sideoats grama
Bouteloua eripoda	black grama
Dyssodia spp.	San Philipe dogweed
Ephedra nevadensis	Mormon tea
Eriogonum wrightii	shrubby buckwheat
Janusia gracilis	slender janusia
Lotus rigida	desert rock pea
Menodora scabra	twin berry
Muhlenbergia porteri	bush muhly
Nothalaena parryi	cloak fern
Porophyllum gracile	yerba de venado (deer weed)
Sphaeralcea ambigua	globe mallow
Stephanomeria pauciflora	wire lettuce
Stipa speciosa	desert needle grass
Tidestromia oblongifolia	wooly tidestromia
Tridens muticus	slim tridens
Wislizena refracta	jackass clover

2. Develop cooperative management agreements with grazing permittees to minimize conflicts in the joint use area (i.e., seasonal use, deferred grazing, water developments, herding, etc.).

   Rationale: This will minimize habitat use conflicts which arise as a result of limited availability of water and forage resources during the hot, dry season. Livestock distribution improves during the cool, wet season, resulting in more even utilization of forage.

3. Reduce or limit animal numbers in the joint use area, using the 9,500 AUM

estimate of sustainable forage production in combination with an initial forage allocation as specified in the final Kingman RMP. The initial allocation is 30 percent for burros, 30 percent for cattle, and 40 percent for big game. Forage is allocated to animal units at the ratio of cattle 1:1, bighorn sheep 5:1, deer 4:1, and burros 2:1.

In terms of numbers and AUMs in the joint use area, this translates to:

	From	To
Wild burros	817 (4,902 AUMs)	478
Cattle	235 (2,820 AUMs)	235
Big game:		
Bighorn sheep	992 (2,381 AUMs)	1,196
Other wildlife (e.g., deer)	300 (900 AUMs)	300

See Appendix 3 for a description of burro capture methods. Within the joint use area (Map 1), the BLM and NPS will cooperatively manage burros according to the vegetation objectives and utilization prescriptions of this plan, however this plan will not apply to burro management on NPS lands outside of the joint use area. Burros on those lands are managed under the guidance of a burro management plan developed by Lake Mead National Recreation Area (NPS, 1995).

These initial ungulate numbers will be monitored to ensure that burros are not disproportionately concentrated in the recreation area relative to the remainder of the Black Mountain Ecosystem.

Whenever the BLM-NPS joint census data shows more than 125 burros within the boundaries of the park, the recreation area and BLM will cooperatively remove the excess animals. The possibility of developing burro-accessible waters on public lands will be explored with the aim of achieving better distribution of burros in that part of the joint use area north of Cottonwood Road and south of the El Dorado Jeep Trail.

Subject to Arizona Game and Fish Commission approval, future adjustments to bighorn sheep numbers will be based on vegetation monitoring and periodic evaluation as described in the following section.

Rationale: The Black Mountains produce a finite amount of forage. By several measures, the joint use area produces 9,500 AUMs; public lands within the ecosystem but outside the joint use area produce 2,500 AUMs (data analysis by BLM work group, Cerbat/Black Grazing EIS, 1978). Since public lands outside the joint use area are used primarily by cattle, and because substantial portions of this area are a checkerboard of private and public lands, some of which are slated by the BLM for disposal, these lands were not included for the purposes of analysis and objective development.

Because of considerable dietary and spatial overlap between species, it can be very difficult to accurately attribute utilization to a single species. When it is possible to determine what species is contributing most to utilization at a site, this information is recorded and used in data analysis. It is, however, important to understand that while scientific data has been used to estimate the maximum sustainable production of available forage in the joint use area, science ***cannot*** provide absolute answers about how that forage should be divided between the species present. Given the well documented reality of dietary overlap between species, the decision about how available forage is to be divided among the species is primarily a political one. One of the main purposes of this plan is to make that decision in an equitable way, with maximum public input, within the limits of the law, and in the context of BLM's multiple-use mandate.

Underallocating forage is not likely to

have an adverse effect on the ecosystem; overallocation is likely to have grave environmental consequences. In addition, the majority of scientific literature indicates that the potential for spatial and dietary overlap decreases as the stocking numbers of those species are reduced.

4. Base current and future stocking rates upon multiple years (three or more) of vegetation monitoring data rather than on yearly vegetation monitoring. At a minimum, a plan evaluation will be completed every three years. If objectives are not being met, a stocking rate adjustment would be made and/or ungulate distribution problems would be addressed.

   Rationale: A clearer picture of forage availability and habitat limitations emerges from multiple years of data. Year-to-year variability in the climate will not unduly influence the data or the management actions that follow. Analyzing multiple years of data allows managers to identify faulty or suspect portions of the data—data which might be taken more seriously in a situation where yearly monitoring results are used to set stocking rates. The effects of observer error and bias will be reduced when multiple years are averaged.

   Stocking rates based on vegetation history will provide for maintenance of relatively consistent population levels between livestock, burros and bighorn sheep. By contrast, management based on yearly monitoring data will result in ungulate populations that are more cyclic or erratic.

VEGETATION OBJECTIVE 2

(This objective addresses Goals 1, 2 and 6.)

*Maintain or increase **native** plant species diversity and abundance at all study sites by the year 2004 (see Map 8).*

This is a long-term objective which will be refined and quantified when ecological site inventory is completed. Ecological site inventory is ongoing in the Black Mountains. The inventory will provide an estimate of plant production and an updated species list for the entire ecosystem.

Rationale: Species diversity is directly related to ecosystem health and function. Moving toward the potential natural communities will provide more native plant diversity than the communities presently occupying most key areas.

Management Actions

1. Establish exclosures, fenced plots, at selected sites within the joint use area which would prevent grazing by livestock, burros, and bighorn sheep. Exclosure sites under consideration are: Goldroad, Flowing Well, Onnetto, and Lazy Boy Springs.

   Rationale: Exclosures are a commonly used tool for assessing the potential of a vegetation community, and to help understand grazing impacts on that community.

   These locations are recommended because they: 1) represent range sites that make up large geographic areas of the ecosystem, 2) are located in highest precipitation zones, and can therefore be expected to show change more rapidly than areas of low precipitation, and 3) are outside of wilderness, and will therefore avoid conflicts with wilderness objectives.

2. Complete ecological site inventory of key areas in the Black Mountain ecosystem (Map 8) by 1996. Complete ESI of the entire ecosystem by the year 2000.

   Rationale: A completed ecological site inventory will provide a map of the existing natural plant communities in the ecosystem as well as accurate species composition lists for each of these com-

munities. This information, refined with exclosure data, will quantify long-term vegetation objectives for each community.

3. Actively suppress all wildfires in the Black Mountain ecosystem.

   Rationale: The frequency and size of wildfires has greatly increased from historic occurrences due to the presence of exotic annuals (i.e., red brome, Mediterranean grass, etc.). The native plant communities within the Black Mountain ecosystem are not adapted to frequent fire occurrences. Following fire, species diversity is typically reduced and palatable forage is lost.

4. Develop a revegetation strategy which will slow or halt the spread of fire climax plant communities that have resulted from the spread of undesirable exotic plants. Establish experimental plots to identify plant species and revegetation techniques which might prove most useful in post-fire and disturbance rehabilitation efforts.

   Rationale: Revegetation research and experimental planting efforts for the Mohave Desert lag far behind such efforts for other bioregions, such as the Great Basin/Intermountain deserts. Any effort which successfully reduces the rapid proliferation of exotic weed-dominated communities will help to maintain indigenous biodiversity.

BIODIVERSITY/ECOSYSTEM HEALTH OBJECTIVE

(This objective addresses Goals 1 and 2.)

Ensure long-term (defined as greater than 100 years) viability of populations of all species in the Black Mountains.

Rationale: Maintaining species numbers above some minimum threshold will help ensure against inbreeding depression or catastrophic population events. At present, money and manpower constraints limit animal population monitoring to desert tortoise, desert bighorn sheep, wild burros, and livestock. Although there are exceptions, the assumption has been made that if minimum numbers of large, wide-ranging animals can be maintained, minimum numbers of smaller species will also be guaranteed. This is because the greater space and food requirements of large mammal species more seriously challenges the limits of ecosystem size and productivity.

While we realize that the plan seems to focus disproportionately on a few large ungulate species, we also contend that is these species that have the greatest potential to impact the vegetation. These large ungulates are also species which we can reasonably manage. We hope that by ensuring the health of Black Mountain vegetation communities, and by maintaining habitat continuity and habitat linkage corridors, we can preserve ecosystem biodiversity, health, and integrity.

Management Actions

Corridors

1. Designate the Sitgreaves Pass biological linkage corridor across Route 66 (Map 3). This corridor is approximately 1.5 miles wide and includes all public land in T19N, R20W, sections 12 and 13, and T19N, R19W, sections 7 and 18 (private land is excluded). Biological linkage corridors are protected and maintained by restricting actions and developments that are incompatible with the movement of plants and animals, and by ensuring that the public land within them remains in public ownership. Habitat fragmentation is mitigated by restricting development within this area. Private land is excluded.
2. Establish, in coordination with the Arizona Game and Fish Department and Arizona Department of Transportation, two or

more highway underpasses or overpasses for wildlife and wild burros as part of the proposed expansion of State Route 68 on the west slope of the Black Mountains east of Bullhead City.

3. Develop specific standards for size, type, and frequency of wildlife crossings in highways, roads, pipelines, etc. In addition, existing road crossing areas where modification is needed will be identified.
4. Initiate coordination with agencies and individuals that are responsible for management of land adjacent to the Black Mountain ecosystem to deliniate and designate movement corridors between the Black Mountain and other ecosystems.

   Rationale: The Black Mountains cannot be managed in isolation without loss of biodiversity and ecosystem integrity. Management must be integrated with adjacent systems. The opportunity for species to move beyond the boundaries is essential to the maintenance of ecosystem health and viability over time.

Habitat Continuity

5. Perform habitat analysis using geographic information systems, satellite imagery, aerial photography, or other tools which will identify unroaded habitat blocks which might warrant protection from development, especially roads.

   Rationale: Contiguous blocks of unroaded habitat afford the most effective sanctuary from human harassment; some species require this for survival and reproduction. Habitat fragmentation is a major cause of biodiversity decline.

Water Availability

6. Monitor, maintain and develop waters that will support populations of animals appropriate to ecosystem capacity.

   Water developments will be inspected at least twice per year to ensure that water remains available year-round. Water level monitoring is typically done by foot and/or vehicle several times each year. Low-level aerial water level monitoring by fixed-wing aircraft will also be conducted approximately six times each year in areas outside of wilderness.

   Maintenance will occur as the need arises. Maintenance activities are generally limited to the facilities inside of the exclosure that is located around a development. See the Wilderness Preservation Objective, Management Action 6 for a description of facility maintenance and inspection in wilderness.

   Develop wildlife waters listed in Table 6. The locations of the proposed catchments are approximate and may very subject to site feasibility. The service area around a water development is considered 1-1/2 miles. In order to secure water for use on public land, BLM will file with the state for water rights at developed and undeveloped waters. A total of 31 waters have been developed in the ecosystem to date. These are found in Appendix 5.

   Existing livestock water developments are listed in the Range Improvement Index located at the BLM Kingman Resource Area Office. Livestock waters are maintained by grazing permittees and sometimes have water available year-round, even when livestock are not in a particular pasture. Most cattle troughs are equipped with ramps to make the water available to small animals and reduce the incidence of drowning.

Table 6. Proposed Wildlife Water Developments in the Black Mountains

Name	Location
Coyote Tank	T25N, R21W, section 22, SESW 1/4
Two Horns Trick-tank	T25N, R21W, section 5, NWNW 1/4 and T26N, R31W, section 32, SWSW 1/4
Cone Mountain Catchment	T26N, R21W, section 7, W 1/2
Lucille Well & Pipeline	T25N, R21W, section 30 NE 1/4
Gnatcatcher Spring (Mt. Wilson)*	T30N, R21W, section 19, SWSW 1/4
Big Spring (Mt. Wilson)*	T30N, R22W, section 2 NWSW 1/4
Missouri Spring (Mt. Wilson)*	T30N, R22W, section 13 SENE 1/4
Red Rock Catchment**	T30N, R21W, section 6 SE1/4
Black Butte Catchment**	T29N, R22W, section 1, SE 1/4

During the scoping process for each specific project, it will be determined if further environmental analysis will be required. The environmental assessment prepared for this plan would suffice as the environmental documentation for the above projects. At a minimum, a site-specific clearance for threatened and endangered species and cultural resources will be obtained. Catchment site locations are approximate and may change following site-specific field evaluations.

Additional project proposals will be considered and incorporated into the plan during the annual plan review.

* These projects are located within the Mount Wilson Wilderness Area. These waters are needed to mitigate impacts to wildlife (primarily bighorn sheep). Heavy recreational use on the south shore of Lake Mead by boaters (houseboats, water skiers, campers, etc.) restricts sheep access to lake water during the critical hot months of the year. Historically, the lake shore is where sheep from Mt. Wilson spend the summer. The three spring developments in the wilderness area will be analyzed for development in this plan.

** Analysis of the two proposed catchments in the wilderness area will be conducted on a case-by-case basis and deferred to a later date.

The following are descriptions of the various water developments that are planned as well as two additional catchments that will be considered at a later date. The total area of disturbance for each proposed water development is between 1/4 and 1/2 acre.

Proposed Catchments

Black Butte Catchment

Wilderness - Materials, equipment and camping supplies will be transported by mules, helicopter or foot only. Workers will walk or ride horses or mules into the site.

Red Rock Catchment

Wilderness—Foot, mule-train and helicopter access only. Material, equipment and camping supplies will be transported by mules, helicopter or foot only. Workers will walk or ride horses or mules into the site.

Cone Mountain Catchment

Not in wilderness—Truck and helicopter access; no new roads constructed.

A catchment facility typically contains a sheet metal apron for rainwater collection, a short pipeline to carry water from the apron to storage tanks, and a trough or walk-in drinker. The facility is fenced by a pipe-rail fence and/or a wire fence. Depending on access, materials and equipment are brought in by mule train, pickup trucks, flat-bed trucks and/or helicopter. The fiberglass storage tanks, steel storage panels, walk-in drinker, welder,

pionjar, gabion wire, and cement mixer are either brought in by helicopter or flatbed truck. They are too awkward, large and heavy for mules.

Catchments typically include the following components:

Apron - Approximately 24 feet x 100 feet of corrugated sheet metal lays on the ground supported by a wood or steel frame no more than 12 inches off of the ground. The apron is painted two or three colors to help it blend with the surrounding landscape colors.

Pipeline - Three-inch polyethylene or steel pipe—50 to 300 feet in length—lays on the surface unless the soil is amenable to burial. It is preferable to bury the pipe.

Storages (three types)

Fiberglass: The cylindrical-shaped 2,150-gallon tanks are painted in two or three colors for camouflage. When feasible, the 17.5 feet long by 6.5 feet high by 5 feet wide tanks are buried underground using a backhoe. Otherwise, the storages are places on concrete or metal pedestals.

Steel with roof: Circular-shaped with a concrete or dirt bottom, these 10,000- to 15,000-gallon tanks are often lined with a black plastic liner. The tanks are usually partially buried so that only four or five feet of the tank stands above the ground. To reduce water evaporation, the roof is constructed of corrugated metal with a steel or wood frame. This roof may also act as a water catchment surface. The roof and tank are painted with two or three colors to match the surrounding landscape color. If the tank is partially buried, then a backhoe would be walked in to the project site to dig the hole.

Steel, located underneath the metal apron: This is the preferred method of storage if a hole deep enough to put the storage tank into can be excavated. This method requires that a backhoe be walked into the project site to dig the hole.

Pedestal - One large steel platform/base is normally built on each site to accommodate storage tanks. A concrete pedestal may also be used under each storage tank instead of steel.

Fence

Wire: A four-wire fence with the following spacing from the ground up: 20 inches (smooth), 15 inches (smooth), 4 inches (barbed), 4 inches (barbed) for a total of 43 inches high. This spacing will facilitate the movement of wildlife under, through, or over the fence. Bighorn sheep typically go through or under fences. Mule deer go under, over or through.

Pipe-rail: From the ground up, the 3-1/4-inch black pipes will have the following spacing: 20 inches, 15 inches, 7 inches for a total of 42 inches high. This spacing will facilitate the movement of wildlife under through, or over the fence.

Exclosure - The fenced area is usually less than 1/4 acre but can be as large as one acre. Within this exclosure, disturbance is usually limited to the areas cleared for the storages and troughs. There is a conscious effort to remove as few plants as possible to maintain cover for wildlife and to reduce the visual effects of the facility. These facilities are fenced to allow wildlife access only.

Trough - Built of fiberglass or steel, the 3 by 2 feet or 6 by 2 feet troughs are set mostly below the ground with the rim a few inches above ground level.

Walk-in drinker - This is the preferred trough design since no float valve is needed to refill the trough from the tank. The drinker is approximately 4 feet wide by 11 feet 6 inches long by 5 feet 6 inches deep. It is placed mostly below ground with the rim a few inches above the ground level. This design will be used as long as a hole deep enough to place the trough can be dug with a backhoe.

Gabion - A gabion is a rock-filled wire basket inserted upstream of a trick-tank or pothole for trapping sediment that would

otherwise reduce water storage capacity of the project. The size of the gabion is variable depending on the drainage size, and can be anywhere from 3 feet tall by 4 feet wide to 5 feet tall by 25 feet wide.

Trick-tank - A trick-tank as described below may also be constructed at the catchment site to augment apron water harvesting.

Construction tools and equipment - A portable welder, pionjar, cement mixer, generator and backhoe are the only tools.

Proposed Trick-Tanks

Coyote trick-tank

Truck and helicopter access - no new roads constructed.

Two Horns trick-tank

Truck and helicopter access, no new roads constructed.

Trick-tanks typically include a dam constructed at an appropriate place in a drainage having bedrock at the surface. A pipe in the dam transports water to storage tanks. From the storage tanks, water is piped to a trough or walk-in drinker. The size of the dam varies depending on the site. Typically dams are 2-3 feet tall and 3-15 feet wide, and are built with natural surrounding rock and mortar that is colored to match. A gabion may be placed above the dam to hold back sediments and debris.

A pothole is similar to a trick-tank, except that a natural hole in the bedrock, upstream of the dam, allows more water to be stored. Storage tanks associated with trick-tanks and potholes are located below ground, where possible, but are more often located above the ground because of bedrock at the ground surface that prevents digging.

Trick-tanks and potholes may include a fence, storage tanks, exclosure, gabion, trough, pipeline and walk-in drinker as components.

Proposes Spring Developments

Gnatcatcher Spring

Wilderness area — Materials, equipment and camping supplies will be transported by mules, helicopter or foot only. Workers will walk or ride horses or mules into the site.

Big Spring

Wilderness area — Materials, equipment and camping supplies will be transported by mules, helicopter or foot only. Workers will walk or ride horses or mules into the site.

Missouri Spring

Wilderness area — Materials, equipment and camping supplies will be transported by mules, helicopter or foot only. A backhoe may be brought in to bury the tanks and drinker. Workers will walk or ride horses or mules into the site.

A spring development typically contains a spring box (approximately 2 by 2 by 2 feet) buried in the ground at the source. Pipe(s) carry water from the spring box to a storage tank and from the storage tank to a trough or walk-in drinker. These developments are fenced as described above. Construction tools include a portable welder, cement mixer, generator and pionjar. Components are described under the Proposed Catchments section.

In order to sustain aquatic life at the spring source, water will be left at the source. Water will be available to all animals.

Proposed Well and Spring Developments

Lucille Well and Pipeline

Truck and helicopter access — no new roads constructed.

This well is owned and operated by the Combined Metals Mining Corporation. A

cooperative agreement would be sought in order to utilize some of the water from this well to supply a pipeline that would feed a storage tank and trough located away from the mine site. The pipeline would be approximately 1/2 to 3/4 mile long. The pipeline, storage tank, pedestal, fence, enclosure, trough and/or walk-in drinker would be constructed as described above. This development would have a trough placed outside of the enclosure to provide water for other animals.

Rationale: Optimum distribution and availability of water will help maintain viable animal populations. Better water distribution and availability can result in broader distribution of animal populations, which in turn results in more even utilization of forage.

7. Investigate alternatives to water development in the Mt. Wilson Wilderness to correct human disruption to seasonal bighorn sheep movements. Alternatives could include seasonal closures at coves, water development on Lake Mead National Recreation Area, etc.

Habitat Loss

8. In desert tortoise habitat, recommend that mining actions avoid the active periods for tortoise which are March through May, and July through mid-October.
9. On public lands in the Black Mountains, permit mineral leasing subject to the following stipulations designed to protect resource values:
   - No surface occupancy in riparian zones.
   - Prohibit oil and gas production facilities inside the boundaries of Category I and II desert tortoise habitat in the Black Mountains.
10. Close and/or eliminate temporary access roads to the public to prevent off-highway vehicle use into previously unroaded areas.
11. When no longer needed, temporary access roads would be reclaimed and made impassable by deep ripping, pulling in of berms, boulder placement, etc.
12. Prohibit the cutting of any standing trees (with the exception of cutting associated with extraction of locatable mineral activities) living or dead (excluding potential removal of salt-cedar) in the ecosystem. The area is closed to fuel wood cutting. Down and dead wood for on-site campfire use is allowed.

    Rationale: Unrestricted tree cutting could substantially reduce wildlife habitat; habitat loss is the greatest threat to species diversity and viability.

13. Burned Mohave yucca may be salvaged following naturally caused wildfires. Harvest or salvage of unburned yucca within a burned area is prohibited. Salvage of yucca in association with surface disturbances from mining or other actions is allowed. In all cases, permission from a BLM-authorized officer is required.

    Rationale: These plants have economic value and can be harvested in an environmentally acceptable manner when done in compliance with Mohave Yucca Management EA AZ-025-94-052; and Harvesting of Burnt Mohave Yucca (Salvage Sale) EA AZ-025-94-052-1.

Population Viability

14. Complete an inventory to determine present range and abundance of the following species within the Black Mountain Ecosystem by the year 2005; two-color beard-tongue, white-margined penstemon, crownless milkweed vine, Mohave sandpaper bush, antelope brush, shrubby senna, Mohave cottonthorn, and three-hearts. After completing the inventory, develop recommendations for management.

RECREATION OBJECTIVE

(This objective addresses Goals 4 and 5.)

Provide for a spectrum of recreational opportunities to partially satisfy public demand while protecting sensitive resources by completing the following over the life of the plan:

- *Establishing recreational opportunity zones and management standards that will enhance the spectrum of activities and settings.*
- *Establishing a trail system that will provide a wider range of non-motorized trail experiences.*
- *Establishing appropriate legal access and parking areas for the wilderness zone to minimize conflicts between wilderness users, private land owners and resources.*
- *Establishing standards within wilderness which will ensure outstanding opportunities for solitude and high quality primitive recreational experiences (Table 7).*

Rationale: This objective addresses the recreational issues that were identified in the Issues section of this document.

Table 7. Standards for Wilderness Solitude and Recreational Opportunities

Factor	Indicator	Standard
Interparty Contacts	Number of complaints logged at visitor registers or by mail.	No more than five complaints per year for any one geographic region of a wilderness area.
Evidence of human use	Presence of camp sites.	No more than one per square mile.
	Presence of campfire rings.	None.
	Presence of litter or human waste.	None.

Management Actions

1. Manage five recreational zones as shown in Table 8 and Map 8.
   Rationale: The zones will help provide a spectrum of recreational opportunity while mitigating impacts to sensitive resources.

2. Identify existing routes suitable for use as mountain bike trails and use a signing system to identify selected routes. Route designation will not preclude the use of motorized vehicles.
   Rationale: Designation of suitable mountain bike trails will accommodate the increasing popularity of this activity.

3. Develop a trail system as outlined in Table 9 and Map 8.
   Rationale: A trail system with constructed trails and unmarked routes will provide a variety of recreational opportunities and protect sensitive resources by guiding people away from or around these resources.

4. Install signs at strategic ecosystem entry points to inform the public about off-highway vehicle restrictions, wilderness areas, regulations, and other pertinent user information about the area being enetered.
   Rationale: This will help inform and direct the use of those visitors who do not have visitor use guides and will help control OHV use.

5. Establish trailhead facilities including minimally im proved dirt parking areas and visitor registers at several locations outside wilderness area boundaries at locations shown in Table 10.

Table 8. Settings, Facilities, and Restrictions for the Recreational Activity Zones

	Wilderness	ACEC	Highway and Byway Corridors	OHV Area	Remaining
Location	Mount Nutt, Warm Springs, and Mount Wilson wilderness areas.	Black Mountain Area of Critical Environmental Concern.	Historic Route 66 Arizona Highway 68 US Highway 93 Cottonwood Road Silver Creek Road Boundary Cone Road	1,280 acres adjacent to Historic Route 66 near Topock.	All areas within the ecosystem not included in the other four areas.
Physical and Managerial Setting	Mostly unmodified natural appearance. Low user interaction. Minimal evidence of users. Restriction and control not evident to users after entry.	Naturally appearing environment. Low user interaction. Slight evidence of users. Some restriction and control evident to users.	Mostly naturally appearing as viewed from developed roads. Moderate to high interaction with other visitors. Abundant user evidence. Restriction and control evident to users.	Natural appearing environment with strong evidence of unrestricted vehicle use. Frequent interaction by users. Restriction and control evident at facilities to users.	Naturally appearing environment. Low to moderate interaction between users. Moderate user evidence. Some restriction and control evident to users.
Motor Vehicle Use	OHV designation: **Closed**. None for recreational use. Other uses as authorized.	OHV designation: **Limited** to designated roads, jeep trails and washes in two-colored beard-tongue habitat to roads and jeep trails.	OHV designation: **Limited** to existing roads, jeep trails, and washes.	OHV designation: **Open** (pending compliance with Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, and development of a Topock OHV Management Plan.	OHV designation: **Limited** to existing roads, jeep trails, and washes.
Non-Motorized Trails	No new trails are planned. Existing trails and proposed routes are listed in Table 10.	Existing and proposed trails are listed in Table 9.	Existing and proposed trails are listed in Table 9.	None.	Existing and proposed trails are listed in Table 9.
Campfires	No wood collection; use of charcoal and wood brought in is permitted.	Allowed—use of dead and down wood only.	Allowed only in designated recreation areas where facilities for fires are provided.	Allowed—use of dead and down wood only.	Allowed—use of dead and down wood only.
Trailhead Facilities/ Picnic Areas	None within wilderness areas. Nine parking areas and visitor registers will be built outside the wilderness boundary (Table 9).	None in high value bighorn habitat or category I or II desert tortoise habitat.	Thimble Butte.	Visitor information bulletin board and parking area.	None planned.
Interpretive Sites/ Overlooks	No on-site interpretation; designate cultural sites for scientific use.	On-site interpretation may be developed to meet resource objectives.	Along Historic Route 66, six sites will be developed with graveled parking, short trails, post and cable fencing, and displays. No others planned along other corridors.	On-site interpretation facilities may be developed to meet resource objectives.	On-site interpretation facilities may be developed to meet resource objectives.
Outfitter Camps and Group Size Limits	No base camps; limit groups to no more than 10 people and six pack animals.	No set limits on group size. Limits on group size and/or season of use will be established if significant visitor impacts in sensitive areas are documented.	No base camps along Historic Route 66.	No set limits on permitted group size.	No set limits on permitted group size; no base camps in Category I or II desert tortoise habitat.
Competitive Events	None.	No competitive events of spectator/staging areas in bighorn lambing grounds, high and low value bighorn habitat or in category II desert tortoise habitat.	Discretionary.	Discretionary.	Discretionary.
Non-Commercial Recreational Use Group Size Limits	Encourage group size limits of 10 people and six pack animals.	No set limits on group size. Limits on group size and/or season of use will be established if significant visitor impacts in sensitive areas are documented.	No set limits on permitted group size.	No set limit on permitted group size.	No set limits on permitted group size.
Concessions	None.	None.	One concession permitted in Historic Route 66 corridor.	None.	None.

Table 9. Trail System for the Black Mountain Ecosystem

Trail Name	Length	Use	Description
Warm Spring Canyon Route	10.8 miles	H,E	This will be an unmarked route through Warm Springs Wilderness Area.
Cool Spring Packtrail	2.2 miles	H,E	This route follows an old motor vehicle route and an existing pack trail. No new constructions will be needed.
Twin Springs/Secret Pass Wash	1.9 miles	H,E	These two routes follow old motor vehicle routes. No new construction will be needed.
Mohave and Milltown Railroad Trails	9 miles	H,E,M, OHV	No new construction on motorized route. Brush clearing and limited tread construction on non-motorized route.
Missouri Springs Trail	3.5 miles	H,E	No new construction; follows existing vehicle way.
Cottonwood Canyon Trail	1.5 miles	H,E	No new construction; trail will be along an existing vehicle way.

H=Hiking E=Equestrian M=Mountain Bike OHV=Off-Highway Vehicle

Rationale: Established parking areas along with visitor registers/information centers help to reduce trespass on private lands, increase visitor safety, and quantify visitor use.

6. Construct the Mohave and Milltown Railroad trails. Construction would include a dirt parking area for a minimum of three motor vehicles, a visitor information board, and a visitor register. The trailhead is located at T18N, R21W, section 21, and T19N, R20W, section 32.

7. Pursue easements across private and state lands to provide legal access to the wilderness areas at the following locations for public and administrative use:

Warm Springs

- Through T19N R19W section 21 to provide access to the Cool Springs area.
- Across a large block of private lands south of the wilderness generally located between Franconia and Topock.

Rationale: The Cool Springs access will lead to the proposed parking area and trailhead. In addition, these routes will be important for wild burro management, capture and transport.

Mount Wilson

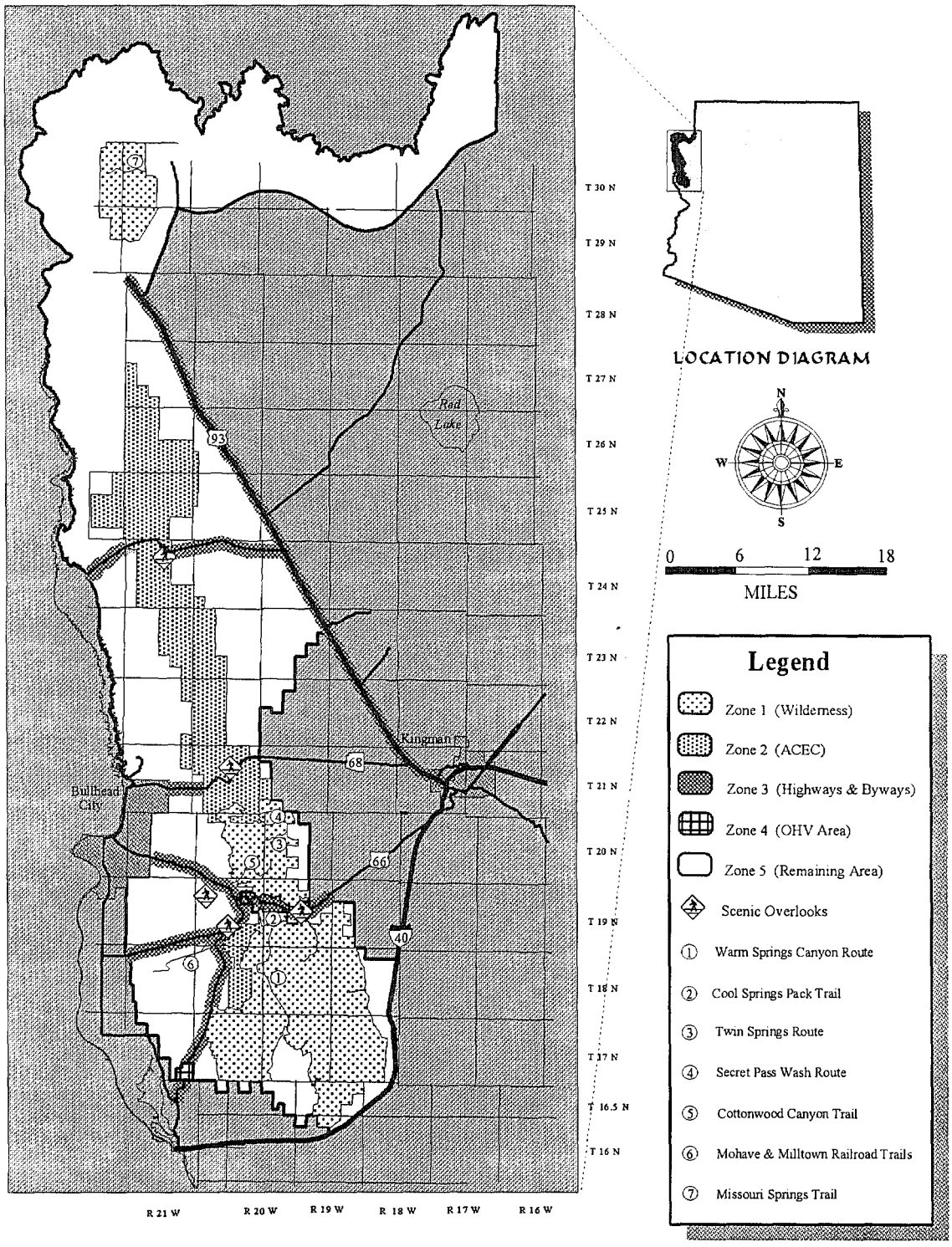
Across T29N R21W section 14 and 15 to the south end of the wilderness area. These are Arizona state lands for which an administrative right-of-way can be obtained.

Rationale: This will provide a second legal access point to this wilderness area, helping to disperse use.

8. Develop an interagency visitor use guide to be distributed by all cooperating agencies.
Rationale: This will give the visitor information on the entire ecosystem.

9. Develop a single contact commercial outfitter authorization process for outfitter use on BLM and NPS lands.
Rationale: This will streamline the permit process for both the outfitter and the agencies involved.

MAP 8 - RECREATION ZONES AND TRAILS



10. Complete development of the following projects along Route 66 consistent with its designation as a special recreation management area:
    - Offer one parcel for concession—RV park (T19N R20W section 27, 28, 32, and 33).
    - Five scenic overlooks with interpretive facilities:
      Black Mountain Escarpment (T24N R21W section 10)
      Black Mountain West (T21N R20W section 15)
      Sitgreaves Pass (T19N R20W section 8)
      Boundary Cone (T19N R20W section 27)
      Thimble Butte (T19N R19W section 14-completed)
    - A day use area at Thimble Butte to include picnic areas and trailhead.
    - A trail from Black Mountain escarpment overlook to Portland Wash.
11. The *Route 66 Back Country Byway Project Plan*, completed in May 1994, identifies several interpretive sites to be developed along the historic route and includes the following sites that are in addition to those identified in the RMP.
    - Boundary Cone South (T18N R20W sec 9)
    - Shaeffer Fish Bowl Spring (T19N R20W sec 13)

    Graveled parking, short trails, post and cable fencing, and interpretive displays will be developed at these sites.

WILDERNESS PRESERVATION OBJECTIVE

(This objective addresses Goals 4 and 5.)

Maintain or enhance the natural untrammeled appearance of landscapes within the Black Mountain wilderness complex by completing the following items over the life of the plan:

- *Remove or mitigate all abandoned, non-functional developments and other human-deposited items and impacts throughout all three areas by the year 2005.*
- *Reclaim all administratively closed motor vehicle routes in wilderness areas that are not consistent with wilderness designation by the year 2005.*
- *Completely eliminate unauthorized motor vehicle use by 1998.*
- *Allow new developments only if they can be built with a "none" to "weak" visual resource management contrast rating as defined in BLM Handbook 8431-1* ***and*** *can be inspected and maintained without motorized or mechanized equipment.*

Table 10. Location of Black Mountain Parking Areas, Trailheads, and Visitor Registers for Wilderness Routes

Wilderness	Parking Area Location	Trailhead (Closed Motor Vehicle Route)	Visitor Register
Warm Springs	T19N R19W sec. 21*	Cool Springs (WS1)	yes
	T19N R19W sec. 35	No trail, near Lazy Boy Mine	yes
	T17N R19W sec. 4	Warm Springs Canyon Route	yes
Mount Nutt	T21N R19W sec. 32	Near Cave Spring; no trail, several routes available (MN 6, 7, 8)	yes
	T20N R19W sec. 16 (Peterson Well)	Secret Wash (MN10) Twin Spring (MN16)	yes
	T19N R20W sec. 3	Cottonwood (MN20)	yes
	T20N R20W sec. 1	No trail; near Secret Pass Arch	yes
Mount Wilson	T30N R21W sec.16	Missouri Springs	yes
	T29N R21W sec. 19 (undeveloped)*	No trail; near mining cabin	yes

* Development contingent upon acquisition of private lands or appropriate easements.

- *Acquire private inholdings through purchase or exchange by the year 2000.*
- *Minimize the use of motorized and mechanized equipment in wilderness areas.*
- *Quantify BLM's federal reserved water rights in wilderness areas and submit notification to the state.*

Rationale: Maintaining and enhancing the naturalness of the wilderness is consistent with national wilderness management goals.

Management Actions

1. Reclaim recent mining impacts in wilderness areas as outlined in Table 11. In general, the following guidelines will be used in reclamation.
   - Remove recent trash and human deposited material where feasible.
   - Refill pits and shafts with on-site material when feasible; fence vertical shafts that would pose a threat to human safety when restoration is not feasible. Cultural and biological resources will be considered before restoration measures are implemented. If bats are utilizing the shafts or pits they will remain open, but possibly modified, to reduce visual impacts and/or to increase visitor safety.
   - Use stains on excavated rock and dirt when feasible to reduce visual impacts from distant vantage points.
   - Remove protruding drill hole casings above ground level and grout holes with acceptable material. If water is found within the drill hole, the potential for development will be evaluated.
   - Concentrate reclamation efforts on roads, since they are usually the biggest impacts associated with mining exploration.

Rationale: The human impacts targeted for reclamation visually impact a significant portion of the wilderness areas. In addition, some of the areas threaten visitor safety.

2. Remove the following abandoned items that are evidence of modern human disturbance in the area:
   - Abandoned sections of Tom Reed pipeline from Flag Spring south (Mount Nutt T19N R19W section 2 and T20N R19W section 35)
   - Debris from plane crash sites—one in Warm Springs Canyon and one on Black Mesa.

Rationale: These items visually detract from the area's natural appearance and the pipeline no longer serves a practical purpose.

3. Administratively manage closed motor vehicle routes in the wilderness area according to the following schedule. The routes and legal descriptions can be found in Appendix 7.
   - Reclaim a total of 7.9 miles of vehicle routes. These routes would be used as hiking or equestrian trails. In most cases, this will involve scarifying and revegetating one of the two vehicle tracks. Targeted routes include: Mount Nutt (MN)1, MN8, MN10, MN16, MN20, Mount Wilson (MW)1, Warm Springs (WS)1.
   - Allow WS17 (2.5 miles) to become revegetated naturally.
   - Completely reclaim all other routes using non-mechanized means (52.1 miles total) to blend with the surrounding landscape. Whenever possible, allow natural restoration of these routes to occur with no human intervention.

Rationale: Selected routes provide recreational access on areas that have been disturbed and are already devoid of vegetation. Their continued use will prevent other areas from being disturbed. Routes that do not provide for recreational use and no longer serve another purpose can be reclaimed to improve naturalness.

4. Construct physical barriers where administratively closed jeep trails, navigable washes, or other areas of open terrain enter the wilderness area and are conducive to motor vehicle passage. Build structures to blend with the surrounding environment as much as possible. Alternatives could include the use of rock, non-specular steel pipe and cable, and T-post/barbed wire fences. Table 12 shows the location of these structures.

Rationale: Less aggressive methods of motor vehicle control have been tried in the area with little success. Physical barriers have proven to be the only effective way to control motor vehicle activity.

5. Clean up the illegal dump site in T19N R18W section 18 NWNE using non-motorized means.

Rationale: This is being done in response to an issue.

6. Contact commercial flight services in Boulder City to encourage observance of the 2,000-foot airspace advisory.

Table 11. Proposed Reclamation Measures for Abandoned Mining Sites in the Black Mountain Wilderness Areas

Priority	Wilderness/Name	Location	Reclamation
Low	Mount Nutt/Dripping Springs	T19N R19W sec. 4 SENW	Leave rock structure; stain excavated soil to blend with surrounding environment.
High	Mount Nutt/Lower Dripping Springs	T19N R19W sec. 4 SWNW	Remove metal debris with pack animals.
High	Mount Nutt/Arch Area Shaft	T20N R20W sec. 1 SESE	Maintain existing fencing.
High	Mount Nutt/Fire Agate quarry	T20N R19W sec. 19 SWSW; sec. 30 NWNW	Use sling loads to fly out solid waste due to large volume and remote location.
Low	Mount Nutt/Cottonwood Shaft	T20N R20W sec. 34 SESE	Leave as it exists due to its remoteness.
Low	Mount Nutt/Whiskey Spring Adit	T20N R20W sec. 34 NESE	Leave as its exists due to its remoteness and minimal visual impacts.
Low	Warm Springs/Alkali #1 prospects	T19N R19W sec. 36 SESW	Leave as its exists; natural reclamation occuring.
High	Warm Springs/Big Pit	T18N R18W sec. 6 NWSW	Refill pits with existing material and stain surface to reduce scarring.
Low	Warm Springs/Alkali #2 prospects	T18N R19W sec. 1 SENE	Scars on hillside are visually impairing; stain surface to reduce scarring.
Low	Warm Springs/Sacramento drill holes (4)	T17N R18W sec. 26 W2	Stain surface, remove drill casings at ground level and reclaim access routs.
Low	Warm Springs/Sacramento prospect	T17N R18W sec. 27 NENE	Stain surface to reduce visual contrast.
Low	Warm Springs/Haviland Holes (3)	T17N R18W sec. 34	Replace basalt boulders on drillpads.
Low	Warm Springs/Haviland Holes (5)	T17N R18W sec.28	Remove drill casings; replace basalt boulders on drillpads.
High	Warm Springs/Arkansas-Louisiana gas hole #1	T17N R19W sec. 9 NESE	Access route needs major reclamation including waterbars; remove casing above ground surface.
Low	Warm Springs/Arkansas-Louisiana gas hole #2	T17N R19W sec. 10 SESW	Access routes are reclaiming naturally; pads are overgrown with vegetation, but cuts are still evident; stain road and pad cuts to match surrounding area. (Historical Note: These three gas holes were drilled in 1964 and have had 30 years of natural reclamation.)
Low	Warm Springs/Arkansas-Louisiana gas hole #3	T17N R19W sec. 15 NENW	
Low	Warm Springs/Cool Springs Mine	T19N R19W sec. 19	Leave as it currently exists.
Low	Mount Wilson/Cabin prospects	T29N R22W sec. 13	Move some native material back onto road survace, scarify road, and stain surface.

Rationale: This will help reduce incidents of low aircraft flight over the Mount Wilson Wilderness Area, improving solitude and natural quiet.

Management actions from other programs which have wilderness impacts

1. Provide for monitoring of the Eastern Bajada desert tortoise study plot in the Warm Springs Wilderness Area.

Rationale: Wilderness provides an area of minimal human influences where the population trend of this species can be evaluated. The Wilderness Act provides for scientific study in wilderness areas. The study methods make its impact to wilderness values negligible.

2. Adopt the following inspection, maintenance, and emergency (including water hauling) procedures for livestock and wildlife/wild burro management in wilderness areas:

Inspection and maintenance: All developments in wilderness areas listed in appendices 5 and 6 will be inspected and maintained without mechanized equipment. Access to the sites will be by foot or other non-mechanized means. If necessary, pack animals will be used to transport maintenance materials into project sites.

Use of motorized equipment, wheeled vehicles, and aircraft can be approved by the area manager for maintenance activities, providing they are the minimum tool to accomplish the tasks. An example of such an activity would be the replacement of a fiberglass storage tank utilizing a helicopter.

Low-level aerial maintenance inspection of all water developments is expected to occur annually. In addition, inspection of all wildlife water sources may be performed incidentally to normal census flights. During these flights, no aircraft will land within a wilderness area. In short, low-level aerial monitoring of wilderness waters will be undertaken during census flights and during annual maintenance inspection flights. High-altitude (above 2,000 feet) aerial monitoring of water developments using proposed unobtrusive electronic technology will not be restricted with respect to frequency of flight.

Emergencies: Emergencies can be classified as either major or minor as shown below. For all emergencies, the area manager will be notified as soon as possible and will be kept informed as to the status of these cases. A follow-up report, within one week of the incident, is required. Emergencies have historically been rare occurrences and are anticipated to occur only up to two times annually in each wilderness area.

3. Provide for one low-level aerial flight every three years to assess nesting habitat for peregrine falcon. Actual flight time will normally be one to three hours over

	Major Emergencies	Minor Emergencies
Definition	A situation that poses an immediate threat to human health and safety, property, or public land resources.	Situations that require quick but not immediate action.
Common Situations	• Search and rescue operations. • Major law enforcement violations. • Rescue of sick or injured livestock. • Hauling water to dry facilities.	• Hauling water to dry facilities. • Monitoring diseases.
Prescribed Action	Motorized/mechanized euqipment may be used without prior approval from the area manager. Report should be made to area manager within 72 hours.	Motorized/mechanized euqipment may be used ***only after approval*** is given from the area manager.

each wilderness area. Additional flights will require further analysis.

Rationale: Minimizing use of motorized and mechanized equipment will protect the naturalness of the area.

4. Establish the following procedures for wildlife population survey and capture of wildlife in wilderness areas.
   - *Survey:* An aerial population survey (census) may be conducted annually for wildlife. See Appendix 8 for a more detailed description of the survey.
   - *Capture:* Bighorn sheep captures within the ecosystem may occur as often as every year. Two methods will be used to capture bighorn sheep in wilderness areas. These are 1) the net-gun method, and 2) the remote chemical injection method. The drop net method was not identified for use in wilderness areas. See Appendix 4 for a description of methodologies and capture sites.
5. Establish the following procedures for population surveys and capture of wild burros in wilderness.
   - *Survey:* Population survey flights are scheduled every three years. Seven days of helicopter filght, totaling

Table 12. Location of Proposed Motor Vehicle Barriers in the Black Mountains

Area Name	Location	Wilderness
Missouri Springs	T30N R21W sec. 16	Mount Wilson
Mount Wilson Cabin	T29N R21W sec. 19	Mount Wilson
Secret Pass Canyon East	T20N R20W sec. 4	Mount Nutt
MN5	T21N R19W sec. 32	Mount Nutt
Bighorn Canyon	T20N R20W sec. 22	Mount Nutt
Five Mile Wash	T17N R20W sec. 20	Warm Springs
Route 66	T17N R20W sec. 5	Warm Springs
Columbine Spring Jeep Trail	T18N R20W sec. 35	Warm Springs
Cool Spring Cherrystem	T19N R19W sec. 20	Warm Springs
Baker Spring	T19N R19W sec. 22	Warm Springs
Antelope Cherrystem (5 locations)	T19N R19W sec. 22, 26, 35; T18N R19W sec. 10	Warm Springs
WS19	T19N R19W sec. 24	Warm Springs
WS 20	T19N R19W sec. 26	Warm Springs
WS 18 — Meadow Creek	T19N R18W sec. 18	Warm Springs
Old Trails	T18N R18W sec. 27	Warm Springs
Sacramento Wash Trestle	T17N R18W sec. 35	Warm Springs
Haviland Sites (3 locations)	T17N R18W sec. 34, 35	Warm Springs
WS 3 — Franconia	T16N R19W sec. 4	Warm Springs
Southside Wash	T16N R19W sec. 32	Warm Springs
Drill Hole	T17N R19W sec. 22	Warm Springs
Warm Springs Core (5 locations)	T17N R19W sec. 4, 9, 16, 17	Warm Springs
Parallel Road	T17N R19W sec. 30	Warm Springs
Unnamed Wash	T17N R19W sec. 31	Warm Springs

approximately 50 hours of flight time, are used to census wild burros over the three wilderness areas. See Appendix 9 for a more detailed description of the census.

- *Capture:* Burro capture operations will require five to seven days of flight totaling 35 to 50 hours over wilderness areas each year. For further detail on capture methodologies see Appendix 3.

CULTURAL RESOURCES OBJECTIVE 1

(This objective addresses Goals 4, 5, and 7.)

Improve protection of cultural resources to prevent further loss of important information and educational values.

Management Actions

1. Monitor Bighorn Cave for any changes every month using site stewards and BLM personnel. Every three months, monitor other significant sites or those experiencing vandalism.

Rationale: Adequate baseline data is necessary to detect changes. Frequent site visitation may help deter vandalism.

2. Place Archaeological Resource Protection Act signs on or in obvious cultural resources such as the Mount Wilson cabin, Warm Springs cabin, Silver Creek cabins, and selected rock shelters.

Rationale: Signing will deter some vandalism and provide better grounds for court prosecutions.

3. Minimally maintain the Mount Wilson, Warm Springs, and Silver Creek cabins as part of the historic fabric of the area.

Rationale: This will help preserve historic, educational and recreational values. These ghost-like reminders of the past add an additional dimension to the Black Mountains wilderness experience.

4. Promote inventory, study, and protection of rock art sites, especially on the west and south sides of the Black Mountains in FY 97 and 98 by:
   a. Developing cost-share projects with the American Rock Art Research Association.
   b. Enlisting the help of the Arizona Archaeological Society, the Arizona Site Steward Program, Native Americans, and volunteers.
   c. Having a BLM ranger patrol the five most vulnerable sites monthly.

Rationale: These properties are vulnerable to removal and defacement. Tremendous population growth is resulting in increasing impacts in the Bullhead City area.

5. Promote inventory, study, and protection of the Silver Creek cabin area in FY 96 by:
   a. Working with the Mohave County Museum of History and Arts.
   b. Enlisting the help of Mohave Community College.
   c. Using seasonal volunteers who have expressed an interest in the proposed project.
   d. Assigning a site steward to the Silver Creek area for a monthly evaluation of the historic cabins.

Rationale: This area currently receives heavy recreational use by the public. The BLM needs to know more about this area in order to manage it properly.

6. Conduct annual meetings with the Hualapai, Mohave, and Yavapai tribes to identify areas of traditional cultural and religious importance.

Rationale: This action will further identify significant cultural resources that need protection.

CULTURAL RESOURCES OBJECTIVE 2

(This objective addresses Goals 4, 5, and 7.)

Ensure proper and best use of cultural resources.

Rationale: Cultural resources should be used in a manner consistent with their scientific and public values.

Management Actions

1. Allocate Bighorn Cave to the scientific and sociocultural use categories.
   a. Provide opportunities for Native Americans to participate in any future scientific investigations.
   b. Conduct meetings with the Hualapai Tribe to obtain their views concerning what should and what should not be done in the future at Bighorn Cave.
   c. Seek partnership opportunities with universities for future research.

Rationale: This property is listed in the National Register of Historic Places and contains evidence of several occupations over the last 3,500 years. Test excavation results from 1986 suggest that additional studies need to be done. Both the Hualapai and the Mohave used the area historically and the Mohave have reported sociocultural values associated with the site.

2. Allocate the Beale Wagon Road to the scientific, sociocultural and public use categories. Complete the following specific actions:
   a. Meet with concerned Native Americans to determine what, if any, portions would be suitable for public use. Determine what kinds of public use might be allowed. Learn what actions would ensure that sociocultural values are not impaired.
   b. Complete data recovery at sites along the route to avoid loss of information that might result from direct or indirect public use.
   c. Pending the results of the above two actions, place interpretive signs at selected locations and designate suitable portions for hiking, horseback riding, driving, etc.

Rationale: Portions of the historic road and associated sites have potential for additional scientific study. The segments on the east side of the Black Mountains may be suitable for public use for recreation and education. Areas on the west side of the Black Mountains have Native American sociocultural values that probably make these areas inappropriate for public use.

3. Allocate the Silver Creek cabins to the scientific and public use categories. These cabins will be used for historical research and for public education and recreation. In addition to the management actions discussed in Cultural Resources Objectives 1-5, complete the following:
   a. Place interpretive signs at the best remaining structures.
   b. Give a public tour of Silver Creek at least once every two years.

Rationale: These cultural resources are the remains of the oldest (1859-1860) Anglo settlements in this part of the state. The cabins were built by troops from Ft. Mohave, most of whom were "49ers" from California. The sites have not been systematically studied and most have not been recorded. The Silver Creek area is currently experiencing heavy recreational use. The area has excellent potential for educational and recreational use.

4. Allocate The Mohave and Milltown Railroad grade to the public use category.
   a. After approved data recovery is completed, develop a hiking trail on the grade.

b. Place interpretive sign(s) at the trailhead.

Rationale: Built to facilitate gold mining, the remains of this 1904 narrow gauge railroad may be used for recreation and education.

5. Allocate rock art (petroglyphs and pictographs) cultural resources to the scientific and sociocultural use categories. None of these sites should be developed for public use.

ADDITIONAL ACTIONS

Additions to the management actions discussed above under Cultural Resources Objectives 1-2 are:

a. Over the next two years (FY 96-98), consult with Native Americans to identify and visit the 10 most significant cultural sites in the ecosystem.
b. Give Native Americans copies of all rock art studies.
c. Ask Native Americans for the location of additional rock art sites that they consider especially important.

Rationale: These properties have good potential for scientific study. These extensive and varied cultural resources have sociocultural values and uses for Native Americans.

MONITORING

For clarity, all monitoring actions have been assembled in this section and are listed below by appropriate objective.

MONITORING FOR VEGETATION OBJECTIVES

1. Continue to collect utilization data annually at 27 existing vegetation study sites at key areas in the ecosystem (legal locality of study sites can be found in study files at the BLM Kingman Resource Area office and are shown on Map 9) using the Key Forage Plant and Grazed-Class methods (BLM, 1984a and 1984b, Appendix 11).

2. Establish vegetation study sites at Lost Cabin Catchment, Lower Lost Cabin Spring, Portland Mine, and Tipperary Tank

Rationale: Additional study sites will rectify geographical gaps in the existing monitoring.

3. Establish additional vegetation study sites near existing study sites at Caliche Spring, Cool Spring, Dripping Spring, and Metate Spring.

Rationale: These additional study sites are intended to determine how much vegetation bighorn sheep consume in the rougher terrain that they prefer.

4. Establish six vegetation study sites in lambing grounds or other high value bighorn sheep habitat. Two such sites have recently been established at Lambing Tank and Master Spring. These sites will quantify bighorn sheep utilization in areas used exclusively, or primarily, by this species.

Rationale: These additional study sites are intended to allow quantification of bighorn sheep impacts to vegetation in the absence of burros and cattle, which complicate that equation.

5. Collect baseline vegetation data (composition, frequency, cover, etc.) within and outside ungulate exclosures.

Rationale: This data will provide information on the effects of livestock, wild burro and big game grazing pressure on the plant community. The data will provide information about long-term changes in plant diversity.

6. Maintain current data with respect to livestock stocking rates by regular population surveys of burros, bighorn sheep and livestock. Burros are counted every three years and bighorn are counted annually. See Appendices 8 and 9 for discussions of population survey methodologies. Livestock numbers and distribution will be tracked annually through compliance inspections and actual use records.

Summary of New Study Sites

(established early 1995)

New sites which appear to receive use from more than one species (livestock, wild burros and big game)

Lost Cabin Catchment
Lower Lost Cabin Spring
Portland Mine
Tipperary Tank

New sites established in rougher terrain near existing sites (Although these studies were placed in very steep terrain in an

attempt to measure sheep only impacts, burro impacts were also present.)

Caliche Spring
Cool Spring
Dripping Spring
Metate Spring

New sites believed to be in sheep exclusive habitat

Lambing Tank
Master Spring

MONITORING FOR BIODIVERSITY/ECOSYSTEM HEALTH/POPULATION VIABILITY OBJECTIVES

1. Continue population monitoring of desert bighorn sheep, mule deer, wild burros and species of special concern. For a description of big game and wild burro census techniques see Appendices 8 and 9 respectively.
2. Continue the long-term study of desert tortoise population trend in Category I Eastern Bajada habitat area.
3. Submit tortoise research needs to the National Biological Survey or other researchers (BLM, 1995).
4. Implement, in cooperation with state and federal agencies, those actions from the *Kingman Resource Management Plan* and recovery plans which pertain to threatened and endangered species.
5. In the two-color beard-tongue habitat in the Black Mountain Area of Critical Environmental Concern, begin monitoring studies to determine habitat conditions and any changes in plant density.

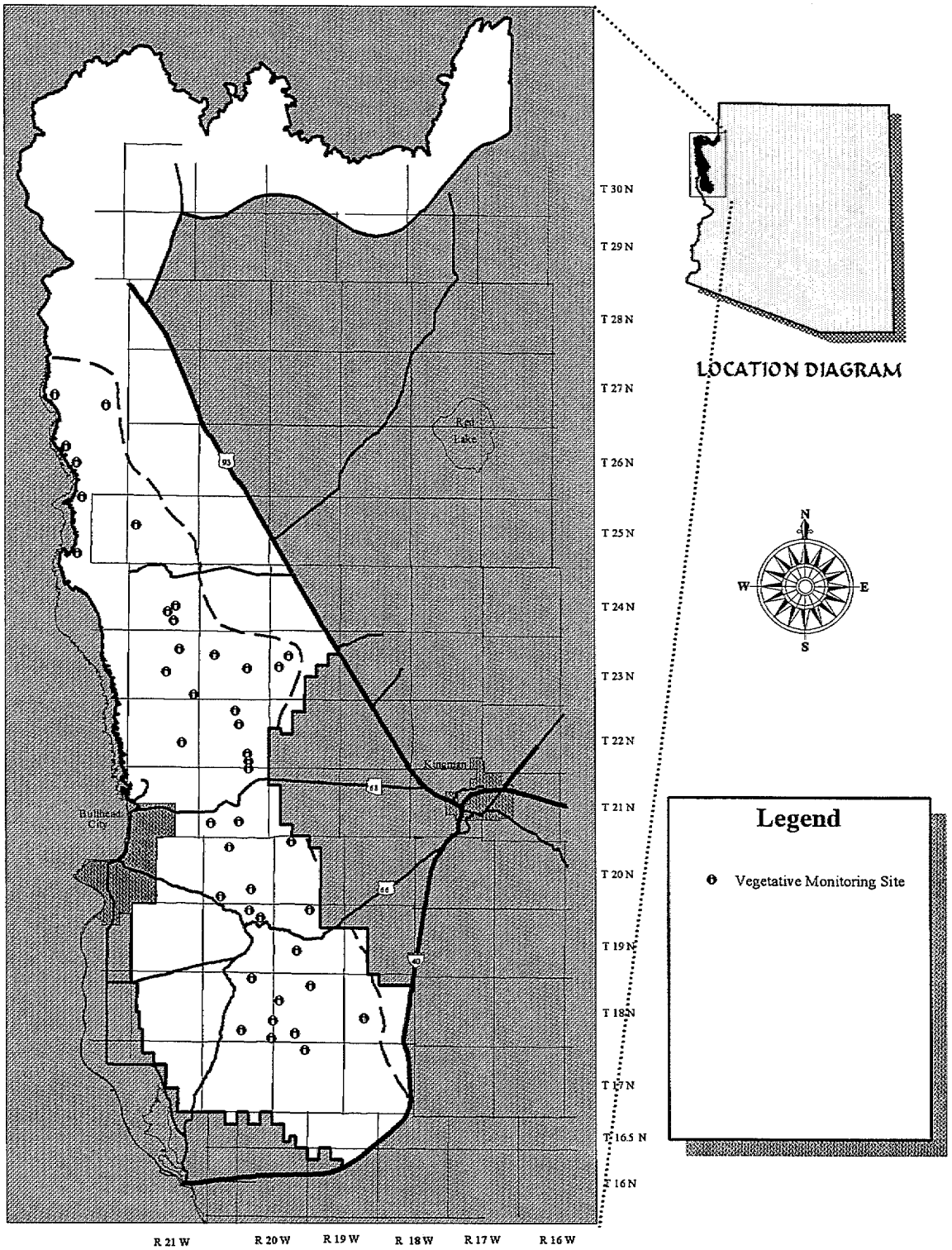
MONITORING FOR RECREATION AND WILDERNESS PRESERVATION OBJECTIVES

1. Observe compliance in recreational zones on a continuing basis.
2. Monitor trail conditions along developed trails annually. Perform maintenance as needed to ensure visitor safety and resource protection.
3. Collect data from visitor registers monthly in high use areas; quarterly in lesser used areas.
4. Inspect each wilderness access barrier up to six times annually depending on the amount of vandalism each one receives or is expected to receive.
5. Conduct initial inventory of each wilderness area to assess the current situation with regard to human use indicators. Repeat the inventory at least once every three years to evaluate whether standards are being met.

MONITORING FOR CULTURAL RESOURCE OBJECTIVES

1. Analyze all site monitoring data to determine trends in vandalism and erosion.
2. Summarize all inventories and studies to update the cultural resources Class I overview information.
3. Evaluate the condition of all signs for vandalism, theft, and weathering.
4. Evaluate the condition of all cabins for unauthorized use, vandalism, and erosion.
5. Summarize meetings with Native Americans to highlight important issues.

MAP 9 - VEGETATIVE MONITORING SITES



RESEARCH NEEDS

The resolution of several Black Mountain issues will require research. Specifically these issues include:

- Where, when, and how is competition between bighorn sheep, mule deer, burros and livestock most likely to occur?
- To what extent do the diets of the four species overlap at the plan's proposed stocking densities?
- How might contraceptive methods affect wild burro populations? Could this be used in conjunction with, or as an alternative to, removal of excess burros?
- How can the viability of Black Mountain tortoises be maximized, and their vulnerability to human-caused disturbances be minimized?

The following research objectives will address these currently unresolved issues as well as research goals 1, 2, 3, and 6:

By the year 2010:

1. Develop a map showing habitat use by, and seasoned distribution of, the joint use area by bighorn sheep, wild burros, mule deer, and livestock.

2. Determine food habitats of, and dietary overlay between, the animals mentioned above.

Rationale: Achieving research objectives 1 and 2 would help managers to understand where, when, and how species competition is most likely to occur. Ultimately, this information might be used to improve monitoring, to minimize competition, and to avoid unnecessary grazing impacts to vegetation.

3. Develop an accurate population model with wild burros.

Rationale: A reliable population model would serve not only as a reality check for burro census data, but would also allow feasibility projections for future management options, such as contraceptive methods.

4. Determine genetic, morphological and ecological characteristics of Black Mountain tortoises and compare them to known Mohave and Sonoran populations.

Rationale: An understanding of Black Mountain tortoise behavior, ecology, genetics, and relationships to other populations is necessary to optimize management effectiveness, and minimize adverse impacts to this vulnerable species.

Management Actions

1. Solicit detailed study detailed study designs for identified research from appropriate institutions or individuals, so that projects can be undertaken without delay as funding becomes available.

2. Using study designs, solicit funding from all potential sources.

PLAN EVALUATION

The Kingman Resource Area will conduct informal evaluations of monitoring data and resource conditions on an annual basis, and will report to the Black Mountain Ecosystem Management Team and any agency or interested public. Any agency or interest group may participate in this evaluation or meeting. Should the evaluation reveal unacceptable conditions, a formal evaluation (as discussed below) would be done.

At a minimum, formal evaluations will be completed every three years. This evaluation will be conducted by a the full Black Mountain Ecosystem Management Team and will include the actions below:

1. Monitoring data will be analyzed to determine if plan objectives are being met.
2. If objectives are not being met, new management actions will be developed and recommended by the Black Mountain Ecosystem Management Team.
3. An analysis will be made to determine if objectives are still correct. If not, objectives will be updated based on monitoring or other resource information.
4. Management actions that have been completed will be documented.
5. The appropriate agency (or agencies) will select and implement new actions as necessary.
6. New issues or proposals not contained in this plan will be analyzed to determine if they are consistent with the objectives. If they are, an environmental analysis will be conducted and the actions implemented.
7. Monitoring techniques contained in the plan will be evaluated to determine if they are still viable. New techniques will be selected as necessary.

Newly developed actions identified for implementation will become plan revisions or amendments. Plan amendments will be available for public review for 45 days before being implemented.

PLAN IMPLEMENTATION AND COST ESTIMATES

The following include a table which summarizes all management actions identified for implementation in the Black Mountain Ecosystem. Relative priorities are given for implementation. Priorities can change at any time during the planning process. The activities listed in Part A represent management actions necessary to meet the goals and objectives outlined in the plan. The activities listed in Part B are ongoing projects and monitoring which will continue in the absence of an ecosystem plan.

Table 13. Plan Implementation and Cost Estimates

A. Special Projects

Management Action	Organizational Contributions						[a]Total Cost Estimate	Priority
	BLM	AGFD	NPS	ADBSS	ISPMB	MCS		
Include stipulations on utilization limits and livestock class in the terms and conditions of all grazing permits that have pastures within the joint use area.							$2,000	low
Develop cooperative management agreements with grazing permittees to minimize conflicts within the joint use area.							$48,000	high
Initially reduce or limit ungulate numbers in the joint use area to the following levels: burros 478 bighorn sheep 1,196 cattle 235 other wildlife (e.g. deer) 300							$217,000	high
Establish three exclosures at selected sites (tentatively located at Goldroad flowing well, Onnetto, and Lazy Boy Springs) in the joint use area to exclude grazing use by ungulates (livestock, burros, and bighorn sheep).							$11,000	medium
Complete ecological site inventory of key area.							$12,000	high
Complete ecological site inventory of the entire Black Mountain Ecosystem.							$48,000	low
Establish experimental plantings to identify plant species which might prove most useful in post-fire rehabilitation efforts.							$10,000	low
Develop specific standards for size, type, and frequency of wildlife crossings in highways, roads and pipelines.							$2,000	high
Investigate alternatives to water development in Mt. Wilson wilderness area to correct human disruption to seasonal bighorn sheep movements. Alternatives could include seasonal cove closures, water development on NPS lands, etc.								high
Contact agencies that manage land adjacent to the Black Mountain Ecosystem to initiate discussion and eventual designation of biological linkage corridors for plants and wildlife outside the boundaries of the ecosystem.							$4,000	medium

Determine the absence or presence of bat roosts and hibernacula in the ecosystem; develop recommendations to promote the continued existence of the habitat features.								medium
Complete an inventory to determine present range and abundance of the following species in the Black Mountain Ecosystem: two-color beard-tongue, white-margined penstemon, crownless milkweed vine, Mohave sandpaper bush, antelope brush, shrubby senna, Mohave cottonthorn, and three-hearts.							$48,000	low
Identify existing routes suitable for use as mountain bike trails and develop a signing system that will identify selected routes.							$13,000	low
Develop a trails system that includes the following trails: Warm Spring Canyon Route Cool Spring Packtrail Twin Springs Canyon/Secret Pass Wash Trails Mohave Milltown Railroad Trail Cave Spring Route Missouri Springs Trail Cottonwood Canyon Trail							$18,000 per mile	low to medium depending on trail
Install signs at strategic ecosystem entry points to inform the public about OHV travel rules.							$13,000	low
Establish eight dirt parking areas around the three wilderness areas.							$8,000	high
Pursue easement across a large block of private lands south of Warm Springs Wilderness Area, generally located between Franconia and Topock.							$20,000	low
Pursue easement across T29N R21W section 14 to provide access to the Mount Wilson Wilderness.							$5,000	low
Pursue easement through T19N R19W section 21 to provide access to the Cool Springs area.							$7,500	low
Develop an interagency visitor use guide to be distributed by all cooperating agencies.							$8,000	low
Develop a single contact commercial outfitter authorization process for outfitter use on BLM and NPS lands.							$4,000	medium
Reclaim impacts associated with recent mining activities at 19 locations in wilderness areas.							$54,000	low
Remove abandoned sections of Tom Reed pipeline.							$4,500	high
Clean up removable debris from plane crash sites in Warm Springs Wilderness Area.							$4,500	high

Reclaim a total of 7.9 miles of vehicle routes in wilderness areas to allow their use as hiking or equestrian trails.							$14,000	low
Reclaim 52.1 miles of closed motor vehicle routes in wilderness areas.							$36,000	low
Construct 33 motor vehicle barriers at wilderness boundaries.							$57,000	high
Initiate research studies on animal distributions and population models.							$100,000	high
Wildlife water developments (7).							$250,000	medium
Inventory species of special concern.							$60,000	high
Establish 15 additional vegetative study sites.							$6,000	high
Collect baseline data inside exclosures.							$4,500	medium
Initiate research studies on animal food habitats.							$10,000	high

[a] Cost estimate includes cost of all materials, supplies, and services including the cost of federal employees needed to carry out administration and labor to complete the task.

B. Ongoing Projects and Monitoring

Project/Monitoring	Organizational Contributions						Total Cost Estimate	Frequency
	BLM	AGFD	NPS	ADBSS	ISPMB	MCS		
Vegetative trend and utilization monitoring.							$16,000	annually
Removal of excess burros.							$66,000	annually
Wildlife populations surveys.							$25,000	
Burro census flights.							$35,000	every 3 years
Monitor and maintain trail conditions.							$5,000	annually
Monitor and maintain wilderness area access barriers.							$8,000	annually
Gather visitor information data.							$3,500	annually
Monitor cultural resource sites.							$10,000	annually
Monitor wildlife waters (Appendix 5).							$4,000	annually
Maintain wildlife waters (Appendix 5).							$5,000	as needed

Black Mountain Ecosystem Management Plan

Comment Letters and Responses

YAVAPAI

PRESCOTT ◆ INDIAN ◆ TRIBE

June 27, 1995

RECEIVED JUL 1

Mr. Ken R. Drew, Area Manager
Bureau of Land Management
2475 Beverly Avenue
Kingman, Arizona 86401

Dear Mr. Drew:

We have received and reviewed your Draft Black Mountain Ecosystem Plan and Environmental Analysis and would like to make the following comments regarding cultural resources in the subject area.

1-1 While we note minimal reference to the cultural concerns, we see nothing in the list of references concerning such. We shall appreciate it if you will send us titles and copies of reports supporting your statements.

1-2 We also note on p. 55, a statement to the effect that Native Americans, over the next five years, will be taken to the 10 most significant sites (as determined by the BLM). We should note that 5 years is a long time, and Native Americans familiar with those significant sites may have passed away by that time.

1-3 Furthermore, wouldn't if be appropriate to ask Native American groups in the area for their input as to significant sites rather than leaving the determination solely to the BLM?

We shall appreciate your response to these concerns.

Sincerely,

Robert C. Euler

Robert C. Euler, Ph.D.
Tribal Anthropologist

RCE:lj

530 E. MERRITT PRESCOTT, AZ 86301-2038 (602) 445-8790

July 17, 1995

Tom Carpenter
P. O. Box 245
Flagstaff, AZ 86002-0245
(520)779-2693

Ken R. Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, AZ 86401

Dear Mr. Drew:

I have had the opportunity to review the **Draft Black Mountain Ecosystem Plan and Environmental Analysis**. I have a special affection for the area covered by your plan. That is why I obtained a copy. I was curious to see what the future holds for the Black Mountains.

The plan sounds good to me. I suppose I should be counted among those who do not support the continued presence of wild burros in the area, but as you mentioned in the forward, 'single-mindedness and inflexibility" almost destroyed the "team" approach you adopted. So, I won't stir up the dust by stomping around on that issue.

I support the plan because of its central mission--"ensuring a healthy and diverse plant community."

Also, as a professional writer and editor, I appreciate the clear writing and the logical organization of the document. I congratulate you and your staff and the other members of the project team for a well-reasoned plan that represents compromise and consensus and insures the future of the Black Mountain ecosystem. Well done.

Sincerely,

Tom Carpenter

MOHAVE COUNTY PUBLIC LAND USE COMMITTEE

P.O. Box 7000 ✦ Kingman, Arizona 86402-7000
809 E. Beale St. ✦ (602) 757-0903 ✦ FAX 757-0912 ✦ TDD (602) 753-0726

Rob Grumbles, Chairman
Ken McReynolds, Vice Chairman

MEMBERS/ SUBCOMMITTEES

Rob Grumbles *Timber*
Ken McReynolds *Grazing*
Roger Lindus *Business & Industry*
Paul Pokrasky *Air Quality & Hazardous Materials*
Gary Brummett *Mining*
Bryan Corbin *Recreation*
Joe Biblich *Transportation*
David Bryan *Water*
Don Martin *Wilderness, Wildlife & Endangered Species*

July 19, 1995

JUL 24 1995 RECEIVED

Mr. Ken Drew
Kingman Resource Area Manager
Bureau of Land Management
2475 Beverly Avenue
Kingman, AZ 86401

RE: **Black Mountain Ecosystem Plan and Environmental Analysis**

Dear Mr. Drew:

The Mohave County Public Land Use Committee has reviewed your agency's plan for the nearby Black Mountains.

You and your staff are to be commended for producing such a fine document; one that we are told reflects several years of hard work by a group of diversified interests which include both consumptive and non-consumptive users alike.

We believe that public lands should be managed under a multiple use concept, and this plan reflects that ideology. It is gratifying to see that the needs of all flora and fauna that inhabit the unique Black Mountains, big or small, were addressed.

We would hope that once this plan is operational sufficient funding is available to carry out the Black Mountain Ecosystem Plan's objectives, which include burro removals to the agreed initial stocking rate of 478 and the establishment of more vegetative monitoring sites.

The Black Mountains are indeed a unique ecosystem and of great value to Mohave County and its citizens. We appreciate the effort that has been made to resolve this complicated and ongoing problem.

Sincerely,

Robin L. Grumbles

Robin L. Grumbles, Chairman
Mohave County Public Land Use Committee

DESERT BIGHORN COUNCIL

Established to promote the advancement of knowledge concerning the Desert Bighorn Sheep and the long-range welfare of these animals.

Ken R. Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, AZ 86401

20 July 1995

Dear Mr. Drew:

The Technical Staff of the Desert Bighorn Council (Council) has reviewed the Draft Black Mountain Ecosystem Plan and Environmental Analysis, and our comments follow. Note that we sent you a certified letter (copy attached) in April, 1994, requesting a copy of this Plan when it became available, but we received our only copy for review through unofficial channels. Please mention this to your staff: improvement is needed.

Our comments and questions will center on the following: Vegetation; Biodiversity/Ecosystem Health; Recreation; Monitoring.

VEGETATION OBJECTIVE 1

4-1 Page 29: were Phoenix District proper use factors based on the old ocular reconnaissance range survey method, or something which came much later?

4-2 Pages 29 and 30, Tables 4 and 5. Table 4 lists 8 species and Table 5 lists 19. Yet 5 species (Mormon tea, Globe mallow, Desert rock-pea, Chuckwalla's delight, and Shrubby buckwheat) are listed in both. Delete the 5 species from Table 5.

4-3 Management Action No. 3, page 31. "Sheep numbers will be reduced....." Please explain in the Final Plan what will happen when the BLM cannot control burro numbers in the future: will the Arizona Game & Fish Department and local grazing permittees be forced to reduce bighorn and cattle numbers to lessen the impacts on vegetation caused by burros? What other alternatives are there?

4-4 Management Action No. 4, page 32. "Base current and future stocking rates.....monitoring." What specific time frame/interval is proposed: 3 years, or 5 years, or 10 years? Please explain in the Final Plan, otherwise it will appear that the BLM will do it whenever it feels like...

VEGETATION OBJECTIVE 2

4-5 Page 33, Rationale. Insert the word more between "provide" and "native", for clarity.

BIODIVERSITY/ECOSYSTEM HEALTH

4-6 Habitat Continuity, page 35. Considering that BLM's inventory and monitoring efforts have been going on since before the 1970's, including identification of "primitive" areas and the Wilderness Study Areas, it is surprising in the mid-1990's that apparently the Kingman Resource Area does not have this information. How were the original WSA boundaries leading to the Mt. Wilson, Mt. Nutt, and Warm Springs wildernesses delineated? Or should the inference be that you have the information and are going to enter it into the Geographic Information System?

4-7 Water Availability, page 36. The text says Table 6 lists 9 waters. Only 7 are shown. Perhaps Black Butte and Red Rock catchments (page 37) should be added? The Council fully supports development of these waters. Is the BLM in Arizona required to file for water rights on catchments? If so, such is not the case elsewhere. On page 39, top of the left-hand column, rewrite the walk-in drinker specifications.

RECREATION OBJECTIVES

4-8 Trails System, Table 8, page 44. It is unfortunate that no map of the proposed system is included in this Plan. The Council urges you to revisit this topic, especially the Warm Springs Canyon route. Be aware that hikers (even solitary ones) and people on horseback have been very disruptive to bighorn ewes in lambing areas during lambing season, elsewhere. This same issue has been addressed by the BLM California Desert District in the (1995) Peninsular Ranges Coordinated Bighorn Sheep Metapopulation Ecosystem Plan: in it, definite constraints/limitations are placed on people using hiking trails in identified lambing areas. In your Plan, there are two lambing grounds (Map 2) shown in the Warm Springs Wilderness (Map 4). Please address this in the Final Plan.

MONITORING starting on page 57.

4-9 We submit that not all monitoring actions have been assembled in this section. What is missing is monitoring of waters, discussed briefly on page 35. It is not addressed, either, in Table B on page 68, under Plan Implementation and Cost Estimates. Considering the frequency ("Water developments will be monitored at least twice each year... "), a not-insignificant work effort will be needed. We urge you to revisit this and develop funding needs and show them in Table B. We raise the issue because we have reviewed many BLM planning documents, and virtually all list a very ambitious monitoring program, which looks good in the plan but is seldom carried out on the ground. In light of the following, 1. Monitoring is usually lowest on the priority list of BLM management actions and is usually the first thing dropped when budget and personnel cuts are made, and 2. Considering the current political climate in Washington D.C. and throughout the West, is the Monitoring as shown in this Plan, realistic?

4-10 There are more than a few groups and individuals around, ready and willing to assail the BLM for not following its own plans and guidelines....

Mr. Ken Drew, page 3

This Draft Plan represents a significant amount of effort on the part of many people, and the BLM is to be commended for seeing it through to this stage. The Council suggests that the Final Plan will be even better if the comments and questions raised here, are addressed.

4-11 The Council requests (again) that we be added to the official list of affected interests, and that we be sent a copy of the Final Plan, to the address shown below.

Thank you.

Sincerely,

William R. Brigham

William R. Brigham, Chairman
Technical Staff
Desert Bighorn Council
P.O. Box 71478
Reno, NV 89570

Attachments: copy of 1994 letter
copy of certified return receipt

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ARIZONA ECOLOGICAL SERVICES STATE OFFICE
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951

Telephone: (602) 640-2720 FAX: (602) 640-2730

July 20, 1995

In Reply Refer To:
AESO/SE
2-21-95-I-308

TO: Area Manager, Bureau of Land Management, Kingman, AZ

FROM: State Supervisor

SUBJECT: Comments on the Draft Black Mountain Ecosystem Plan and Environmental Analysis

This letter is in response to your June 14, 1995, request for comments on the subject document. The Draft Black Mountain Ecosystem Plan (Plan) addresses management of natural resources and human activities comprehensively and proposes actions that, when taken together, enhance the ecosystem(s) of the Black Mountain region while providing for public use and enjoyment of the lands and resources of the area. The Fish and Wildlife Service (Service) offers the following comments on the proposed plan.

5-1 **Page 7, Desert Tortoise:** Desert tortoises (*Gopherus agassizii*) of the Sonoran population are known to occur on Lake Mead National Recreation Area (LMNRA). National Park Service lands are not categorized desert tortoise habitat, yet management actions in the "Objectives" section are often directed at categorized habitat only. Furthermore, proposed management often varies by category type. Thus, the document is unclear as to what, if any, actions are proposed in uncategorized desert tortoise habitat on the LMNRA to conserve desert tortoise habitat and ensure long-term viability of tortoise populations. The Bureau of Land Management (Bureau) should coordinate with the LMNRA to identify and categorize tortoise habitat on National Park Service lands and apply appropriate management to each habitat category, as defined in the Objectives section and the *Desert Tortoise Habitat Management on the Public Lands, A Rangewide Plan*, (Bureau 1988).

5-2 **Page 18, Item 17:** Arizona Game and Fish Department (AGFD), supported in part by Service funding, is surveying mines, caves and other roosts for bats throughout Arizona. AGFD should be contacted for bat locality data pertinent to the Black Mountain planning area. They may also be able to provide suggestions on gating or other management for occupied sites.

5-3 **Page 30, Table 4 - Proposed Utilization Limits:** Proposed utilization limits are probably low enough to allow recovery of over-used areas. However, the Plan is unclear how utilization might be reduced if monitoring of key areas reveals that overutilization of specific areas or species is occurring. Utilization results from grazing by cattle, burros, bighorn sheep, deer, and other wildlife. Cattle use can be controlled by herding or moving animals out of overutilized areas. However, only 30 percent of available forage is allotted to cattle. Use by other grazing animals is more difficult to control. The document should describe how overutilization would be corrected. The Service believes corrective measures should target management of cattle. Removal of burros above that proposed on page 31 should also be considered if overutilization is attributable to burros. The Service recommends no action be taken to correct overutilization attributable to wildlife, with the exception of game management as prescribed by AGFD.

5-4 **Page 34, Rationale for Biodiversity/Ecosystem Health Objective:** The assumption that "if minimum numbers of large, wide-ranging animals can be maintained, minimum numbers of smaller species will also be maintained" is flawed. Many species exhibit specific habitat requirements that are not reflected by the needs of large ungulates or desert tortoises. For instance, bats often have very specialized roosting habitat requirements that are unrelated to the needs of deer, cattle, bighorn, and tortoises. In addition, many plant species require specific soil types, microbiotic relationships, or specific water or nutrient conditions. Providing for ungulates and desert tortoises does not necessarily provide for the needs of other species. The concept behind the Biodiversity/Ecosystem Health Objective Rationale carries over to the monitoring plan, which primarily addresses cattle, burros, other large grazing animals, and tortoises, and how these species affect vegetation communities.

5-5 Monitoring of an ecosystem plan should encompass a broader scope. Much of the vegetation monitoring proposed to document effects of grazing animals could, with minimal effort, be expanded to describe the effectiveness of the Plan in increasing the diversity of native vegetation communities (goal number 1, page 27).

5-6 Remote sensing could be employed to track recovery of disturbed areas and long-term vegetation changes. Although monitoring of ecosystem or biotic community function would provide a measure of the success of the Plan in accomplishing system-level goals, monitoring of individual species or species groups will be necessary to ensure that the specific needs of all species are met.

5-7 **Page 36, 2nd Paragraph:** Planned, not "existing", water developments are described in Table 6.

5-8 **Page 36, Planned Water Developments:** Sites for new water developments should be surveyed for unusual plant communities, amphibians, snails, and other species or species groups that might be affected by construction and alteration of habitats caused by water developments. Sites favorable for water developments often support fragile, but diverse biotic communities dependent on scant or temporary water supplies in springs or natural catchments. These communities are easily disrupted or destroyed by construction activities. Consistent with the goal to "maintain the biological diversity, health, function, and habitat continuity of the Black Mountain ecosystem", disturbance of these fragile communities should be avoided.

5-9 **Page 37, 1st Paragraph:** All cattle troughs should be equipped with ramps to allow access by small animals and to reduce the incidence of animal drownings.

5-10 **Page 41, Item 11:** Consistent with the Environmental Assessment, page 115, the document should clearly state that harvest of live Mohave yucca is prohibited. The document should also describe how dead yucca will be distinguished from live, burned yucca, that appear to be dead, but will resprout.

5-11 **Page 42, OHV Designations:** The Service strongly recommends designation of roads and trails in all limited use areas. Limiting vehicle use to existing roads and trails inevitably leads to route proliferation and resource damage. This is particularly true in regards to allowing vehicle use in any wash. Washes often lead to dead ends or become reduced in size requiring back-tracking or overland travel to other washes or roads. Also, washes may not be well-defined, making enforcement of vehicle regulations difficult. Finally, washes support greater vegetation densities and exhibit high wildlife use as compared to surrounding uplands. Vehicle use may disturb nesting birds, destroy animal burrows, reduce seedling establishment, and cause increased illegal collection or mortality of some species that are often found in washes, such as the desert tortoise and the gila monster (*Heloderma suspectum*).

5-12 **Page 42, OHV Area near Topock:** Map 6 does not show this area, and the document is not clear as to whether it would be a new "open" area. Thus, the Service cannot fully evaluate the effects of this designation. However, we are concerned that unregulated vehicle use will cause much resource damage. You should be aware that the Havasu National Wildlife Refuge is in the vicinity of Topock. Because OHV use is difficult to control, the open area should not be located adjacent to the Refuge. Through fencing, signing, and law enforcement presence, the Bureau should ensure that OHVs do not stray onto any lands adjacent to the open area.

5-13 **Page 58, Desert Tortoise Monitoring:** The Eastern Bajada Desert Tortoise Permanent Study Plot provides valuable information about desert tortoise demographics, causes of mortality, and population trends at that site. However, the data collected at this site cannot be used to determine the status of the tortoise or population trends throughout the Black Mountain Ecosystem. Discussions are underway to develop a more comprehensive population monitoring technique for the Mojave population of the desert tortoise. The results of these discussions may be applicable to the Sonoran tortoise, as well. The Service expects that through the meetings of the Arizona Interagency Desert Tortoise Team, a technique will be adopted for monitoring regional tortoise populations. When adopted, this technique should be applied in the Black Mountain planning area.

We appreciate the opportunity to comment on the Draft Black Mountain Ecosystem Management Plan. Any questions in this matter should be directed to Jim Rorabaugh or Ted Cordery of my staff.

Keith A. Kay

for Sam F. Spiller

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (AES)
Director, Arizona Game and Fish Department, Phoenix, AZ
Refuge Manager, Havasu National Wildlife Refuge, Needles, CA

ARIZONA DESERT BIGHORN SHEEP SOCIETY, INC.

P.O. Drawer 7545 • Phoenix, Arizona 85011

(602) 912-5300 • FAX (602) 957-4828

July 24, 1995

Ken R. Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, AZ 86401

Re: Black Mountain Ecosystem Plan

Dear Mr. Drew:

The Arizona Desert Bighorn Sheep Society (ADBSS) has reviewed the above referenced plan. Please include the following comments in the public record.

6-1 Page 4
The AZGF uses a habitat rating system by Hansen as modified by Cunningham. This system has the categories of poor, fair, good and excellent based on topography, waters, vegetation, human disturbance and precipitation. It would be helpful if you could indicate what the criteria are for the system used in the plan.

Page 24, par. 15
We heartily endorse removing feral stock as expediently as possible. However, we understand that they fall under state maverick laws and therefore the State Agriculture Dept..

6-2 Page 25, par. 3
In a compilation/analysis of scientific literature by the National Academy of Sciences commissioned by the Dept. of Interior it states that " Although early Equid evolution occurred in North America, current populations are not re-occupying an otherwise vacant niche." (1984).

Page 29
We support the vegetation objectives and believe that allocations based on a percentage of annual perennial production to be sound.

6-3 Page 36
The water table listed as #6 should probably be Appendix 5 and the table as shown has 8 waters rather than the 9 specified.

6-4 Page 46, par. 9
The stipulations of none to weak visual contrast and maintenance restrictions are of a stricter standard than contained in existing Wilderness Mgt. Plans from other areas.

6-5 Page 49, #6
We believe that inspection and maintenance criteria should be based on the minimum tool needed rather than a blanket prohibition of mechanized means. Also, the restrictions on aerial inspections appear to have no basis in law. Flight over wilderness areas is covered by FAA advisory only.

6-6 Page 51, #8
Mandatory annual census of bighorn sheep may not be needed for reliable population estimates. The word "will" could be changed to "may".

6-7 Page 57, #4
The plan states that vegetation study sites have and will be located at water sites. We are concerned that locating these types of sites too near waters will give skewed data on forage consumption.

6-8 Appendix 4, par. c
Capture via chemical injection is generally considered obsolete and could probably be deleted.

6-9 Appendix 8,
Survey procedures such as rate of coverage, time of day, number of observers, etc. should be standardized. In conjunction with standardized surveys the AZGF has developed observation rates to yield reliable population estimates. We suggest these criteria be used.

In general, we believe the Plan to be a step forward in the management of conflicting resources in the Black Mountains.

Thank you for the opportunity to comment

Sincerely,

Matt Dominy
President, ADBSS

ISPMB
International Society
for the Protection of
Mustangs & Burros

July 25, 1995

Mr. Ken Drew
BLM Area Manager
Kingman Resource Area
2475 Beverly Ave.
Kingman, AZ 86401

Dear Mr. Drew:

It is a pleasure to be able to respond to the Draft Black Mountain Ecosystem Plan and Environmental Analysis. This plan is the culmination of two years of intensive work, deliberation and collaboration of people dedicated to the preservation of the Black Mountain Ecosystem. The ecosystem approach in the Black Mountains can certainly serve as a propelling model for others, as it continues to evolve to the epitome perfection. It is a steadfast reminder that conflict, created by humankind, can and must be resolved for the good of the whole.

We have only a few comments to add to the final plan as follows:

7-1 LOGO - we would like to see that the Ecosystem logo be placed on the cover page.

7-2 EXE. SUMMARY - we would like to add > Provides for the management of wild burros as an integral part of the natural system.

7-3 WILD BURROS- (Page 9 -second column) "burros do not appear to have the demanding habitat requirements of some other large mammal species" largely due to the millions of years of evolution on the North American Continent.

7-4 LIVESTOCK - (Page 10) Kingman RMP defines Unit A, joint use area as 30% utilization for all ungulates. It is misleading to show 50% when the team did not include Unit B in the plan. It should be specified 30% in joint use areas for livestock.

6212 EAST SWEETWATER AVENUE · SCOTTSDALE · ARIZONA 85254
TELEPHONE: (602) 991-0273

7-5 ISSUES BEYOND SCOPE OF PLAN - It is inappropriate to discuss the costs of the Wild Horse and Burro program when the entire costs of all programs are not encompassed in the plan. We object to this as a future issue of the plan and ask that it be deleted unless entire costs of all programs are projected.

7-6 Pages 37-41 - We ask the BLM carefully consider any impacts to wild burros in the development of waters for wildlife and mitigate any impact. (ie: fencing off waters from use by wild burros.)

7-7 MONITORING -BIODIVERSITY (Page 58) - We request that genetic studies to determine genetic diversity and historic backgrounds commence with wild burros in the Black Mountains. A proposal by Dr. Gus Cothran, a leading geneticist from the University of Kentucky, is in the process of being submitted to the BLM State Office.

RESEARCH NEEDS - (Page 61) We are pleased to see that use pattern mapping and seasonal distribution will be accomplished for burros, big horns, mule deer and livestock. This information is critical to the well being of the animals and habitat.

#3. Not only a population model is necessary for wild burros but there is a very definite need to determine why there is such a high mortality rate of wild burros after reaching the age of seven. Survival of wild horses and burros is most often dependent on the knowledge of the older and wiser animals. These animals are the teachers whose experiences guide younger animals through difficult times such as cyclic climatic conditions such as droughts etc. Finding the answers to the high rate of mortality of older animals is critical to the well-being of the burros in the Blacks.

7-8 CAPTURE - (Page 74) Net Gunning : After observation of this procedure and the high death rate attributed to net gunning from potential stress overload, it is ISPMB's current position that net gunning should only be instituted where it is not feasible to do other forms of captures. Current veterinary opinion in Colorado is leading to the eventual banning of net gunning for equids. The caution of using this form of capture must be spelled out in the plan as a last resort.

In conclusion we agree with the Proposed Alternative with the addition of the above recommendations.

For ISPMB

Karen A. Sussman

Karen A. Sussman
President

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
COLORADO RIVER AGENCY
Route 1, Box 9-C
Parker, Arizona 85344

IN REPLY REFER TO:
Real Estate Services
(520) 669-7141

JUL 31 1995

AUG 8 1995 RECEIVED

Mr. Ken R. Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, AZ 86401

Dear Mr. Drew:

In reference to the Draft Black Mountain Ecosystem Plan and Environmental Analysis, the enclosed comments are provided for your review.

If there are any questions, you may contact the author, Mr. Conrad Kresge, Supervisory Soil Conservationist at (520) 669-7121.

Sincerely,

Allen J. Anspach

Superintendent

Enclosure

UNITED STATES GOVERNMENT
memorandum

DATE:

REPLY TO ATTN OF: Mr. Conrad Kresge, Supervisory Soil Conservationist

SUBJECT: Draft Blade Mountain Ecosystem Plan and Environmental Analysis

TO: Mrs. Goldie Stroup, Realty Officer

8-1 The Draft Black Mountain Ecosystem Plan and Environmental Analysis appear to be well done. Consultations with the affected tribes have been made and the declaration is made (p. 125) that this will continue during the project. The references to the Mohave Tribe throughout the documents should be changed to the Fort Mojave Tribe; you may want to bring that name and spelling to the attention of BLM.

8-2 The only real concern I have is with the disposal areas (p.14 and Map 1). Many of these parcels are adjacent or near the Ft. Mojave Indian Reservation. The Tribe may be interested in exploring exchanges with BLM or, surely, in who might be in negotiation with BLM for these lands and what uses might be made of them.

Conrad B. Kresge

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114
4 U.S.GPO 1991-0-281-702/20315

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KENNETH E. TRAVOUS
EXECUTIVE DIRECTOR

CHARLES R. EATHERLY
DEPUTY DIRECTOR

July 28, 1995

Mr. Ken Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, Arizona 84401

Re: Draft Black Mountain Ecosystem Plan and Environmental Analysis

Dear Mr. Drew:

The following are the comments of the Arizona State Parks Off-Highway Vehicle (OHV) Recreation Program regarding the Draft Black Mountain Ecosystem Plan and EA. This organization includes the nine-member governor appointed advisory group representing diverse OHV interests, the general public and conservation organizations in Arizona. By state statute, this group is geographically diverse and representative of numerous constituencies. Wherever the term "we" appears in this letter, it refers to the aforementioned persons. Please make these comments part of the public record in the final EA decision.

We commend your efforts on well written and researched document. At first glance, the summary of ecosystems management (pp vii, viii) appears to be skewed in favor of the values of holism (as espoused by John Muir) rather than anthropecentrism (Gifford Pinchot's conservation ethic). We would not argue with the principles set forth in the Forward of the draft. However, a substantial proportion of the public regard ecosystems management as departure from the BLM's multiple-use mandate. We recognize that this is not necessarily so, and take this opportunity to stress the importance of recognition of the human dimension of ecosystems management. People do depend on the ecosystem for their well-being and survival. We believe recreation to be a source of human well-being, and that multiple use recreation can be accommodated without compromising ecosystems. Balance and sustainability are the keys to the future of healthy ecosystems. We also applaud your sincere interest in seeking win-win solutions among diverse interests. Although it appears that OHV interests were not initially included in the planning process, we offer our services toward any future planning efforts as well as the implementation of this plan.

In the interest of providing input in a timely manner we choose to focus our comments on issues affecting motorized recreation. We have examined the other issues and do not disagree with the

management direction in the draft document regarding those issues. On page 24 of the Issues section, item 19 discusses funding. In addition to the sources listed, we believe the Arizona OHV Recreation Fund is another viable source of funding to enhance the implementation of this plan. Such a partnership will be a tremendous asset in the accomplishment of your stated goal of providing for a broad recreation opportunity spectrum (p 27, Goals).

9-1 Table 8 in the Objectives section (p 44) presents limited trail opportunities for motorized recreation. And the one trail that is coded as OHV appears to be a situation where only a portion of the trail is open to vehicles. We would ask that multiple use (which includes motorized) use be accommodated wherever possible.

9-2 In the executive summary the draft identifies *designation of mountain bike routes*, as a main feature of the plan. Are such routes to exclude motorized use? If so, what criteria was used to make that decision? We have reviewed literature from organizations such as the International Mountain Bicycle Association (enclosed) which advocate sharing trails with *all* users. The mountain bicycling community recognizes that their sport is new and that demanding exclusive use of the resources perpetuates divisiveness among backcountry recreationists. Obviously these proposed routes are not in wilderness areas, therefore it is feasible that such routes should be evaluated motorized use as well. A big advantage to accommodating full multiple use is that the route is then eligible for enhancement through the OHV Fund.

9-3 Table 7 in the Objectives section (p 42) presents an issue of concern. This matrix states that *motorized* events are prohibited in the ACEC. This statement is discriminatory as it implies that motorized events are more disruptive than non-motorized events. Other events such as mountain bike races can generate large groups of participants and spectators who arrive on the site in motorized vehicles. The nature of the competitive event, whether a foot, mountain bicycle or OHV race should be irrelevant. Not surprisingly, some research indicates that non-motorized encounters can elevate the stress level and heart rate of wildlife more than motorized encounters. Wildlife have evolved to recognize human pedestrians as predators. Bicycles that move swiftly and silently may also be a source of disturbance to wildlife. If your staff is interested in literature pertinent to this issue please contact us and we will provide sources of that information. We suggest that the word *motorized* be stricken from the statement referenced. Or perhaps the statement should be reconsidered entirely.

Generally we find extensive linear trail/road opportunities to quality OHV experiences. However open areas such as the 1280 acre area near Topock (Table 7, p 42, Objectives Section) are valuable resource to OHV recreationists. Such areas are often logical sites for staging areas for a designated trail/road system. We would encourage management of this area to include facilities such as restrooms, loading

Mr. Ken Drew
Page 3

9-4 ramps, ramadas, information boards and barriers to protect wildlife habitat in the adjacent Havasu National Wildlife Refuge. Designated routes away from such sensitive sites would also mitigate this concern. Please note that this area does not appear on Map 6 - Recreation, where the legend displays a "zone 4" for OHV area (p 102, Maps Section). Proactive management of areas such as the Topock site has proven to be mutually beneficial for users, managers and the environment. Excellent examples of this type of project exist on the California side of the Colorado River; these sites are managed by the BLM, Havasu Resource Area. Yet another site is under construction in the Yuma District at the Ehrengerg Sandbowl. The Ehrenberg site is one of Arizona's first OHV Pilot Projects.

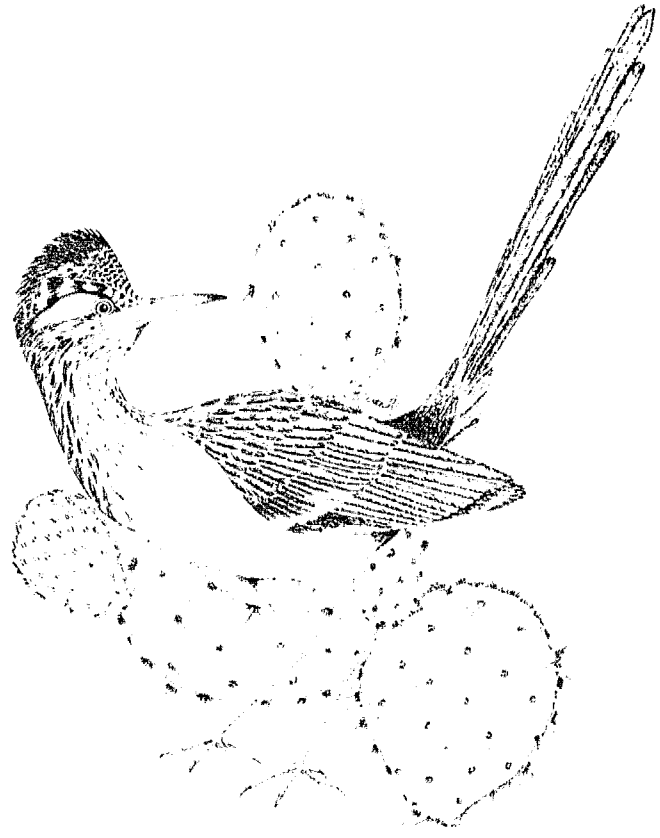
Thank you for this opportunity to comment on the draft EA. We look forward to a long and prosperous partnership with the Kingman Resource Area and the Arizona OHV Recreation Program . We have enclosed informational brochures on the OHV Program and a manual on management of OHV trails. We would like to be placed on your mailing list for any future planning efforts in the Kingman R.A. Finally, we leave you with this statement from Dr. Rene Dubos who wrote, "True conservation, means not only protecting nature against human misbehavior but also developing human activities which favor a creative, harmonious relationship between man and nature." This is a legitimate goal for environmentalists, conservationists and land managers. Dubos' statement also captures the spirit of the Arizona OHV Program.

Sincerely,

Terry Heslin,
OHV Program Coordinator

enclosures

cc: Don Charpio



United States Department of the Interior

NATIONAL PARK SERVICE

LAKE MEAD NATIONAL RECREATION AREA
601 NEVADA HIGHWAY
BOULDER CITY, NEVADA 89005

IN REPLY REFER TO:

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L7619 (LAME-RM)

September 11, 1995

Memorandum

To: Area Manager Ken Drew, Bureau of Land Management, Kingman Resource Area, 2475 Beverly Avenue, Kingman, Arizona 86401

From: Superintendent, Lake Mead National Recreation Area

Subject: Draft Black Mountain Ecosystem Management Plan and Environmental Assessment

In reply to your letter dated June 14, 1995, we appreciate the opportunity to review the subject document. The following are general comments relating to the plan and environmental assessment.

1. Under "Vegetation Objective 1," we agree with your rationale that utilization on vegetation be limited within key areas to improve overall habitat health. The Final Environmental Impact Statement for Burro Management for Lake Mead National Recreation Area sets initial utilization for key species at 33 percent, except in areas north of the Cottonwood East Road, where utilization is held to 20 percent. We feel our utilization levels are almost statistically identical to those set in your draft plan. We can accept the utilization in your plan as the starting point. We will, however, need to monitor our resources periodically to determine if these initial utilization levels result in the protection of our resources.

2. Within the scope of our Environmental Impact Statement for Burro Management, we agreed to work with the Black Mountain Ecosystem Planning Team to establish population levels of burros within the Black Mountains, Arizona.

   We agree that the initial figure of 478 burros within the entire Black Mountain Ecosystem is appropriate. However, burro numbers must also be maintained at levels that reflect the desired utilization standards. In addition, the goals for the Recreation Area as defined in our Burro Management Plan, require that burros not be disproportionately concentrated in the Recreation Area, relative to the rest of the larger Black Mountain Ecosystem.

   Within the Lake Mead National Recreation Area portion of the Black Mountain Ecosystem, whenever the joint census data shows more than 125 animals within the boundaries of the park, we will remove the excess numbers from the park to more evenly distribute the burros within the Ecosystem. Population levels in this area would be further reduced if utilization is exceeded. Also, as stated in our Final Environmental Impact Statement for Burro Management, burro numbers in areas north of Cottonwood east, to the Eldorado Jeep Trail, Arizona, would be kept at current levels of 30 or fewer burros. This population will be further reduced if utilization is exceeded.

Thank you for including us in the planning and review of this document. We hope to continue working with you on the formulation and management of the Black Mountain Ecosystem.

If you have any questions, please contact Resource Management Specialist Nancy Yoder at (702) 293-8949 or Resource Management Specialist Ross Haley at (702) 293-8950.

for Alan O'Neill

THE STATE OF ARIZONA

GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000

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RECEIVED

August 11, 1995

Ken R. Drew, Area Manager
Bureau of Land Management
Kingman Resource Area
2475 Beverly Avenue
Kingman, Arizona 86401

Re: Draft Black Mountain Ecosystem Plan and Environmental Assessment

Dear Mr. Drew:

The Arizona Game and Fish Department (Department) has reviewed the Draft Black Mountain Ecosystem Plan (BMEP) and Environmental Assessment (EA) developed by the Bureau of Land Management (BLM) using an Ecosystem Management Team (Team). The BMEP is a multi-resource activity plan which provides management direction for public lands in the Black Mountains of northwestern Arizona. As the State agency responsible for management of wildlife populations directly affected by management decisions contained in the BMEP, the Department provides the following comments.

The Department supports the ecosystem management approach described in the BMEP and commends the Team for its efforts to address and resolve difficult land management issues in a cooperative manner. The Department had two representatives on the Team and we appreciate the opportunity to participate in the BLM's interdisciplinary planning process.

The Department believes that the following issues should be addressed during development of the final BMEP:

- Proposed wildlife management actions in the BMEP must be consistent with the Master Memorandum of Understanding (MOU) between the Department and the BLM. The Master MOU includes the appended International Association of Fish and Wildlife Agencies (IAFWA) Instruction Memorandum 86-665 "Policies and Guidelines for Fish and Wildlife Management in Wilderness Areas."

- Authority to implement procedures described in the Draft BMEP to manage native wildlife populations is the exclusive purview of the Arizona Game and Fish Commission (Commission). The Department makes management recommendations for consideration by the Commission, but can only implement those activities or programs approved by the Commission. The Department will work with the BLM to clearly identify in the BMEP those activities requiring Commission approval.

- Forage allocation for wildlife, as defined in this document, is considered experimental by the Department and should not be considered a standard or a precedent for future forage allocations or for management of wildlife populations in other areas of the state. Monitoring and evaluating the affects of the allocation on the functioning of the ecosystem will be a critical part of the management experiment.

- Vegetation measurements form the basis for ungulate management and must be sufficient to detect actual, on-the-ground changes in forage utilization. The precision and accuracy of methods used to measure plants must be validated.

- Literature citations should be provided wherever possible in support of issue identification or problem resolution (i.e. competition between species, appropriate forage allocation ratios)

The attached page-referenced review of the draft BMEP and EA provides detailed comments, concerns and/or errata that were identified by the Department. Those portions of the final BMEP relating to management of wildlife and wildlife habitat will serve as the comprehensive Sikes Act planning document identified in the Master MOU and will be submitted to the Commission for their consideration.

We are pleased that the BMEP will remain flexible and will include annual evaluation and review. The Departments looks forward to continued participation in the annual review process. Your consideration of the Department's concerns is greatly appreciated. In you have any questions, please contact David Walker at (602) 789-3604.

Sincerely,

James E. Burton, Chief
Habitat Branch

JEB:dw

Enclosure

AGFD# 6-26-95(06)

ARIZONA GAME AND FISH DEPARTMENT
PAGE-REFERENCED COMMENTS
on the
DRAFT BLACK MOUNTAIN ECOSYSTEM PLAN

AUGUST 11, 1995

Page V, Main Features of Plan, First paragraph

11-1 The word "maintaining" is misspelled.

Page 2, Relationships with other Plans, Statutes and Regulations

11-2 This section states that the BMEP will supersede the Black Mountain Habitat Management Plan (HMP). To better define the transition between these two documents, the BMEP should compare the boundaries of the HMP with the BMEP to insure that all lands previously under the HMP have been accounted for. In addition, all HMP goals, objectives and actions should be identified and categorized as to whether they have been; 1) accomplished, 2) are no longer applicable and why, or 3) are still appropriate and have therefore been carried over into the BMEP.

11-3 It would appear that the BMEP will supersede the Cerbat-Music HMP as well. The Department recommends clarification of this issue and the inclusion of additional description of the Cerbat-Music HMP if it will be affected.

11-4 This section should clearly state that the BMEP is intended to be the "comprehensive plan" called for in the Sikes Act and Article I of the Master MOU.

Page 2, Area Description

11-5 This section should clarify that the forage allocated to ungulates is intended to be only that portion of total forage production which can be taken without long-term adverse effects on plant condition, vigor and proper ecosystem function.

Page 3, Wildlife/General:

"El Dorado" has been labelled on maps as one word: "Eldorado". Same on page 12.

Page 4, Wildlife/General:

11-6 "There are seven designated biological linkage corridors..." Only 6 are listed on pages 4 and 16.

11-7 The BMEP should describe current conditions in these biological linkage corridors and identify how movements of wildlife occur across existing obstacles (i.e. big game use box culverts under the highway). This will assist managers in developing future project mitigation. In addition, the BMEP should clarify that development restrictions are limited to public lands within the corridors.

Pages 5-8, Species of Special Concern

11-8 The assumption that other special status species are not likely to be adversely affected by any BMEP project, "because the plan is designed to enhance habitat and watershed quality" (page 8) is overly simplistic. All site-specific actions should be evaluated to determine potential effects on special status species, including direct and indirect and short- and long-term impacts. Although many special status species associated with riparian areas may not be present at a particular site, they can be affected by activities throughout the watershed that affect rates of erosion and sedimentation.

11-9 The BMEP should clearly state whether the Colorado River, its reservoirs and associated riparian and wetland habitats are included within the Black Mountain Ecosystem.

Page 9, Wild Burros

11-10 Burro management by Lake Mead National Recreation Area should be referenced in this section.

11-11 This section should also document whether the "vegetation monitoring studies" established in the Black Mountain Herd Management Plan have been implemented and the results of those studies should be included.

Page 10, Livestock

11-12 The BMEP should document the extent to which the actions designed to achieve the multiple-use objectives identified in the 1978 Cerbat/Black Mountains Environmental Impact Statement were implemented. A review of changes in livestock grazing activities in the ecosystem over the last 17 years may indicate the need to revisit the environmental analysis conducted in 1978.

Page 12, Livestock

11-13 The Cooperative Agreement referenced with regard to grazing of domestic or feral sheep or goats within nine miles of desert bighorn habitat should specify the parties to the agreement.

Page 12, Wilderness

11-14 "--in the Black Mountain ecosystem." Insert reference to Map 4. "--in the Black Mountain ecosystem (Map 4)."

Page 13, Table 3

11-15 Use of the term "approved" in the title of this table implies BLM authority over Department overflights for wildlife survey, inventory and inspection of wildlife water sources. Because this authority does not rest with the BLM, the Department requests that these three activities be moved to another table labeled "Anticipated Flights Over the Black Mountain Wilderness Complex." These flights will be conducted according to the IAFWA guidelines appended to the Master MOU.

11-16 The description given for the activity in the first row should reference Appendix 8 rather than Appendix 9. In addition, the description given for the activity in the second row should reference Appendix 4 rather than Appendix 5.

11-17 Description of frequency (one day every three years) of aerial inspection of wildlife water sources using aircraft overflights is inaccurate. The Department plans to monitor remote waters from fixed-wing aircraft as needed in accordance with IAFWA guidelines. It is anticipated that monitoring will take place from May to October at a rate of one flight per month, however flight schedules may vary.

11-18 Use of helicopters for the proposed spring developments in wilderness areas should be added to Table 3 since the aircraft will be landing in the wilderness area.

Pages 16-18, Resource Management Plan Guidance Pertinent To This Plan

11-19 #11 - "Close temporary mine access roads to the public..." The term "temporary" as used in this guidance should be clearly defined.

11-20 #18 - As indicated in #4, mitigation for impacts to other wildlife resources should also be considered when developing mining plans of operation.

Page 22, Issues Resolved Through Existing Guidance/#2

11-21 Delete "Special rules may apply on National Park Service lands." Special rules by NPS are not germane to the question posed.

Page 23, Issues Resolved Through Existing Guidance/#9

11-22 This statement implies that 100% of public land forage will be allocated to livestock, burros and big game. The BMEP should explain and identify the percentage of forage which was "removed" for the maintenance of forage plants and "other species" (e.g., nongame species) prior to allocating forage for large mammals.

Page 24, Issues Resolved Through Existing Guidance/#18

11-23 The Department should be acknowledged as maintaining the Heritage Data Management System to which the BLM supplies and receives special status species information.

Page 25, Issues Beyond The Scope Of This Plan/#2

11-24 The IAFWA guidelines in the Master MOU should be added as "other applicable guidance".

Page 29, Objectives/Vegetation Objective 1

11-25 "In some areas additional species can be used as key species if they are abundant enough." What level of "abundance" is sufficient to include additional species?

Page 31, Vegetation Objective 1/Management Action #3

11-26 Add "Subject to Arizona Game and Fish Commission approval" at the beginning of the sentence "Sheep numbers will be reduced..."

Page 33, Objectives/Vegetation Objective 2

11-27 Remove bracket ([ ).

11-28 Spell out Ecological Site Inventory, rather than ESI, when first used.

Page 33, Vegetation Objective 2/Management Action #1

11-29 It would also be useful to understand grazing impacts in low precipitation zones of the ecosystem. Change may be slow, but impacts may be significant.

Page 34, Biodiversity/Ecosystem Health Objective/Rationale

11-30 Relying entirely on the coarse filter approach (minimum numbers of large, wide-ranging animals) for maintenance of smaller species may result in problems for species confined to very specific, isolated habitats, such as the Kingman springsnail. Therefore, the habitat needs of isolated species, such as the springsnail, should receive special attention in the BMEP.

Page 35, Objectives/Water Availability

11-31 "Aerial water level monitoring by fixed wing aircraft will also be conducted approximately six times each year in areas outside of wilderness." The Department may monitor remote waters in wilderness using fixed wing aircraft as needed in accordance with the IAFWA guidelines. It is anticipated that this monitoring will occur approximately six times each year, although flight frequency may vary. Please refer to comments regarding Page 13, Table 3.

Page 36, Objectives/Water Availability

11-32 Because of the intent and function of the fencing around wildlife waters, the Department recommends replacing the word "enclosure" with "exclosure" (left column, first paragraph).

11-33 The first word in second paragraph should be changed from "Existing" to "Planned" to be consistent with the heading on Table 6.

11-34 Because site inspections have not been completed, the locations identified for planned water developments in Table 6 may be too specific. An adjacent site across a section line might be far superior and may be better suited for a different type of development.

Page 37, Proposed Catchments/Storages

11-35 The language referring to burial of fiberglass tanks should be deleted or modified to state "where feasible..." Site suitability and accessibility issues will dictate the feasibility of underground installation. Common tank dimensions are 17.5' X 6.5' X 5'.

Page 38, Proposed Catchments/Storages/Second Paragraph

11-36 "...enough to put the storage into can be dug." Insert tank. "...enough to put the storage tank into can be dug."

Page 39, Proposed Catchments/Walk-In-Drinker

11-37 The correct dimensions for a typical drinker of this type are 11'6" X 4' X 5'6".

Page 40, Proposed Well and Spring Developments

11-38 The rationale should also describe how optimum water distribution and availability can result in broader distribution of animal populations and in more even utilization of available forage resources.

Page 42, Recreation Objective/Management Action/Table 7.

11-39 Table 7 lists outfitter camps and group size limits. The Department believes that restricting base camps in high value bighorn habitat in the ACEC may be an unreasonable and arbitrary restriction for hunting publics. This is based on the considerations that: 1) sites for hunting base camps are largely determined by access and are traditional, 2) impacts occurring at base camps are short term and typically localized, and 3) camping by other recreationalists is not similarly restricted.

11-40 The Department recommends that the BMEP apply the same guidance for guided sportsmen as for non-commercial recreational use groups. However, we recommend that the wording applied to non-commercial groups in ACEC be modified to read "...limits on group size and season of use will be established if **significant** visitor impacts in sensitive areas are documented."

Page 43, Recreation Objective/Management Action/#3 and #4

11-41 Reference to Tables 8 and 10 are out of sequence.

Page 44, Table 8

11-42 The Missouri Springs trail will need repair. Some sections were damaged by heavy rain during winter-spring 1995.

Pages 49, Recreation Objective/Inspection and Maintenance

11-43 The reference to Appendice's 4 and 5 should be modified to reference Appendices 5 and 6.

11-44 The Department may monitor remote waters in wilderness using fixed wing aircraft as needed in accordance with the IAFWA guidelines. It is anticipated that this monitoring will occur approximately six times each year, although flight frequency may vary. Please refer to comments regarding Page 13, Table 3. The Department will work cooperatively with the BLM to reduce perceived impacts from aircraft flight.

11-45 The Department recommends modifying the first sentence of the last paragraph in the right column as provided below.

> Aerial maintenance inspection of all remote water developments **is anticipated to** ~~may~~ occur once every three years. In addition, inspection of ~~all~~ wildlife water sources may be combined with census flights. ~~Since the aircraft is already in the vicinity of these waters during census flights, an extra pass over the waters may be taken by the aircraft to determine if there is water at the development.~~

Page 50, Recreation Objective/Inspection and maintenance

11-46 The sentence referring to remote water level monitoring devices should be clarified to address only BLM authorities for placement of structures in wilderness areas.

Page 50, Recreation Objective/Emergencies

11-47 By definition, emergencies are unanticipated and generally unpredictable. The Department recognizes that the need for motorized entry into the subject Wilderness Areas should be a rare event. However, restrictions placed on emergency entries should be based on need, not a set number. Establishing a limit of no more than two emergency entries per Wilderness Area is arbitrary and could potentially conflict with the Master MOU between the BLM and the Arizona Game and Fish Commission. We request that the criteria for emergency motorized entry be based solely upon defined circumstances agreed upon by the BLM and the Department.

Page 51, Recreation Objective/Table of Emergencies

11-48 The Department does not concur with the definitions provided in this table with regard to wildlife resources. The need to transport water to already dry wildlife waters can be an emergency situation depending upon the potential for big game mortalities. Although the Department makes every effort to ensure such a scenario does not occur, the potential exists and should be included as a "major emergency". In situations requiring mechanized water transport when no significant big game mortalities are anticipated in the immediate future, the Department agrees that a "minor emergency" classification is appropriate.

Page 51, Recreation Objective/Item #7

11-49 Use of the term "allow" implies BLM authority over the subject aerial wildlife surveys which does not exist. The Department requests the first sentence of this paragraph be modified to state "One low-level aerial flight is anticipated to occur every five years to assess nesting habitat for peregrine falcon."

Page 51, Recreation Objective/Item #8

11-50 This section should be modified to allow the use of the drop net method. The Department should have the flexibility to determine the appropriate method for each situation.

Pages 57 and 58, Monitoring

11-51 The monitoring section needs additional detailed information, including identification of specific monitoring objectives and monitoring methods. The protocol for vegetation monitoring should be included as an appendix. It would be useful to establish acceptable confidence intervals around population estimates.

11-52

Page 57, Monitoring for Vegetation Objectives #4

11-53 The Department requests that Department personnel be consulted regarding locating vegetation study sites that are selected to measure exclusive impacts of sheep.

Pages 61 and 62, Research Needs

11-54 Methods used to detect changes in plant species must have predictable precision and accuracy. Sensitivity of plant measurements in BMEP vegetation studies is untested, unknown and assumed. Research is needed to determine the levels of precision and accuracy of BMEP vegetation monitoring methods to detect changes in key plant species.

11-55 Contraception may be a promising population management tool, but it should not be used as a substitute for burro removal until its effectiveness has been proven.

11-56 The section dealing with desert tortoises should include other factors besides human-related issues (i.e., how do burros affect tortoise populations).

11-57 Another research need which should be considered in this section is the development of a relationship between rainfall and forage production for the Black Mountain area. If burro populations are only going to be surveyed every three years, prolonged droughts could result in significant degradation of range condition. If managers could estimate changes in forage production based on precipitation, management actions could be taken to avoid overutilization of the forage base.

Pages 71 and 72, Appendix 1/Animals

11-58 Please check the spelling of the scientific names for the following species:

chuckwalla
desert tortoise
speckled rattlesnake
razorback sucker

Page 76, Appendix 4/Drop net method

11-59 "The net is dropped on the sheep using an explosive triggering mechanism." Delete the word "explosive." Other mechanisms are now used (e.g., electrical solenoid).

Page 84, Appendix 10/#12

11-60 "withthe". Separate words.

Pages 85-88, Glossary of Terms

11-61

actual use: Replace "of leasee" with <u>or</u> leasee

ecosystem function: Insert parentheses (i.e.,...)

goals: Out of alphabetical sequence. Combine with "goal".

mineral: "...an all other..." Change "an" to and

service area: "...animals will do not..." Delete "will"

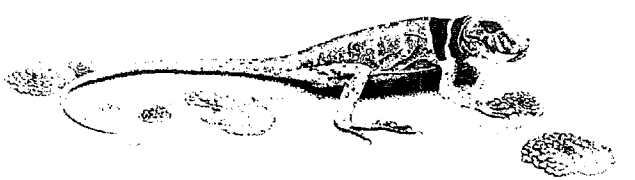
species of special concern: "...Arizona Game and Fish Nongame Data Management System". Change "Nongame" to "Heritage".

Pages 97-104, Maps 1-8

11-62 Maps on pages 97-104 are not referenced within the text in numerical sequence (i.e., Map 1 is first referenced on page 2, Map 2 is first referenced on page 4, Map 5 is first referenced on page 4, Map 3 is first referenced on page 9, Map 4 should have been referenced on page 12 but is not referenced until page 15, Map 8 is first referenced on page 15, Map 6 is first referenced on page 15, and Map 7 is first referenced on page 33).

Page 122, Environmental Impacts/Wilderness Objective

11-63 "...restoration of past mining activities." Change "activities" to "areas".



BLM Responses to Comment Letters

Yavapai Indian Tribe (letter 1)

1-1. Statements in the plan are based on many sources including multitudinous survey reports, numerous clearances that have been done in-house by the BLM, historical accounts, and studies that have been conducted over the past 66 years by at least eight institutions. This information amounts to several thousand pages of information. We are unable to provide copies of all this information because of time and cost factors. You are certainly welcome to set up an appointments to look at and/ or copy information in our records files. If you have specific statements about which you would like more information, we will work with you on obtaining the information and resolving your questions.

1-2. We also agree with you that five years is a long time and that some of the Native Americans familiar with the significant sites may pass away in that time. We will give a priority to this section of the plan and try to implement this action within the first two years. Text in the document has been modified to reflect this.

1-3. As of this year (January 1995), we are holding meetings with all of the tribes to discuss the major plans and projects in the Kingman Resource Area. At these meetings, we have specifically asked for information on Traditional Cultural Properties and values. We will continue to do this at future meetings. We certainly agree that Native American input is extremely valuable for determination of significant sites. Text in the document has been modified to reflect this.

Desert Bighorn Council (letter 4)

4-1. Phoenix District proper use factors were based on comparative utilization data for various plant species. For example, data has shown that when flattop buckwheat is utilized at 15 percent of annual production, Mormon tea at an equal distance from water will show an average of 40 percent utilization. These proper use factors are not cast in stone but will be locally "ground truthed" for Black Mountains vegetation.

4-2. Reference Tables 4 and 5. We don't agree that these lists need to be mutually exclusive. All of the desirable (palatable) plant species in Table 5 are potential candidates for use as key forage plant species; many of these species however, are not sufficiently abundant in the key area to be used as key forage species. In other words, some of the key species in Table 4 were selected only because more palatable species were not sufficiently abundant.

4-3. Your endorsement and continuing support of the Plan are its best assurance of implementation and ongoing funding.

4-4. The Plan Evaluation section of the draft plan says "At a minimum, formal evaluations will be completed every three years."

4-5. Text has been modified.

4-6. This information needs updating and analysis.

4-7. Text and table have been modified.

4-8. The location of proposed trails has been incorporated into the Recreation Map (Map 7). At present though, no trails that would penetrate bighorn sheep lambing grounds have been proposed.

4-9. Inspection and maintenance of water developments is a responsibility shared by BLM and the Arizona Game and Fish Department. The implementation and Costs Table has been amended to include this important activity. Given shrinking budget and staff, the possibility of using more volunteers should be entertained. Your comment is well taken.

4-10. We believe that the proposed monitoring is quite realistic. In fact, the majority of new vegetation monitoring sites were established in the spring of 1995 as the plan's vegetation objectives were being developed. Monitoring in the Black Mountains has been a priority for many years.

4-11. Sorry for the oversight concerning the mailing list. The deficiency has been corrected. Thank you for your input.

U.S. Fish and Wildlife Service (letter 5)

5-1. At present, the National Park Service has not conducted desert tortoise surveys or categorized tortoise habitat on the Arizona portions of Lake Mead Recreation Area. Survey efforts have been focused on the threatened Mohave desert tortoise population inhabiting Nevada portions of the Recreation Area. Desert tortoise surveys of Arizona portions of Lake Mead National Recreation Area will be a part of future Park Service management, and efforts will be made to coordinate surveys so that the resulting habitat maps are compatible with BLM's existing maps.

5-2. The Bureau of Land Management, Kingman Resource Area has been coordinating with the Arizona Game and Fish Department and partially funding bat surveys of mines, caves and other roosts for the last three years. This coordination is ongoing, and surveys are currently being conducted in the Black Mountains.

5-3. Implementation of this plan will substantially reduce ungulate grazing pressure in the Black Mountains. The BLM assumes, and removes, an annual increase in the burro population of 20 percent. An effort is made to remove burros where that are concentrated and/or where utilization data show "hot spots." An effort is likewise made to achieve a distribution of cattle that will not cause localized utilization problems. Bighorn sheep numbers will be controlled by the Arizona Game and Fish Department through hunts and/or capture and transplants.

Management Action number 4 under Vegetation Objective 1 says that current and future stocking rates will be based on analysis of multiple years of stocking rates. The Plan Evaluation section states that monitoring data will be formally analyzed to determine if plan objectives are being met. If over

utilization continues to be a chronic or frequent problem, the Ecosystem Management Team will be forced to consider actions which would improve ungulate distribution and/or future reduce stocking rate.

5-4. We agree that an ecosystem plan needs scope that goes beyond burros, cattle, bighorn sheep, and desert tortoise in breadth. While we realize that the plan seems to focus disproportionately on a few large ungulate species, we also contend that it is these species that have the greatest potential to impact the vegetation, and that these are species which we can reasonably manage.

Obviously, we cannot hope to monitor all life in the ecosystem. Furthermore, a review of the latest literature of conservation biology will reveal that the ecological community cannot agree on standard definitions of the terms "ecosystem health' and "ecosystem integrity," much less how to measure or monitor them.

We hope that by ensuring the health of Black Mountain vegetation communities, and by maintaining habitat continuity, and habitat linkage corridors, we can preserve ecosystem biodiversity, health, and integrity.

5-5. Goal number 1 and Vegetation Objective 2, proposes to "maintain or increase native plant species diversity outside and inside the proposed exclosures to document changes in plant diversity. Text has been modified in the Monitoring Section, number 5 to reflect this.

5-6. We would be pleased to consider any specific recommendations for the use of remote sensing in monitoring ecosystem biodiversity, health, or integrity.

5-7. Text has been modified.

5-8. Prior to project development, surveys are unusual plants and animals and associated communities are conducted as standard procedure for project planning and National Environmental Policy Act compliance.

5-9. Access and escape ramps are required all new water developments. Older troughs and tanks are being retrofitted with escape ramps.

5-10. Text has been modified to clarify the fact that harvest of live, unburned Mohave yucca is prohibited. We have, at present, no surefire method for distinguishing live from dead Mohave yucca. Nevertheless salvage is presently permitted in accordance with Mohave Yucca Management EA No. AZ-025-93-041; Salvage Sale for Mohave Yucca - Administrative Determination EA No. AZ-025-94-052; and Harvesting of Burnt Mohave yucca (Salvage Sale) EA No. AZ-025-94-052-1.

5-11. OHV designations were established by the Kingman Resources Management Plan.

5-12. Zone 4 represents a relatively small (1,280 acres) areas in the extreme southwest corner of the ecosystem. Due to its small size, and the poor reproduction of the map for the draft plan, it is difficult to distinguish. The map has been modified for clarity.

This area was designated for OHV use by the Kingman RMP, contingent upon compliance with Section 106 of the National Historic Preservation Act, and Section 7 of the Endangered Species Act.

5-13. Please keep us updated with progress in the development of a more comprehensive desert tortoise monitoring program for the Sonoran population. We would certainly consider incorporating such a program into this plan (and elsewhere as appropriate in Kingman Resource Area).

Arizona Desert Bighorn Sheep Society (letter 6)

6-1. The desert bighorn sheep habitat classifications shown in Map 2 and referenced in the plan was generated by the Arizona Game and Fish Department, Region III and the BLM Kingman Resource Area.

6-2. Right; there probably are no vacant niches in the Black Mountains. A more relevant question might be: to what extent do burros, at the proposed population level, impinge upon the niches of other species?

6-3. Text and table have been modified.

6-4. These stipulations are consistent with other wilderness plans in KRA and with BLM's Wilderness Management Manual (8560).

6-5. Text has been modified on page 17, Table 3 and pages 61-62 to reflect the cooperative management framework for protection of wilderness contained in the amended BLM-Arizona Game and Fish Master Memoranda of Understanding.

6-6. Text has been modified.

6-7. The plan defines key areas (within which transects are to be located) as areas between 0.25-0.75 miles of permanent water sources. The target distance is 0.5 miles.

6-8. We are inclined to maintain this allowance for drug capture. It is not inconceivable that chemical capture method might regain popularity.

6-9. Survey methodologies have indeed been standardized, but probably don't need to be specified in this document. For the purposes of this document, survey methods are discussed only to the level of detail necessary for analysis of their potential to impact wilderness.

International Society for the Protection of Mustangs and Burros (letter 7)

7-1. The logo appears on the cover of the final document.

7-2. Text has been added.

7-3. Text has been added.

7-4. Text has been modified.

7-5. Right. This issue was identified during the scoping stage of plan development. We believe that we have appropriately dealt with the issue by listing it as "beyond the scope of the plan." As is the case with other programs of national scale, decisions about the costs and benefits of the wild horse and burro program were made at levels of government well above the regional level. Text has been modified to reflect this.

7-6. Your concern has been noted; we will carefully consider impacts to burros as part of the planning for water development.

7-7. BLM and the Black Mountain Ecoteam should evaluate this proposal when it has been submitted.

7-8. Text has been modified to acknowledge.

Bureau of Indian Affairs, Colorado River Agency (letter 8)

8-1. As used in this document, Mohave Tribe refers to both the Mohave, Colorado River Indian Tribes, Parker, Arizona and the Fort Mojave Tribe, Needles California.

8-2. At present, no exchange for the subject disposal lands is be negotiated. The BLM would consider a serious proposal from the tribe. A list of properties that the BLM would like to acquire in exchange for disposal lands can be found in Kingman RMP appendices 20 through 23.

Arizona State Parks (letter 9)

9-1. Trails that do not provide for the use of OHVs are located in wilderness where their use is prohibited by the Wilderness Act. There are many other routes available for OHV use.

9-2. The designation of existing routes for mountain bike use does not preclude their use by motor vehicles. The intent is to direct mountain bike recreation to areas that are suitable for the sport. Text has been modified for clarification.

9-3. The word "competitive" has been substituted for "motorized" in Table 7.

9-4. See response 5-12.

Arizona Game and Fish Department (letter 11)

11-1. Corrected.

11-2. The *Black Mountain Ecosystem Management Plan* was reviewed during several phases of document development to ensure consistency with the *Black Mountain Habitat Management Plan*, the *Cerbat-Music Habitat Management Plan* and other activity plans. The results of the review have not been included in this document for the sake of brevity.

The boundaries of the *Black Mountain Ecosystem Management Plan* and the *Black Mountain Habitat Management Plan* do not exactly coincide. Small tracts of land near Golden Shores and in Golden Valley, with sprawling urbanization and little public ownership, were excluded from the jurisdiction of this plan due to the impracticality of managing these areas.

11-3. Text has been added to the introduction section to clarify the relationship between the *Black Mountain Ecosystem Management Plan* and the *Cerbat-Music Habitat Management Plan.*

11-4. Text has been modified.

11-5. Good comment. Text has been modified to clarify.

11-6. An additional corridor (the Sitgreaves Pass Corridor) is proposed as a management action of the plan. Text has been modified for clarification.

11-7. This would be a worthwhile undertaking, and we look forward to working with the Arizona Game and Fish Department to evaluate the effectiveness of Black Mountain corridors and to develop standards and recommendations for preservation and enhancement. It is worth noting that during development of this plan, KRA staff searched the literature of highway project mitigation for applicable wildlife passage construction standards - without success.

11-8. The environmental impacts of many of the actions have been analyzed in existing documents, such as the *Cerbat-Black Grazing EIS* and the *Kingman Resource Management Plan.* Other actions and projects proposed in this plan will require additional environmental analysis and/or mitigation to minimize impacts to resources such as special - status species (see, for example, Resource Management Plan Guidance Pertinent to this Plan, #4; the text following Table 6; and Appendix 4 #5).

11-9. Text has been added for clarification. The ecosystem, as defined by this plan, includes portions of the Colorado River's eastern shoreline, but excludes the aquatic zone. It should be noted that because of widely fluctuating water levels, very little wetland or riparian habitat exists in association with the Colorado River as it borders the ecosystem. The *Black Mountain Ecosystem Management Plan* is an issue driver plan, aimed at resolving long-standing management problems and conflicts that were identified during public scoping. Colorado River shoreline receives little treatment in the plan because only one issue pertaining to such areas was identified during the scoping phase of plan development.

11-10. Text has been added to acknowledge Lake Mead National Recreation Area burro management on National Park Service lands outside of the joint use area.

11-11. Twenty-seven vegetation study sites within the joint use area are monitored annually. Fifteen new sites are proposed in this plan, some of which were established in the spring of 1995. Intensive analysis of vegetation data, in conjunction with analysis of ungulate numbers and distribution, was undertaken as part of the development of this plan, and the data was summarized for the Ecosystem Management Team. A similar effort will take place in three years as noted in the plan. The plan itself is however, not the appropriate place for presentation of this detailed analysis. The information is available in the resource area and is available for review.

11-12. Text has been added describing the extent to which the actions of the *Cerbat-Black Grazing EIS* have been implemented.

11-13. This text has been clarified. Allotments within nine miles of bighorn habitat are closed to the grazing of domestic sheep or goats - no exceptions. The cooperative agreement referenced pertains to the commercial transport of domestic sheep or goats - no exceptions. The cooperative agreement referenced pertains to the commercial transport of domestic sheep and goats within the nine mile zone. If domestic sheep or goats are being moved from one point to another and will pass within nine miles of bighorn habitat they must be trucked, not trailed, unless a cooperative agreement has been reached between BLM and the sheep or goat owners.

11-14. Map reference inserted.

11-15. Refer to response 6-5 above.

11-16. Corrected.

11-17. Refer to changes in Table 3, page 17.

11-18. Table 3 references the current management situation in the wilderness areas. It reflects current management in the absence of the ecosystem management plan. Since the springs are proposed and being analyzed as part of the plan's proposed action, it would not be appropriate to put helicopter use for spring development into this table. Use of helicopters in wilderness for spring and catchment development is discussed in Management Action #5 under the Biodiversity/Ecosystem Health Objective.

11-19. Text has been modified.

11-20. Text has been modified.

11-21. This statement was included to apprise hunters that hunting is allowed on Lake Mead National Recreational Area (this is not the case with much National Park Service-administered land) but that special restrictions apply in some cases.

11-22. Referenced text, as well as text under area description, has been modified.

11-23. The comment is not germane to the question.

11-24. Text has been modified.

11-25. "Sufficient abundance" has not been formally quantified, and probably need not be. In practical terms, a key species must be plentiful enough so that utilization can be read, on al least 25 plants (for statistical validity) growing within the key area, with a reasonable amount of effort on the part of the observer.

11-26. Text has been modified.

11-27. Text has been modified.

11-28. Corrected.

11-29. Perhaps, but in our judgment, exclosures in lower precipitation zones receive a lower priority, and given limited, and likely shrinking, budget and staff, are probably not realistic.

11-30. Inventory, monitoring and project mitigation for species of special concern is prescribed throughout the *Black Mountain Ecosystem Management Plan.*

11-31. Text has been modified.

11-32. Text has been modified.

11-33. Text has been modified.

11-34. Text has been modified.

11-35. Text has been modified.

11-36. Text has been modified.

11-37. Text has been modified.

11-38. Text has been added.

11-39. Table has been changed.

11-40. Table has been changed.

11-41. Corrected.

11-42. When this vehicle way is converted to a hiking trail, only minimal maintenance will occur, and washout damage will not necessarily be repaired.

11-43. Corrected.

11-44. See response 6-5.

11-45. Text has been modified.

11-46. See response 6-5.

11-47. Text modified for clarification. The number of emergencies was included for purposes of impact analysis.

11-48. Table has been modified.

11-49. Text has been modified. Also, see response 6-5.

11-50. During plan development net drop locations were requested from the Arizona Game and Fish Department for impact analysis and inclusion into the plan. AGFD responded that no net drop captures were planned or foreseen for wilderness. Site-specific environmental analysis will therefore be required for proposed wilderness net drop operations.

11-51. Text has been modified to reference the vegetation monitoring method. Also, an appendix II has been added to describe monitoring techniques.

11-52. Assuming this comment refers to burro population monitoring, a confidence interval is routinely calculated at the 95 percent confidence level. The 95 percent confidence limits = the population estimate (N) $\pm$ 2 x Standard Error (S.E.).

$$S.E. = \sqrt{M2C\,(C-R) / R3}$$ where:

M = number of burros marked during marking phase of the survey
C = number of burros counted during the recount phase of the survey
R = number of marked burros counted during the recount phase of the survey

11-53 Arizona Game and Fish Department will be consulted on location of study sites intended to measure utilization of vegetation in areas used primarily by bighorn. Discussions were held with George Welsh, a department retiree, on tentative sites.

11-54 BLM vegetation monitoring methods were developed by, or in cooperation with, leading universities. The Grazed Class Method for measuring utilization of grass species, for instance, has been evaluated and endorsed by the University of Arizona Cooperative Extension Service and Agricultural Experiment Station (Schmutz, 1978; see References). BLM vegetation monitoring methods have also withstood numerous court challenges.

11-55 Correct. Contraception would not totally replace removals, but could substantially reduce annual increases in burro populations. Immunocontraceptives have proven highly effective in reducing fertility of both mares (horses) and jennies (burros) (Kirkpatrick, et. al, 1993; Turner, et. al, 1995; see References).

11-56 Text modified.

11-57 An underlying premise of the ungulate stocking rates proposed in this plan is that the ecosystem should be managed for drought conditions. The proposed aggregated ungulate stocking rate represents a reduction of 1,675 AUMs from the historic average (last six years). Additional reductions could be recommended as a result of the plan evaluation in three years.

Although burro populations are censured only once every three years, an estimated annual increase of 20 percent is removed annually to prevent large three-year burro population cycles.

Black Mountain Ecosystem Management Plan

Appendices

APPENDIX 1. LIST OF SCIENTIFIC PLANT AND ANIMAL NAMES USED IN THIS DOCUMENT

PLANTS

two-color beard-tongue	Penstemon bicolor ssp. roseus
white-margined penstemon	Penstemon albomarginatus
Mohave sandpaper bush	Petalonyx nitidus
crownless milkweed vine	Cynanchum utahense
desert antelopebrush	Purshia glandulosa
shrubby senna	Senna armata
three-hearts	Tricardia watsonii
white brittlebush	Encelia farinosa
creosote bush	Larrea tridentata
blackbrush	Coleogyne ramosissima
Mohave yucca	Yucca schidigera
arroweed	Pluchea sericea
coyote willow	Salix exigua
Gooding's willow	Salix goodengii
Fremont's cottonwood	Populus fremontii
seepwillow	Baccharis salicifolia
tamarisk	Tamarix pentandra

ANIMALS

chuckwalla	Sauromalus obeseus
desert tortoise	Gopherus agassizi
speckled rattlesnake	Crotalus mitchelli
desert iguana	Dipsosaurus dorsalis
rosy boa	Lichanura trivirgata
Arizona toad	Bufo microscaphus
cactus wren	Campylorhynchus brunneicapillus
black-throated sparrow	Amphispiza bilineata
southwestern willow flycatcher	Empidonax traillii extimus
Yuma clapper rail	Rallus longirostris yumanensis
California black rail	Laterallus jamaicensis coturniculus
golden eagle	Aquila chrysaetos
bald eagle	Haliaeetus leucocephalus
ferruginous hawk	Buteo regalis
western burrowing owl	Athene cunicularia hypugea
brown pelican	Pelecanus occidentalis
American peregrine falcon	Falco peregrinus
prairie falcon	Falco mexicanus
Gambel's quail	Lophortyx gambelii
mourning dove	Zenaidura macroura
white-winged dove	Zenaidura asiatica

California leaf-nosed bat	Macrotis californicus
greater western mastiff bat	Eumops perotis californicus
Townsend's big-eared bat	Plecotus townsendii pallescens
Allen's lappet-browed bat	Idionycteris phyllotis
cave myotis	Myotis velifer
pocket free-tailed bat	Tadarida femorosacca
small-footed myotis	Myotis ciliolabrus (M. leibii)
fringed myotis	Myotis thysanodes
long-legged myotis	Myotis volans
spotted bat	Euderma maculatum
Merriam's kangaroo rat	Dipodomys merriami
white-throated woodrat	Neotoma albigula
Hualapai southern pocket gopher	Thomomys umbrinus hualapaiensis
black-tailed jackrabbit	Lepus californicus
gray fox	Urocyon cineroargenteus
kit fox	Vulpes macrotis
bobcat	Felis rufus
coyote	Canis latrans
ringtail cat	Bassariscus astutus
desert cottontail	Sylvilagus auduboni
desert bighorn sheep	Ovis canadensis
mule deer	Odocoilus hemionus
mountain lion	Felis concolor
razorback sucker	Xyrauchen texanus
bonytail chub	Gila elegans
Kingman springsnail	Pyrgulopsis conicus
cheese-weed moth lacewing	Oliarces clara
California floater	Anodonta californensis
domestic cattle	Bos taurus and B. indicus
wild burro	Equus asinus

Scientific names from: Arizona Game and Fish Department Heritage Data Management System, 1994; Hoffmeister, 1986; and Lehr, 1987.

APPENDIX 2. LISTED OR PROPOSED THREATENED OR ENDANGERED SPECIES OR CANDIDATE SPECIES THAT MAY OCCUR WITHIN THE BLACK MOUNTAIN ECOSYSTEM*

Endangered

American peregrine falcon (Falco peregrinus anatum)
Bald eagle (Haliaeetus leucocephalus)
Yuma clapper rail (Rallus longirostris yumanensis)
Brown pelican (Pelecanus occidentalis)
Southwestern willow flycatcher (Empidonax traillii extimus)
Bonytail (Gila elegans)
Razorback sucker (Xyrauchen texanus)

Candidate Category 1

California black rail (Laterallus jamaicensis cotorniculus)

Candidate Category 2

Ferruginous hawk (Buteo regalis)
Western burrowing owl (Athene cunicularia hypugea)
Arizona toad (Bufo microscaphus)
California leaf-nosed bat (Macrotus californicus)
Spotted bat (Euderma maculatum)
Greater western mastiff bat (Eumops perotis californicus)
Small-footed myotis (Myotis ciliolabrum)
Allen's (Mexican) big-eared bat (Idionycteris phyllotis)
Pale Townsend's big-eared bat (Plecotus townsendii pallescens)
Fringed myotis (Myotis thysanodes)
Yuma myotis (Myotis yumanesis)
Cave myotis (Myotis velifer)
Hualapai southern pocket gopher (Thomomys umbrinus hualapaiensis)
Long-legged myotis (Myotis volans)
Desert tortoise (Gopherus agassizii)
Chuckwalla (Sauromalus obesus)
Rosy boa (Lichanura trivirgata)
Cheese-weed moth lacewing (Oliarces clara)
California floater (Anodonta californiensis)

*List provided by the U.S. Fish and Wildlife Service, 1995, Memorandum #AESO/SE 2-21-95-I-308, Arizona Ecological Services, State Office, Phoenix.

APPENDIX 3. BURRO CAPTURE METHODS

Burros will be removed using one or more of the live capture techniques described below.

(a) **Helicopter Herding of Animals to a Roping Site.** The method which has proven most successful in the Black Mountains utilizes a helicopter to herd burros to a preselected capture site where wranglers on horseback rope them. Typically, these capture sites are sandy washes or other relatively rock free areas which allow a roping horse to use its superior speed. Such sites also afford a measure of safety for horse, rider, and burro. Roped burros are then either led, or are sling lifted by helicopter, to a nearby horse trailer.

(b) **Bait and/or Water Trapping.** In bait or water trapping, burros are enticed into a corral which is constructed with a one-way gate; the animals may enter but not exit the corral. Bait and water trapping can be effective, and has the advantage of being the least stressful of capture methods to the animals. Unfortunately, bait/water trapping is not feasible where and when feed and water is plentiful.

(c) **Wing Trapping.** Wing trapping involves the herding of burros by helicopter and horsemen into a giant funnel-shaped structure which terminates in a corral, the gate of which can be slammed shut at the proper moment. Wing traps, when used, are usually constructed from portable pipe panels with "wings" of burlap suspended from posts. Wing trapping, given the proper circumstance, can be an effective capture method.

(d) **Net Gunning. Net gunning is a relatively new, and** experimental method of capturing burros in which a net is fired from a low-flying helicopter. The target burro becomes entangled in the net, and can then be sling lifted to a horse trailer. Net gunning has proven to be effective, and the net gun/helicopter combination is especially useful for catching burros in areas which are inaccessible to wheeled vehicles and horse trailers.

Capture/removal operations are expected to have little physical impact upon wild burros. Very few burros are injured when the capture methods outlined here are employed. Based on past records, mortality is expected to be less than one percent, which is quite low compared to capture/transport operations of other ungulate species.

If the chosen capture method involves helicopter herding of burros, hazards such as cliffs, fences, and old mine shafts are scouted in advance and avoided. Burros will be allowed to choose their own route to a capture site and will not be pushed to the extent that injury results, or foals are abandoned.

Since wild burros do not form strong band associations, stress associated with splitting of social groups is not considered traumatic. Jennies and foals are rarely separated during capture operations.

Following time-proven standard operating procedures below minimizes injuries and ensures safe, humane treatment and handling of wild burros during herding, capture, and transportation to BLM preparation facilities.

Applicable Standard Operating Procedures

1. Handling of wild burros will be kept to a minimum.

2. Since burros exhibit no peak foaling season at this latitude, avoidance of a peak foaling season is not a consideration.

3. Burros will not be herded more than four miles nor faster than 15 m.p.h. by helicopter. Herding will occur during daylight hours. If temperatures climb to above 110 degrees Fahrenheit, herding will be stopped. Normally capture operations cease by 1300 hours, before the maximum heat of the day occurs.

4. A veterinarian will be on call during gathering operations.

5. Capture locations and activities will be closely coordinated with the wildlife staff to avoid habitats where special status species occur.

6. Captured burros which are obviously lame or sick and cannot be transported to the corrals in Kingman without causing undue pain or suffering to the animal will be disposed of at the capture site. All other animals including old, lame and deformed burros will be transported to Kingman where a veterinarian will make the final decision.

7. Jennies and foals will be kept together.

APPENDIX 4. CAPTURE METHODOLOGIES FOR BIGHORN SHEEP

Methodology

(a) **Net-gun method**: The capture of bighorn sheep using the net-gun method will involve low-level overflight by a helicopter. Capture operations would take place over a two to five day period. The number of helicopter landings may range from as few as five, to as many as twenty, in each wilderness area, depending upon where individual sheep are net-gunned. Capture activities would be scheduled on weekdays. Once sheep are captured they are flown to a transport trailer and then driven to the release site.

(b) **Drop-net method**: The capture of bighorn sheep using the drop-net method will involve baiting the target animals to the capture site. The capture site will be monitored daily for approximately one month prior to the capture dates. One person will either walk in on a daily basis or camp on-site for one month. Two to four vehicles and a transport trailer would be needed on the day before and the days of the capture. The net is set up approximately two to seven days prior to the capture dates to habituate the sheep to the net. The net is dropped on the sheep utilizing an explosive triggering mechanism. The sheep would be captured at the drop-net site and transferred to the trailer for transport to the release site. Sometimes the net is dropped twice in a single day.

(c) **Remote chemical injection method**: The capture of bighorn sheep using remote chemical injection would involve low-level overflight by a helicopter. Helicopter landings and procedures referenced above in the description of the "net-gun method" will be followed. Procedures described in Arizona Game and fish Department Operation Manual policy C2.3 will in followed in handling capture-related drugs. Efforts will be made during capture to recover all syringe and projectile darts. No residual amounts of drugs will be left in the field as a potential risk to public health and safety.

Capture Sites

If the net-gun or remote chemical injection method of capture is employed, sheep may be captured wherever they occur, in or out of wilderness. Drop net capture sites will occur outside of wilderness. Drop-net capture sites include Golden Door Tank at T25N, R21W, section 20 NESE; Tufa Tank at T25N, R21W, section 18, N; and Lambing Tanks at T25N, R22W, section 12, N.

APPENDIX 5. EXISTING AND ABANDONED WILDLIFE WATER DEVELOPMENTS IN THE BLACK MOUNTAINS

Existing:

Name	Location	Maintenance Responsibility
Columbine Spring*WS	T17N, R19W, section 6 NENWNE	AGFD
Cross Seep*WS	T17N, R20W, section 2 NWSWSW	AGFD
Antelope Spring*WS	T18N, R19W, section 9 NWNE	BLM
Sheep Spring*WS	T18N, R19W, section 31 NWNESW	AGFD
McHeffy Spring*WS	T18N, R20W, section 27 SENWSE	AGFD
Tipperary Tank*WS	T18N, R19W, section 19 NENENW	AGFD
Lazy Boy Spring	T19N, R20W, section 35 NENWSE	AGFD
Battleship Spring*MN	T20N, R20W, section 34 SESESE	AGFD
Upper Twin Spring	T20N, R19W, section 19 NESWNE	AGFD
Trough Spring*MN	T20N, R19W, section 6 SWSWSE	AGFD
Ram Spring*MN	T21N, R19W, section 31 SWSENE	AGFD
Lost Cabin Catchment	T23N, R20W, section 18 SENWSE	AGFD
Calles Spring	T23N, R21W, section 27 NWNE	BLM
Chalk Spring	T23N, R21W, section 36 SENE	BLM
Master Spring	T24N, R21W, section 21 NENE	AGFD
Pass Tank No. 2 and 4	T24N, R21W, section 27 SESWNW	BLM
Lower Lost Cabin Spring	T24N, R21W, section 27 SESWSE	AGFD
Pass Tank #3	T24N, R21W, section 22 NWSENW	AGFD
Cottonwood Spring	T25N, R21W, section 2 SWSW	BLM
Golden Door Cistern	T25N, R21W, section 20 SENWSE	AGFD
Lambing Tank	T25N, R22W, section 12 NWNENE	AGFD
Mount Davis Catchment	T25N, R22W, section 22 SWSESW	AGFD
Kemple Spring	T26N, R21W, section 25 SESW	BLM
Lost Drillbit Pothole	T27N, R22W, section 24 NESW	AGFD
Wilson Ridge Spring*MW	T30N, R22W, section 3 NESW	AGFD
Wildhorse Spring*MW	T30N, R22W, section 12 NWSW	AGFD

Abandoned:

Name	Location
Drill Hole Tank*WS	T17N, R19W, section 20 NESE
W.L. Spring	T20N, R20W, section 13 SWSE
Van Deeman Tank	T27N, R21W, section 30 NENE
Slurry Tank	T21N, R20W, section 34 SWNE
White Rock Spring	T25N, R21W, section 4 SWSENW

*Waters inside wilderness areas; MN = Mount Nutt, WS = Warm Springs, MW = Mount Wilson

APPENDIX 6. RANGE DEVELOPMENTS IN THE BLACK MOUNTAIN WILDERNESS COMPLEX

Project Name	Project No.	Location	Wilderness
Sacramento Valley fence	4830	T21N R19W section 32	Mount Nutt
Finger Mountain division fence	4002	T21N R20W sections 33, 34	Mount Nutt
Black Mountain division fence	1622	T17N R18W sections 22, 27, 35	Warm Springs
Herridge-Smith and potter fence	0466	T18N R18W section s32, 33, 34	Warm Springs
Herridge North boundary fence no. 2	0500	T18N R18W sections 8, 9, 18	Warm Springs
Cave Spring	none	T20N R19W section 5	Mount Nutt
Peterson Well pipeline	2443	T20N R19W sections 16, 17, 18, 19	Mount Nutt
Dripping Springs pipeline	1320	T19N R19W section 4	Mount Nutt
Baker Spring pipeline	2349	T19N R19W sections 22, 26	Warm Springs
Walker Springs	none	T19N R19W section 29	Warm Springs
Alkali Springs	1633	T18N R19W section 10	Warm Springs
Missouri Spring	0537	T30N R22W section 13	Mount Wilson

APPENDIX 7. ADMINISTRATIVELY CLOSED VEHICLE WAYS IN WILDERNESS AREAS

Mount Nutt Wilderness Area

Route No.	Length (Miles)	Location
MN1	.5	T20N R20W sections 4, 9
MN2	.2	T19N R19W section 15
MN3	.1	T21N R19W section 32
MN4	.5	T21N R19W section 32
MN5	.8	T21N R19W section 32
MN6	.7	T20N R19W section 5
MN7	1.4	T20N R19W sections 4, 5
MN8	.4	T20N R19W section 5
MN9	.4	T20N R19W section 4
MN10	.7	T20N R19W sections 5, 8
MN11	.3	T20N R19W section 8 (along section line)
MN12	.2	T20N R19W section 8
MN13	.3	T20N R19W section 8
MN14	2.2	T20N R19W sections 7, 8
MN15	.8	T20N R19W sections 7, 8
MN16	1.3	T20N R19W section s17, 18
MN17	.1	T20N R19W sections 28,29
MN18	.6	T19N R19W section 4
MN19	.6	T19N R19W section 4
MN20	.4	T19N R20W section 2; T20N R20W section 35
MN21	1.5	T20N R20W sections 22, 27
MN22	.9	T20N R20W section 22
MN23	.3	T20N R19W section 7
TOTAL	**15.2**	

Mount Wilson Wilderness Area

Route No.	Length (Miles)	Location
MW1	2.8	T30N R21W section 17, 18; T30N R22W section 13
MW2	.2	T29N R22W section 13
TOTAL	**3.0**	

APPENDIX 7. ADMINISTRATIVELY CLOSED VEHICLE WAYS IN WILDERNESS AREAS (cont.)

Warm Springs Wilderness Area

Route No.	Length (Miles)	Location
WS1	1.8	T19N R19W section 19, 20
WS2	.3	T18N R19W section 1; T18N R18W section 6
WS3	9.6	T16N R19W section 4; T16.5N R19W section 21, 22, 28, 33; T17N R18W section 19, 20, 30, 31
WS4	.6	T17N T19W section 14, 23
WS5	.6	T19N R19W section 22
WS6	.5	T19N R19W section 26, 27
WS7	3.8	T19N R19W section 35, 36; T18N R19W section 1; T18N R18W section 6, 7, 18
WS8	.6	T17N R18W section 10, 11
WS9	1.7	T17N R18W section 26, 27, 34
WS10	1.3	T17N R18W section 26, 27
WS11	.2	T17N R19W section 14
WS12	1.9	T17N R19W section 9, 10, 15, 16
WS13	.6	T17N R19W section 9
WS14	.3	T17N R19W section 9
WS15	.7	T17N R19W section 9
WS16	1.3	T18N R19W section 33; T17N R19W section 4
WS17	2.5	T19N R18W section 18, 19, 30
WS18	3.3	T19N R18W section 18, 19, 30; T19N R19W section 24
WS19	1.4	T19N R19W section 24, 25; T19N R18W section 30
WS20	2.2	T19N R19W section 25, 26, 35, 36
WS21	1.3	T18N R18W section 27, 28, 33
WS22	3.6	T17N R18W section 27, 28, 34
WS23	1.9	T18N R20W section 35, 36
WS24	.8	T17N R20W section 5, 8
WS25	.8	T19N R18W section 18
WS26	.3	T16N R19W section 4
WS27	.4	T17N R18W section 35
TOTAL	**44.3**	

APPENDIX 8. WILDLIFE POPULATION SURVEY TECHNIQUES

Big game surveys are typically flown between late September and October each year. Dates are approximate, as flexibility is required due to weather conditions, aircraft availability, etc. In wilderness areas, the surveys may last one to three days per wilderness area. Actual flight time, per day, is typically less than five hours per wilderness area. The altitude of the flights will normally be 100 to 200 feet above ground level. The flight may lower to twenty-five feet to classify an animal. These surveys are flown following the landscape contours.

APPENDIX 9. BURRO CENSUS PROCEDURES

A burro census will be conducted every three years in the Black Mountains Ecosystem. The census technique currently in use is a modified two-phase Lincoln-Peterson mark/recapture method.

During phase one of the census, a helicopter carrying three observers is used to locate burros throughout the ecosystem. Each burro seen is marked using a CO2 powered paint ball gun. Phase one is complete when the entire area has been systematically overflown and all detected burros marked.

During phase two, the entire area is again systematically overflown while the three onboard observers record the number of marked and unmarked burros seen. A population estimate is calculated using the formula:

$$N = MC/R$$

where N = population estimate
M = total number of burros marked, phase one
C = total number of burros counted, phase two
R = total number of marked burros re-sighted

This census methodology requires approximately 10 days and between 70 to 100 hours of low-level helicopter flight to complete. Approximately 50 of the total hours are flown over wilderness.

APPENDIX 10. FULL FIRE SUPPRESSION STEPS FOR BLACK MOUNTAIN WILDERNESS

1. Inform area manager or acting area manager of fire in wilderness.

2. Designate an initial attack incident commander.

3. Using ground or aerial reconnaissance, determine the following:

   - Fire location, size, rate of spread, and behavior.
   - Current and probable fuels, weather, topography including locations of natural barriers.
   - Threats to life, property, or sensitive wilderness resources.

   Authority is given to the **incident commander** to fly at levels below 2,000 feet in reconnaissance efforts when it is determined to be the minimum tool to assess the fire.

4. Inform district manager of the fire.

5. Designate and dispatch a resource advisor to the fire.

6. Area manager will consult with incident commander and/or resource advisor to determine appropriate level of initial attack and fire suppression strategy considering such variables as weather conditions, time of year, current and predicted fire behavior, and other pertinent factors.

7. Take action to suppress the fire utilizing the most effective tactics while considering the concept of minimum tool.

8. Use of temporary structures, chain saws, portable pumps, initial attack aircraft (below 2,000 feet), retardant aircraft, helicopters, aerial ignition systems, camps in wilderness, motorized vehicles, motorized earth moving equipment, and construction of new helispots may be undertaken with **area manager** approval when they are the minimum tool necessary to meet wilderness fire objectives.

9. Emergency authority is given to the **incident commander** in consultation with the **resource advisor** if available to use power tools and aircraft (helicopter or air tanker, fugitive slurry preferred) to build and hold fire lines, and to authorize helicopter landing during initial attack under the following conditions:
   - If imminent danger to structures or people exists.
   - If significant wilderness resources are seriously threatened.
   - If area manager or acting area manager cannot be reached within 15 minutes following initial fire reconnaissance.

10. Complete **escaped fire situation analysis** if fire escapes initial attack as determined by incident commander. Analysis will be completed by district fire management officer, area manager, incident commander and resource advisor.

11. Following the fire, a memorandum will be completed by the **area manager** describing how motorized vehicles and/or mechanized equipment were used. A copy will be submitted to the state director.

12. The **resource advisor** will consult with the **incident commander** to complete a wilderness post-fire report.

13. All human impacts created during suppression efforts will be reclaimed following the fire.

APPENDIX 11. RANGELAND MONITORING—UTILIZATION STUDIES*

Key Forage Plant Method

The key forage plant method is an ocular estimate of forage utilization within one of six utilization classes. Observations are made of the appearance of the rangeland and especially the key species, along a transect which traverses the key area.

Areas of Use. This method is adapted to areas where perennial grasses, forbs, and/or browse plants are the key species and utilization data must be obtained over large areas using few examiners.

Advantages and Limitations. This method is rapid and does not require unused areas for training purposes. Estimates are based on a descriptive term representing a broad range (class) of utilization rather than a precise amount. Different examiners are more likely to estimate utilization in the same classes than to estimate the same utilization percentages.

Equipment

(1) Study Location and Documentation Data Form
(See Illustration 1)

(2) Utilization Study Data—Key Forage Plant Method Form
(See Illustration 3)

(3) Tally counter (optional)

Training. Personal judgment is involved in any estimation method. Estimates are only as good as the training and experience of the examiners. The training described for the Ocular Estimate Method often helps examiners using this method make the utilization class estimations. This method requires that the examiners be trained to:

(1) Identify the plant species.

(2) Recognize the six herbaceous or six browse utilization classes using the written class descriptions.

(3) Think in terms of the general appearance of the rangeland (slightly used, heavily used, etc.) at each observation point, rather than weight or height removed.

Establishing Studies. Select key area(s) and key species and determine the number, length, and location of the transects. Document the location and other pertinent information concerning a transect on the Study Location and Documentation Data Form.

Sampling Process. After examiners are trained and have confidence in their ability to judge utilization by utilization class ("light", "heavy", etc.), proceed with the collection of utilization data. At each observation point along the transect, estimate the utilization class using the written description of the class. In those cases where part of a class description does not apply (example: percentage of seed stalks remaining), judge utilization based on those parts of the description that do apply. An observation point is the immediate area containing the key species visible to examiners when standing at a particular location along the transect. Record the estimates by dot count by utilization class on the Utilization Study Data - Key Forage Plant Method Form. (See Illustration 3).

(1) **Herbaceous Utilization Classes.** Six utilization classes are used to show relative degrees of use of key herbaceous species (grasses and forbs). Each class represents a numerical

range of percent utilization. Estimate utilization within one of the six classes. Utilization classes are described as follows:

(a) **No-Use (0-5%).** The rangeland shows no evidence of grazing use; or the rangeland has the appearance of negligible grazing.
(b) **Slight (6-20%).** The rangeland has the appearance of very light grazing. The key herbaceous forage plants may be topped or slightly used. Current seed stalks and young plants of key herbaceous species are little disturbed.
(c) **Light (21-40%).** The rangeland may be topped, skimmed, or grazed in patches. The low value herbaceous plants are ungrazed and 60 to 80 percent of the number of current seed stalks of key herbaceous plants remain intact. Most young plants are undamaged.
(d) **Moderate (41-60%).** The rangeland appears entirely covered as uniformly as natural features and facilities will allow. Fifteen to 25 percent of the number of current seed stalks of key herbaceous species remain intact. No more than 10 percent of the number of low value herbaceous forage plants are utilized. (Moderate use does no imply proper use.)
(e) **Heavy (61-80%).** The rangeland has the appearance of complete search. Key herbaceous species are almost completely utilized with less than 10 percent of the current seed stalks remaining. Shoots of rhizomatous grasses are missing. More than 10 percent of the number of low value herbaceous forage plants have been utilized.
(f) **Severe (81-100%).** The rangeland has a mown appearance and there are indications of repeated coverage. There is no evidence of reproduction or current seed stalks of key herbaceous species. Key herbaceous forage species are completely utilized. The remaining stubble of preferred grasses is grazed to the soil surface.

(2) **Browse Utilization Classes.** Six utilization classes show relative degrees of use of available current year's growth (leaders) of key browse plants (shrubs, half shrubs, woody vines, and trees). Each class represents a numerical range of percent utilization. Estimate utilization within one of the six classes. Utilization classes are described as follows:
(a) **No Use (0-5%).** Browse plants show no evidence of use; or browse plants have the appearance of negligible use.
(b) **Slight (6-20%).** Browse plants have the appearance of very light use. The available leaders of key browse plants are little disturbed.
(c) **Light (21-40%).** There is obvious evidence of leader use. The available leaders appear cropped or browsed in patches of 60 to 80 percent of the available leader growth of the key browse plants remains intact.
(d) **Moderate (41-60%).** Browse plants appear rather uniformly utilized and 40 to 60 percent of the available leader growth of key browse plants remain intact.
(e) **Heavy 61-80%).** The use of the browse gives the appearance of complete search. The preferred browse plants are hedged and some plant clumps may be slightly broken. Nearly all available leaders used the few terminal buds remain on key browse plants. Between 20 to 40 percent of the available leader growth of the key browse plants remains intact.
(f) **Severe (81-100%).** There are in indications of repeated coverage. There is no evidence of terminal buds and usually less than 20 percent of available leader growth on the key browse plants remains intact. Some, and often much, of the second and third

years' growth of the browse plants has been utilized. Hedging is readily apparent and the browse plants are more frequently broken.

(g) **Calculating Percent Utilization.**

(1) Convert the dot count to the number of observations for each utilization class.

(2) Multiply the number of observations in each utilization class times the midpoints of the class intervals.

(3) Total the projects for all classes.

(4) Divide the sum by the total number of observations on the transect.

(5) Record the average percent utilization on the Utilization Study Data - Key Forage Plant Method Form. (See Illustration 3.)

GRAZED-CLASS METHOD

The grazed-class method uses photo guides of key species to make utilization estimates along the transect. These estimates reflect herbage removed but also show herbage remaining.

Areas of Use. This method is adapted for use on perennial grass, perennial grass-forb, and grass-shrub rangelands where the key species are either bunch or rhizomatous/sod-forming grass or grass-like species. It is designed for use after the plants have made full seasonal growth.

Advantages and Limitations.

(1) This method is rapid and easy to learn and use. It can be used by livestock operators and examiners to give consistent and accurate estimates of utilization. Errors in judgment are compensating and the mathematics involved are simple. In poor growth years when plants do not mature, the guides will not distinguish between use and no-growth.

(2) The difficult job is the development of photo guides based on average plants on a typical site that have a good photo-height-weight fit. One guide, properly developed for a given species and a typical site, can be used on all sites over a fairly broad area (e.g., the southwest) in good and bad production years without serious error. The guides serve as standards of comparison which promote consistency in estimates and facilitate estimation of irregular use of plants.

Equipment.

(1) Study Location and Documentation Data Form. (See Illustration 1.)

(2) Utilization Study Data - Grazed-Class Method Form. (See Illustration 2.)

(3) Photo guides.

(4) Tally counter (optional).

(5) Additional equipment needed to develop photo guides.

(a) Clipping shears.

(b) Paper sacks.

(c) Scale calibrated in tenths of grams.

(d) Graph paper.

Training. Minimal training of examiners is needed to use this method. Examiners must be able to identify the plant species. The major problem with inexperienced examiners, and examiners who have not used the method for some time, is underestimation of use on heavier grazed plants.

Establishing Studies. Select key area(s) and key species and determine the number, length, and location of the transects. Document the location and other pertinent information concerning a transect on the Study Location and Documentation Data Form.

Sampling Process. After examiners are trained, proceed with the collection of utilization data.

(1) At each interval along the transect, select the plant(s) of the key species (seedlings excepted) nearest the toe.

(2) Compare the sample plant(s) with the photo guides for that species and classify according to one of six grazed-classes representing 0, 10, 30, 50, 70, or 90 percent use.

(3) Base the estimates of utilization on growth form of the plant. Variations in height growth due to site characteristics and seasonal precipitation can be disregarded since variations in height are automatically adjusted for by the eye.

(4) Record the estimates by dot count for each grazed class on the Utilization Study Data - Grazed-Class Method Form. (See Illustration 2.)

(5) For bunchy key species, make estimates on individual plants.

(6) For rhizomatous/sod-forming key species, make estimates on 6-, 8-, 10-, or 12-inch square plots along the transect.

Calculating Percent Utilization. Calculate the percent utilization as follows:

(1) Convert the dot count to the number of plants sampled by grazed-class.

(2) Multiply the number of plants sampled in each grazed-class times the grazed-class percent.

(3) Total the products for all classes.

(4) Divide the sum by the total number of samples of the transect.

(5) Record the average percent utilization on the Utilization Study Date - Grazed-Class Method Form. (See Illustration 2.)

Developing Photo Guides. Photo guides must be developed that have a close fit between the grazed-class percentages of the guide and the height-weight curve of the plant photographed. Guides are developed as follows:

(1) When plants of a given species have reached full growth, sample 5 to 10 representative plants from a typical site. For bunchy species, sample individual plants. For rhizomatous/sod-forming species, sample plants from a 6-, 8-, 10-, or 12-inch square plot.

(2) Beginning at the top of the plant, clip 4- to 10-inch segments from the top portion of 2-inch segments from the lower portion of each plant. Place each segment in an individual paper sack. Label the sacks to show species, plant number, segment number, segment length, date, and location. Keep the clippings from each plant separate. Make all height measurements from the base of the plant.

(3) Oven dry and carefully weight each plant segment to the nearest tenth of a gram. Subtract sack weight before recording the dry weight of each segment.

(4) Beginning at the top of the plant, record the cumulative dry weight for each segment. This includes the weight of the segment plus the weights of all preceding segments.

(5) Calculate the cumulative percent weight for each segment by dividing the cumulative dry weight for each segment by the total dry weight and multiplying the result by 100.

(6) Beginning at the base of each plant, record the cumulative height remaining by segment. This includes the combined length of all preceding segments.

(7) Determine the average height of the clipped plants.

(8) Adjust the height remaining of each individual plant to average plant-height remaining with the following formula:

$$\text{Adjusted individual plant-height remaining} = \frac{\text{Total height of average plant}}{\text{Total height of individual plant}} \times \text{Height remaining of individual plant}$$

(9) Plot the cumulative percent weight of the individual plants against the adjusted individual plant-height remaining on graph paper. Use the lower left hand corner as zero on both scales and plot 5 or 6 clipped plants of a given species on the same graph.

(10) Determine the average plant height for the six grazed-class percentages (percent weight removed), 0, 10, 30, 50, 70 and 90 percent, from the height-weight curves on the graph.

(11) Return to the field and select 4 to 6 average plants to be used in making a photo guide for the given species. Use the grazed-class heights read from the average curve on the graph to determine the heights at which to clip the plants to be photographed using the formula:

$$\text{Clipping height of plant to be photographed} = \frac{\text{Total height of plant to be photographed}}{\text{Total height of average plant}} \times \text{Grazed-class height of average plant}$$

(12) Photograph each plant in sequence at the unclipped height and at heights representing 10, 30, 50, 70 and 90 percent weight removed. Clip the last increment to ground level.

(13) Sack the clippings separately and dry them in an oven. Label the sacks to show species, plant number, clipped height, grazed-class percentage, date and location.

(14) Determine if the curve of at least one of the photographed plants closely matches the average curve on the graph. In addition, determine if the cumulative weight percentages for the various clipped heights of that plant closely match the grazed-class percentages (within 2 or 3 percentage points). If a close match is obtained, trim the photos and photograph on a grazed-class photo guide background. If not, repeat the photographing of average plants until a close fit is obtained.

(15) For each photo guide prepared, maintain a record of the species, the data used to prepare the guide, the date the guide was prepared, and the areas of applicability.

*Excerpted from Rangeland Monitoring - Utilization Studies, 1984, sections 5.23 and 5.27.

ILLUSTRATION 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STUDY LOCATION & DOCUMENTATION DATA

STUDY METHOD | STUDY NUMBER

ALLOTMENT NAME & NUMBER | PASTURE

DISTRICT | RESOURCE AREA | PLANNING UNIT

RANGE SITE | PLANT COMMUNITY

DATE ESTABLISHED | ESTABLISHED BY (NAME) | MAP REFERENCE

ELEVATION | SLOPE | EXPOSURE | AERIAL PHOTO REFERENCE

TOWNSHIP | RANGE | SECTION | 1/4 | 1/4 | 1/4

LOCATION

SCALE: ____ INCHES
EQUALS ONE MILE

KEY SPECIES

1 2 3

DISTANCE & BEARING BETWEEN REFERENCE POST OR REFERENCE POINT AND THE TRANSECT LOCATION STAKE, BEGINNING OF TRANSECT, OR PLOT

DISTANCE & BEARING BETWEEN LOCATION STAKE & BEARING STAKE

TRANSECT BEARING | VERTICAL DISTANCE BETWEEN GROUND & ALIGNED TAPE

LENGTH OF TRANSECT | PLOT/FRAME SIZE

SAMPLING INTERVAL | TOTAL NUMBER OF SAMPLES

NOTES (DESCRIPTION OF STUDY LOCATION, DIAGRAM OF TRANSECT/PLOT LAYOUT, DESCRIPTION OF PHOTO POINTS, ETC. IF MORE SPACE IS NEEDED, USE REVERSE SIDE OR ANOTHER PAGE.)

Note: Depending on the study method, fill in the blocks that apply when a study is established. This documentation enables the examiners to conduct follow-up studies in a consistent manner to provide comparable data for analysis, interpretation, and evaluation.

UTILIZATION WORKSHEET

ALLOTMENT _____ STUDY SITE# _____ DATE _____

GRAZED CLASS METHOD — GRASS

GRAZED CLASS PERCENTS (P)	KEY SPECIES			KEY SPECIES			KEY SPECIES		
	DOT COUNT	NO BY CLASS (C)	NO X CLASS % (C) (P)	DOT COUNT	NO BY CLASS (C)	NO X CLASS % (C) (P)	DOT COUNT	NO BY CLASS (C)	NO X CLASS % (C) (P)
0									
10									
30									
50									
70									
90									
	TOTALS			TOTALS			TOTALS		
AVG UTIL $= \frac{\Sigma(CP)^*}{\Sigma C}$	_____ =			_____ =			_____ =		

*WHERE C = THE NUMBER OR PLANTS WITHIN EACH CLASS (C COLUMN), P = THE GRAZED-CLASS PERCENTAGES (P COLUMN), AND Σ = THE SUMMATION SYMBOL.

_____
SIGNATURE OF PREPARER

ILLUSTRATION 3

UTILIZATION WORKSHEET

ALLOTMENT _____ STUDY SITE# _____ DATE _____

KEY FORAGE METHOD — BROWSE

GRAZED CLASS PERCENTS (P)		KEY SPECIES			KEY SPECIES			KEY SPECIES		
		DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C) (M)	DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C) (M)	DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C) (M)
NO USE 0-5%	2.5									
SLIGHT 6-20%	13									
LIGHT 21-40%	30									
MODERATE 41-50%	50									
HEAVY 61-80%	70									
SEVERE 81-100%	90									
		TOTALS			TOTALS			TOTALS		
AVG UTIL $= \frac{\Sigma(CM)^*}{\Sigma C}$		_____ =			_____ =			_____ =		

*WHERE C = THE NUMBER OR PLANTS WITHIN EACH CLASS (C COLUMN), M = THE GRAZED-CLASS PERCENTAGES (M COLUMN), AND Σ = THE SUMMATION SYMBOL.

_____
SIGNATURE OF PREPARER

APPENDIX 12. BIOLOGICAL EVALUATION OF THE BLACK MOUNTAIN ECOSYSTEM MANAGEMENT PLAN

I. Description of the Proposed Action and Location

The Proposed Action is to implement the Black Mountain Ecosystem Management Plan. Specific management actions are detailed in the plan, and are summarized in Table 1. Proposed actions include the reduction of forage allocated to ungulates; establishment of vegetative studies; reduction of utilization levels on vegetation; the active suppression of wildfires; post fire rehabilitation; establishment of a biological linkage corridor; development of wildlife waters; salvage of burned Mohave yucca (Yucca schidigera); bighorn sheep captures and transplants; development of an RV park, campground, and four scenic overlooks; reclamation of 18 mines in designated wilderness; removal of abandoned pipeline and plane crash debris; reclamation of closed motor vehicle routes; construction of three new physical barriers on wilderness boundaries; maintenance of developments in wilderness; and aerial flights for burro and wildlife operations.

II. Description of No Action Alternative

An Environmental Assessment has been written (EA-AZ-025-95-032) describing the Proposed Alternative and the No Action Alternative. For a more detailed discussion, please see the EA.

The only alternative to the Proposed Alternative is the No Action Alternative. This alternative would be to continue current management as outlined in current BLM land use plans. Under No Action, existing management would continue. There will be no change to existing management would continue. There would be no change to existing vegetative utilization limits and established numbers for all ungulates would remain as currently described. Vegetative study exclosures, new wildlife waters, experimental plantings, and recreational facilities would not be established. See Table 1 for a comparison of the Proposed Alternative and the No Action Alternative.

III. Species List

Species of Special Concern are listed in the EA, and were developed from lists provided from the U.S. Fish and Wildlife Service (Memorandum #AESO/SE 2-21-95-I-308), the Arizona Game and Fish Department's Heritage Data Base and BLM's Threatened and Endangered Species Data Base.

Candidate species are addressed in the EA. For the purposes of this biological evaluation, only federally listed species are addressed, as required by Section 7 of the Endangered Species Act.

There are two federally listed endangered species known to occur within the project area; the American peregrine falcon and the southwestern willow flycatcher. There are six additional endangered species which potentially could occur within the project area; the bald eagle, Yuma clapper rail, brown pelican, the spotted bat, the bonytail chub, and the razorback sucker.

The California black rail is a Category 1 species for which the Fish and Wildlife Service has enough information to support the proposal to list, and is another species which potentially may occur in the project area.

IV. Description of Species and Habitat

The peregrine falcon is known to successfully nest in the steep cliffs along the Colorado River on National Park Service lands within the Black Mountain Ecosystem Management planning area. Nest sites are monitored annually by the Arizona Game and Fish Department.

Recent survey efforts have documented the occurrence of southwestern willow flycatchers along the Colorado River riparian corridor on National Park Service lands within the BME area. Nesting status for this species is still relatively unknown. Habitat is typically densely vegetated developing riparian forests, including a mixture of willows, cottonwoods and tamarisk. Little potential habitat for this species is available away from the Colorado River within the BME area. The Burns Spring area is the only potential habitat that has been identified in the Black Mountains.

The bald eagle, Yuma clapper rail, brown pelican, California black rail, bonytail chub, and razorback sucker aquatic/riparian dependent species, potentially occurring only along the extreme western edge of the BME planning area on the Lake Mead National Recreation Area.

The spotted bat is considered extremely rare and is unknown in the project area. Like the other five endangered or Category 1 species being evaluated, the spotted bat has a general distribution which includes the Black Mountains, but they are undocumented there. It is considered a species of arid desert habitats, and has been documented utilizing cliffs, caves and houses, often associated with water.

V. Additional Inventories or Surveys

Continued monitoring of peregrine falcon aeries and surveys and monitoring for southwestern willow flycatchers is expected to continue under the existing monitoring programs coordinated by the Arizona Game and Fish Department. Due to the lack of anticipated impacts on any listed species, as well as the lack of funding and personnel, new surveys are not recommended or considered feasible at this time. This evaluation is based on the best information available at this time.

VI. Analysis of Determination of Effects

Effects on candidate species are addressed in the EA. Only listed species are discussed under this evaluation. Under the Proposed Alternative, vegetative conditions, especially in the uplands, are expected to improve.

With the exception of the peregrine falcon and the spotted bat, all of the other species being considered under this evaluation (willow flycatcher, Yuma clapper rail, bald eagle, California black rail, bonytail chub and the razorback sucker) are all dependent or closely associated with habitats requiring the presence or influence of permanent water. Peregrine falcons are also known to utilize the abundant prey resources associated with permanent water.

All of these species should benefit indirectly from the improved vegetative and habitat conditions resulting from the Proposed Alternative. Uplands will support a greater variety of plants and animals and will contribute less runoff and soil erosion into the Colorado River system.

Cliff habitat will be unaffected by the Proposed Alternative, but spotted bats and peregrine falcons will benefit by increased prey (birds and insects) associated with improving riparian and upland habitats.

Riparian habitat along the Colorado, and at isolated springs in the Blacks will also improve with less grazing pressure from ungulates. Those special status species occurring along the river will benefit from more stable habitat conditions and productive watersheds, with more diverse and abundant vegetation developing with less grazing. This should supply a greater abundance of potentially

suitable habitat for flycatchers, rails, and bald eagles.

The brown-headed cowbird, a "nest parasite" of flycatchers and other species, is expected to have less favorable habitat conditions under the Proposed Alternative. Reducing utilization levels will result in improved habitat conditions for most wildlife species, while reducing habitat availability for cowbirds.

Bonytail chubs and razorback suckers should benefit from less soil erosion entering Lake Mohave and the Colorado River, resulting in a clearer, cleaner aquatic ecosystem, facilitating more favorable breeding conditions for native fish, and possible less favorable for exotics such as carp.

All recreation site development, barrier construction and rehabilitation activities will receive additional scoping and site specific analysis for threatened and endangered species and will not be implemented except under a "no affect" or "not likely to adversely affect" determination and consultation and coordination with the Fish and Wildlife Service as appropriate.

VII. Conclusion

All construction type projects (exclosures, barriers, water catchments, yucca salvage, recreation site development, mine reclamation) and aerial overflights associated with this plan, have either already been analyzed with an EA with no affect to listed species, or will receive additional site specific project analysis and scoping prior to implementation. Consequently, the latest information on endangered species distributions will be evaluated at the time of implementation of site specific projects. If new species are listed, or new data on an already listed species indicates a potential impact from a proposed action identified in this plan which is already covered by an existing site specific EA, that project will be postponed and Section 7 consultation initiated as appropriate.

All of the potential impacts of the BME plan, that have been identified are considered beneficial. Potential for adverse impacts to occur, such as inadvertently disturbing spotted bats during a burro roundup, or a vehicle accident impacting water quality at Lake Mohave, are considered extremely unlikely to occur and therefore discountable or insignificant.

Because all likely impacts are beneficial and potentially adverse impacts are discountable or insignificant, the Proposed Alternative is considered "not likely to adversely affect."

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Field Office
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(602) 640-2720 Fax (602) 640-2730

In Reply Refer To:

MAR 6 1996
RECEIVED

AESO/SE
2-21-95-I-308

March 5, 1996

MEMORANDUM

TO: Area Manager, Kingman Resource Area, Bureau of Land Management, Kingman, Arizona

FROM: Field Supervisor

SUBJECT: Black Mountain Ecosystem Management Plan Concurrence

This responds to your undated request with attachment dated November 27, 1995, for our concurrence with your Black Mountain Ecosystem Management Plan. The plan primarily manages forage at sustainable levels through adjustments in use and allocations of use by native, introduced, and domestic ungulates while attempting to improve plant diversity in many areas.

You asked for concurrence with your "not likely to adversely affect" determinations for the peregrine falcon, Southwestern willow flycatcher, bald eagle, Yuma clapper rail, brown pelican, spotted bat, bonytail chub, razorback sucker, and California black rail. The spotted bat and California black rail were candidate species at the time of your request and do not require concurrence. Your effects determinations were based on either lack of suitable habitat, the project being outside the distribution of the species, the species only being a vagrant through the area, or occurring beyond the influence of the project (in the case of Southwestern willow flycatcher, razorback sucker, and bonytail chub).

We concur that the types of activities described above are not likely to adversely affect endangered or threatened species. Therefore, no Biological Assessment or further Section 7 Consultation pursuant to the Endangered Species Act of 1973 is required with the Fish and Wildlife Service for these particular activities. Should additional information on listed or proposed species become available, this determination may be reconsidered.

The above statements are provided in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

We apologize for any inconvenience caused by this late response. We appreciate your conscientious efforts to conserve listed and candidate species. If you have any questions regarding this memorandum, please contact Ted Cordery or Tom Gatz.

Sam F. Spiller

cc: Director, Arizona Game and Fish Department, Phoenix, AZ
Regional Director, Fish and Wildlife Service, Albuquerque, NM(GM:GSV/LCR)

GLOSSARY OF TERMS

actual use: a report of the actual livestock grazing use certified to be accurate by the permittee or lessee. Actual use may be expressed in terms of animal unit months or animal months.

area of critical environmental concern (ACEC): an area of public land where special management attention is required to protect important historic, cultural or scenic values, fish and wildlife or natural systems or processes, or to protect life and safety from natural hazards.

animal unit month (AUM): the amount of forage necessary to sustain one cow or its equivalent (two burros, five sheep, or four deer) for a period of one month.

biodiversity: the aggregate of species assemblages (communities) individual species, and genetic variation within species and the processes by which these components interact within and among themselves. For the purposes of classification, biodiversity can be divided into three levels: (1) community diversity (habitat, ecosystem), (2) species diversity, and, (3) genetic diversity within species. An increase in species resulting from introduction of non-native species will not increase biodiversity. It is more likely to *reduce* biodiversity within the system by displacing indigenous flora and fauna.

community: an assemblage of populations of plants and/or animals in a common spatial arrangement.

composition: the proportions (percentages) of various plant species in relation to the total on a given area. Composition may be expressed in terms of cover, density, weight, etc.

density: numbers of individuals or stems per unit area.

easement: an interest in land owned by another that entitles the holder of the easement to a specific limited use of that land.

ecosystem: a dynamic complex of plant and animal communities and their associated nonliving environment.

ecosystem function: the aggregate of natural processes, i.e., nutrient cycling, water cycling, plant succession, species interactions, soil building, weathering, etc., that support biodiversity.

ecosystem management: the integration of ecological, economic, and social principles to manage biological and physical systems in a manner that safeguards the long-term sustainability, natural diversity, and productivity of the landscape.

environmental assessment (EA): a document which analyzes the environmental consequences of a proposed federal action and the alternatives to that action.

ephemeral allotment: an allotment which produces less than 25 pounds per acre of perennial forage and is licensed only when production of annual plant species is high enough to warrant the issuance of a temporary, nonrenewable grazing permit.

exclosure: an area of land enclosed by fence which excludes all animals or a specific class of animal.

forage: browse and herbage which may provide food for animals.

forb: any nongrass-like plant that grows little or no woody material.

goal: the desired state or condition that a resource management policy or program is designed to achieve. A goal is usually not quantifiable and may not have a specific date by which it is to be completed. Goals are the base from which objectives are developed.

grass: any plant of the family Gramineae.

grazing allotment: a designated area which includes public land on which grazing is authorized by the BLM.

grazing preference: the total number of animal unit months of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee.

habitat: an environment in which an organism is able to survive and reproduce.

herd area: a geographic area identified as having provided habitat for a herd in 1971.

herd management area: a herd area identified in an approved land use plan where wild horses or burros will be maintained and managed.

hibernaculum: a hibernation site for animals such as bats.

inventory: the systematic acquisition and analysis of information needed to describe, characterize, or quantify resources for land-use planning and management of the public lands.

joint use area: "joint use area" in this plan refers to the geographical area within which interspecific competition between two or more of the four ungulate species inhabiting the ecosystem (burros, bighorn sheep, mule deer, and cattle) is most likely to occur. Lands outside the joint use area are utilized primarily by a single ungulate species (bighorn sheep or cattle).

key area: a relatively small portion of a rangeland selected because of its location, use, or grazing value as an area on which to monitor the effects of grazing use.

key species: a forage species whose use serves as an indicator to the degree of use by associated species.

mechanized/motorized equipment: any device having a motor and/or wheels, tracks, or skids (including bicycles and hang gliders) but excluding small, hand-carried devices such as flashlights, shavers, Geiger counters, and cameras.

mineral material disposal: disposal of sand, building and decorative stone, gravel, pumice, clay and other mineral materials and petrified wood through permit or contract for sale or free use.

mineral (leasable): minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended.

mineral (locatable): any valuable mineral that is not salable or leasable, including gold, silver, copper, tungsten, uranium, etc.

mineral (salable): minerals such as common varieties of sand, stone, gravel, pumicite and clay that may be acquired under the Materials Act of 1947, as amended.

mitigation: a specific action that will alleviate or eliminate identified impacts.

monitoring: the orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

objective: a quantifiable statement of a specific condition to be achieved in response to the issues.

perennial allotment: an allotment which produces more than 25 pounds per acre perennial forage and which may sustain year-round livestock use.

population viability: the likelihood of continued existence of a species in an area for some specified period of time.

potential natural community (PNC): the biotic community that would become established under light grazing if all successional sequences were completed under the present environmental conditions. Natural disturbances are inherent in development.

proper use: a degree of utilization of current year's growth which, if continued, will achieve management objectives and maintain or improve the long-term productivity of the site.

public lands: any land and interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

range improvement: an authorized activity or program on or relating to rangeland which is designed to improve production of forage, change vegetation composition control patterns of use,

provide water, stabilize soil and water conditions and provide habitat for livestock, wild horses and burros, and wildlife. The term includes, but is not limited to, structures, treatment projects, and use of mechanical means to accomplish the desired results.

range site: a kind of rangeland with a specific potential natural community and specific physical site characteristics, differing from other kinds of rangeland in its ability to produce vegetation and to respond to management. Range sites are defined and described with soil, species composition, and production emphasis. Range site is synonymous with ecological site.

right-of-way: the legal right for use, occupancy or access across land or water areas for a specified purpose or purposes. Also, the lands covered by such a right.

riparian area: land directly influenced by permanent water, either on the surface, or as free subsurface water within the rooting zone of dependent vegetation.

species of special concern: species listed as threatened, endangered, or as a candidate species by the U.S. Fish and Wildlife Service or the state of Arizona; or species for which BLM keeps records because of concerns for population status. Some of these species are also tracked by the Arizona Game and Fish Heritage Data Management System.

succession: the orderly process of community change; the sequence of communities toward the climax community in a given community.

trend: the direction of change toward or away from the potential natural community.

utilization: the proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). May refer to a single plant species, to a group of species, or to the vegetation as a whole.

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Public Participation

Mohave County Sportsman Club ..... Don Martin

Mohave County Cattlemen's Association ..... Ken McReynolds

Sierra Club ..... Richard Leibold

Arizona Desert Bighorn Sheep Society ..... George Welch

International Society for the Protection of Mustangs and Burros ..... Karen Sussman

National Park Service ..... Ross Haley
Lake Mead National Recreation Area ..... Nancy Hendricks

Bureau of Land Management ..... Ken Drew
Scott Elefritz
Mike Stamm
Bill O'Sullivan
Rebecca Peck
Ron Hooper

Arizona Game and Fish Department ..... Jim Witham
Raymond Lee

Supporting BLM Specialists ..... Josey Behl
Rick Colvin
Don Simonis
Bruce Asbjorn
Don McClure
Joyce Bailey
Arthur Smith
Bob Hall

Environmental Assessment for Black Mountain Ecosystem Management Plan

Environmental Assessment No. AZ-025-95-032

ENVIRONMENTAL ASSESSMENT FOR BLACK MOUNTAIN ECOSYSTEM MANAGEMENT PLAN

Environmental Assessment No. AZ-025-95-032

I. INTRODUCTION

For a brief discussion of the Black Mountain Ecosystem, its geographical location, its natural resource values, and the most prevalent management issues, see the "Introduction" to the Black Mountain Ecosystem Management Plan.

This plan departs from past planning efforts in that it involves multiple disciplines and affected government agencies, transcends jurisdictional boundaries, and integrates the ideas and concerns of special interest groups as well as the general public.

Purpose and Need

The purpose of the Proposed Alternative is to facilitate multiple use management, and ensure the sustained health of the land, while resolving long-standing resource use conflicts. Specifically, the frequent overuse of key forage plant species, the competition between large mammals, the preservation of wilderness values, and the need to respond to increased visitor use are the challenges that demanded the development of an integrated, interdisciplinary management plan.

Conformance to Land Use Plans

The Black Mountain Ecosystem Management Plan is consistent with the approved Kingman Resource Management Plan (BLM, 1995). Although no attempt will be made here to list all goals, objectives, and actions of the approved RMP, the following major RMP actions affecting the ecosystem are reiterated here to provide a framework for building the Black Mountain plan.

- Write a coordinated resources management plan (p.100, Kingman RMP).
- Establish the 30-30-40 forage allocation split between wild burros, livestock, and wildlife.
- Develop a comprehensive monitoring plan to ensure that the goals and objectives of the plan are being met (p.100).
- Manage grazing by wild burros, livestock, and bighorn sheep in riparian-wetland areas to restore and maintain proper functioning condition (p.100).
- Limit new communication facilities to designated sites (p.100).
- Establish wildlife movement corridors within and between ecosystems (p.79).
- Protect significant prehistoric and historic sites from vandalism and preserve them for scientific and educational purposes (p.74).
- Designate special management areas for intensive recreation management. Develop day use sites, trailhead sites, and interpretive sites (p.75).
- Designate off-highway vehicle use zones (p.76).
- Monitor species of special concern (p.85).
- Identify the Black Mountains as one of the BLM's outstanding bighorn sheep and wild burro heard areas (pp. 83, 87).
- Establish areas of critical environmental concern (p.95).

Relationship to Statutes, Regulations, and Other Plans

This document complies with the Federal Land Management Policy Act of 1976 which mandates the Bureau of Land Management to manage public lands for multiple use on a sustained yield basis.

The Black Mountain Ecosystem Management Plan supersedes the Black Mountain Habitat Management Plan, Wildlife Operations Plan and Maintenance Plan for the Warm Spring, Mount Nutt, and Mount Wilson wilderness areas, and two range improvement maintenance plans covering Mount Wilson, Warm Springs and Mount Nutt. It amends the Black Mountain Herd Management Area Plan and all previously completed allotment management plans pertaining to the ecosystem. It incorporates the Historic Route 66 National Back Country Byway Project Plan. All appropriate goals, objectives, actions and monitoring from the above mentioned plans were included in this plan.

The Black Mountain Ecosystem Management Plan provides management direction for all uses of the public lands and, as such, precludes the need to develop additional activity plans such as, wilderness management plans, area of critical environmental concern plant, cultural resource management plans and recreation area management plans.

This plan meets the Sikes Act (1974), the Public Rangeland Improvement Act (1978), the Wilderness Act (1964) and the Arizona Desert Wilderness Act (1990) requirements.

II. DESCRIPTION OF THE PROPOSED ALTERNATIVE AND THE NO ACTION ALTERNATIVE

Two management alternatives, the Proposed Alternative and the No Action Alternative, are being considered and presented here. The final decision to implement this ecosystem management plan will be composed of either of the individual alternatives in its entirety, portions of the two alternatives, or new actions based on public comment. Actions that have been adequately analyzed in other environmental documents are shown in Table 1. Table 1 shows the components of the Proposed and No Action (existing management situation) alternatives.

Table 1. Actions Previously Analyzed Under NEPA

Actions	Environmental Analysis
Management levels established for burros and livestock only	EA-AZ-025-91-057 EA-AZ-025-92-068
Limit utilization	Black Mountain Grazing EIS
Actively suppress wildfires	Approved Kingman Resource Management Plan (March 1995)
Develop 22 waters outlined in Black Mountain HMP	EA-AZ-020-7-29
Develop Mohave and Milltown Railroad Trail	EA-AZ-025-95-006
Construct scenic overlooks, trails, and parking, and interpretive displays along Route 66.	EA-AZ-025-94-021
Salvage burned Mohave yucca.	EA-AZ-025-93-041
Bighorn sheep captures	EA-AZ-025-94-057
Develop four scenic overlooks	Approved Kingman Resource Management Plan (March 1993) EA-AZ-025-94-021
Construct 30 physical barriers on wilderness boundaries	EA-AZ-025-93-071
Flights for wildlife operations	EA-AZ-025-93-010
Flights for burro operations	EA-AZ-025-91-057 EA-AZ-025-92-068

Proposed Alternative

The Proposed Alternative is to implement the draft Black Mountain Ecosystem Management Plan as described in the following sections. The management actions are detailed in the plan. Actions that have an environmental impact are evaluated in this analysis. Administrative actions, such as seeking cooperative agreements, will not be analyzed. New management actions designed to meet objectives are summarized below.

Vegetation Objective

The proposed vegetation objective changes the utilization limits as described in the Black Mountain Grazing EIS.

Common Name	Scientific Name	Current	Proposed
White bursage	Ambrosia dumosa	50%	20%
Flattop buckwheat	Eriogonum fasciculatum	50%	15%
Big galleta	Hilaria rigida	50%	35%
Mormon tea	Ephedra nevadensis	50%	40%
Globe mallow	Sphaeralcea ambigua	50%	40%
Desert rock-pea	Lotus rigida	50%	30%
Chuckwalla's delight	Bebbia juncia	50%	15%
Shrubby buckwheat	Eriogonum wrightii	50%	40%

1. Initially establish the following large mammal levels:

	From	To
wild burros	817	478
cattle	235	235
bighorn sheep	992	1196
other wildlife (e.g. deer)	300	300

2. Establish 3-10 exclosures, between one and five acres in size, for vegetation studies. The first three would be near Cool, Onnetto, and Lazy Boy Springs.
3. Actively suppress all wildfires in the Black Mountain ecosystem.
4. Establish experimental plantings within the ecosystem to identify plant species which might prove most useful in post-fire rehabilitation efforts.

Biodiversity/Ecosystem Health Objective

1. Designate the Sitgreaves Pass biological linkage corridor across Route 66. The corridor is approximately 1.5 miles wide and includes public lands located in T19N R20W sections 12 and 13; and T19N R19W sections 7 and 18. Private lands are excluded. Actions incompatible with moving plants and animals through the corridor would be restricted.
2. Develop, monitor, and maintain seven water developments to support animal populations appropriate to ecosystem capacity. Development would disturb approximately 1/4-1/2 acre per site. Table 3 outlines new water proposals. For a more complete description see the "Biodiversity/ Ecosystem Health Objective, Water Availability" section of the plan.
3. Continue current management of Mohave yucca, allowing salvage following a naturally caused wildfire. Harvesting of living Mohave yucca is not permitted.
4. Bighorn sheep could be captured within the ecosystem for transplant outside the ecosystem. All captures and releases would be done in accordance with the MOU with the Arizona Game and Fish Commission.
5. Complete an inventory to determine present range and abundance of the following species within the Black Mountain Ecosystem by the year 2005; two-color beard-tongue, white-margined penstemon, crownless milkweed vine, Mohave sandpaper bush, antelope brush, shrubby senna,

Table 2. Comparison of Current Management (No Action Alternative) and the Proposed Alternative

	New Actions	Current Mgmt.	Current Mgmt. Carried Forward	Proposed Alternative
Limit or reduce ungulate numbers	*			*
Levels established for burros and livestock only		*		
Establish 1-10 exclosures 1-5 acres in size for vegetation studies	*			*
Limit utilization to new levels	*			*
Limit utilization to existing levels		*		
Actively suppress wildfires		*	*	*
Establish experimental plantings for post-fire rehabilitation	*			*
Designate Sitgreaves Pass biological linkage corridor	*			*
Develop 22 waters outlined in Black Mountain HMP		*		
Develop seven waters outlined in Table 3 (from Black Mountain HMP)	*			*
Salvage burned Mohave yucca		*	*	*
Bighorn sheep captures		*	*	*
Concession area (RV park/campground)		*	*	*
Develop the four scenic overlooks identified in current management and develop three additional overlooks		*		*
Reclaim 18 mine sites in wilderness areas	*			*
Remove abandoned pipeline and plane crash debris	*			*
Reclaim closed motor vehicle routes with human assistance	*			*
Reclaim closed motor vehicle routes with no human assistance		*		
Construct 33 physical barriers on wilderness boundaries	*			*
Construct 30 physical barriers on wilderness boundaries		*		
Maintenance of developments in wilderness areas		*	*	*
Flights for wildlife operations		*	*	*
Flights for burro operations		*	*	*

Table 3. New Water Developments for the Black Mountain Ecosystem

Water Name	Description
Coyote Tank	Would consist of a dam constructed out of native rock from the area and colored mortar and constructed on a bedrock surface. The dam may be up to three feet tall and up to 15 feet across. A gabion may be placed above the dam to hold back sediments and debris. No new roads would be constructed. Access by truck and helicopter. Troughs would be fenced to exclude all animals except wildlife. Project would include additional storage, pipeline, and troughs.
Two Horns Trick Tank	Similar construction as Coyote Tank.
Cone Mountain Catchment	Would consist of a sheet metal apron, storage tanks, troughs, pipelines, and would be enclosed by a pipe-rail fence. Access would be by existing roads. Project would exclude all animals except wildlife.
Lucille Well and Pipeline	The well is in existence. A pipeline would be constructed approximately 3/4-mile, ending in approximately T25N R21W section 30 NE1/4. Wildlife trough would be fenced to exclude livestock and wild burros. Separate troughs would supply water to all animals.
Gnatcatcher Spring*	A spring box, pipeline and storage tanks would be installed. Spring source and tank would be fenced using black pipe. Pack animals and helicopter would be used to transport construction materials, equipment, and work crew camping supplies. Work crews will work or ride horses/mules into the site. Construction tools would include portable welder and pionjar. Storage tanks would be painted, sized, and located to blend in with existing environment. Water would be available to all animals.
Big Spring*	Similar construction as Gnatcatcher Spring. Water would be available to all animals.
Missouri Spring*	Similar construction as Gnatcatcher Spring, although use of an existing road may allow use of mechanized equipment such as a backhoe to bury the tanks and walk-in drinker. Water would be available to all animals.

*Located in the Mount Wilson Wilderness Area.

Mohave cottonthorn, and three-hearts. After completing the inventory, develop recommendations for management.

Recreation Objective

1. Establish Recreation Zones.
2. Complete a trails system that includes the following trails. No new construction will be employed.
3. Establish eight dirt parking areas of about one acre each along existing roads.

Wilderness Objective

1. Reclaim 18 inactive mining sites in wilderness. This includes trash removal, filling pits and shafts, staining rocks to match natural coloring, and reclaiming roads.
2. Remove abandoned sections of a water pipeline and debris from a plane crash.
3. Reclaim all closed motor vehicle routes in wilderness. The roads would be scarified, seeded, left to naturally reclaim, or any combination of the three methods.
4. Construct 33 physical barriers along the wilderness boundary where motor vehicles are entering through washes, closed jeep trails, or other areas (30 have been previously analyzed).
5. Continue flights in wilderness to maintain facilities and conduct census, monitoring, and capture flights for wildlife and burros.

Trail Name	Length	Use	Description
Warm Spring Canyon Route	10.8 miles	H,E	This will be an unmarked route through Warm Springs Wilderness Area.
Cool Spring Packtrail	2.2 miles	H,E	This route follows an old motor vehicle route and an existing packtrail. No new construction will be needed.
Twin Springs/ Secret Pass Wash	1.9 miles	H,E	These two routes follow old motor vehicle routes. No new construction will be needed.
Mohave and Milltown Railroad Trails	9.0 miles	H,E,M,OHV	No new construction on motorized route. Brush clearing and limited tread construction on non-motorized route.
Missouri Springs Trail	3.5 miles	H,E	No new construction; follows existing vehicle way.
Cottonwood Canyon Trail	1.5 miles	H,E	No new construction; trail will be along an existing vehicle way.

H = Hiking E = Equestrian M = Mountain Bike OHV = Off-Highway Vehicle

2. The water developments described in the Black Mountain HMP would be analyzed on a case by case basis.
3. People would still be allowed to salvage Mohave yucca after a naturally caused wildfire. Living Mohave yucca cannot be harvested.
4. Bighorn sheep would be captured on a case by case basis in accordance with the MOU with the Arizona Game and Fish Commission.
5. An inventory would be completed to determine present range and abundance of the following species within the Black Mountain Ecosystem by the year 2005: two-color beard-tongue, white-margined penstemon, crownless milkweed vine. Mohave sandpaper bush, antelope brush, shrubby senna, Mohave cottonthorn, and three-hearts. After completing the inventory, develop recommendations for management.

No Action Alternative

The No Action Alternative would continue current management as outlined in the following documents: Kingman RMP (BLM, 1995), Cerbat-Black Grazing Environmental Impact Statement (BLM, 1978), Black Mountain Habitat Management Plan (BLM, 1981) and Environmental Assessments AZ-025-91-057 (August 1991) and AZ-025-92-068 (January 1993).

Vegetation Objective

1. There would be no change to the existing utilization limits.
2. The established numbers for all large mammals would remain as currently described.
3. Exclosures for vegetation study would not be built.
4. All wildfires would be actively suppressed.
5. No experimental plantings would be established.

Biodiversity/Ecosystem Health Objectives

1. Sitgreaves Pass would not be a designated wildlife corridor.

Recreation Objective

1. Recreation zones for the ecosystem would not be established.
2. No trail systems would be developed.
3. Dirt parking areas would not be developed or would be proposed on a case by case basis.

Wilderness Objective

1. Items 1-3 as listed in the Proposed Action would not be completed or would be done on a case by case basis.

2. Thirty vehicle barriers would be constructed.
3. Flights in wilderness to examine facilities, conduct census, monitoring, and capture flights for wildlife and burros are permitted.

III. AFFECTED ENVIRONMENT

For a discussion of the affected environment of the Black Mountain ecosystem see the "Area Description" of the plan. Implementation of the plan would affect the following resources: vegetation; riparian; soil; wildlife species of special concern (includes threatened and endangered species); grazing; wild burros; cultural; ACECs; recreation; and wilderness.

Native American Religious Concerns

Basis consultation has been conducted with the Hualapai and Mohave Tribes to identify areas of concern. Consultation would be ongoing throughout the implementation of the action described in the plan.

IV. ENVIRONMENTAL IMPACTS

Unaffected Resources

The following resources have been reviewed and determined to be unaffected by the Proposed and No Action alternatives:

- prime and unique farmlands
- flood plains
- hazardous or solid wastes
- wild and scenic rivers
- water quality
- air quality

Affected Resources

Proposed Alternative

The impacts of implementing the actions under each objective are summarized below. Impact analysis is also in the rationale section for each proposed action in the plan.

Vegetation Objective

• ***Vegetation, Riparian, Soil***

Overall impacts to vegetation would be positive. The proposed species specific utilization limits would result in increased plant productivity and vigor. Ultimately, the community would become more diverse through increased variety of species or increased abundance of uncommon species. Vegetative destruction caused by construction of new exclosures would be negligible. Suppression of wildfires would result in preventing loss of native vegetation and minimizing increases in exotic species. Experimental plantings would help reduce the damage done by wildfire.

Increased canopy and litter cover are expected, which would reduce erosion and evaporation. Actions would also facilitate infiltration of water and cycling of nutrients, while moderating soil temperature increases. These processes would enhance water and nutrient availability to plants and extend duration of flow at spring sources.

• ***Wildlife and Species of Special Concern***

Wildlife would benefit significantly from improved forage productivity and availability. Reduced species competition would increase wildlife productivity. Drought-induced stress to wildlife would be reduced also because of the presence of a forage reserve during drought times.

The vegetative actions proposed are not likely to adversely affect threatened and endangered species, candidate species, or other species of special concern listed in Table 5. These actions could only have a positive effect on these species. Increased productivity and diversity would result in more palatable and desirable forage for herbivores such as the desert tortoise (see Appendix 1 in the plan for a list of scientific names) and chuckwalla. Higher productivity would work its way through the food chain by enhancing existing or providing additional food resources to the candidate bat species listed in Table 5 that

Table 4. Proposed Reclamation Measures for Historic Mining Sites in the Black Mountain Wilderness Areas

Priority	Wilderness Area	Reclamation
Low	Mount Nutt/Dripping Springs	Leave rock structure; stain excavated soil to blend with surrounding environment.
High	Mount Nutt/Lower Dripping Springs	Remove metal debris with pack animals.
High	Mount Nutt/Arch Area Shaft	Maintain existing fencing.
High	Mount Nutt/Fire Agate Quarry	Use sling loads to fly out solid waste due to large volume and remote location.
Low	Mount Nutt/Cottonwood Shaft	Leave as it exists due to its remoteness.
Low	Mount Nutt/Whiskey Spring Adit	Leave as it exists due to its remoteness and its minimal visual impacts.
Low	Warm Springs/Alkali #1 Prospects	Leave as it exists; natural reclamation occurring.
High	Warm Springs/Big Pit	Refill pits with existing material and stain surface to reduce scarring.
Low	Warm Springs/Alkali #2 Prospects	Scars on hillside are visually impairing; stain surface to reduce scarring.
Low	Warm Springs/Sacramento Drill Holes (4)	Stain surface, remove drill casings at ground level, and reclaim access routes.
Low	Warm Springs/Sacramento Prospect	Stain surface to reduce visual contrast.
Low	Warm Springs/Haviland Holes (3)	Replace basalt boulders on drillpads.
Low	Warm Springs/Haviland Holes (5)	Remove drill casings; replace basalt boulders on drillpads.
High	Warm Springs/Arkansas-Louisiana Gas Hole #1	Access route needs major reclamation including waterbars; remove casing above ground surface.
Low Low	Warm Springs/Arkansas-Louisiana Gas Hole #2 Warm Springs/Arkansas-Louisiana Gas Hole #1	Access routes are reclaiming naturally; pads are overgrown with vegetation, but cuts are still evident. Stain road and pad cuts to match surrounding area. (Historical Note: These three gas holes were drilled in 1964 and have had 30 years of natural reclamation.)
Low	Warm Springs/Cool Springs Mine	Leave as it currently exists.
Low	Warm Springs/Cabin Prospects	Move some native material back onto road surface, scarify road, and stain surface.

prey on insects, and to the peregrine falcon that prey primarily on small birds.

Reduced grazing pressure would decrease vegetative utilization to appropriate levels along the lake shore and should improve riparian habitats. This would benefit riparian dependent species such as the southwestern willow flycatcher, bald eagle, and the Yuma clapper rail. Improved vegetative communities would reduce habitat availability for the cowbird, a bird that parasites southwestern willow flycatcher nests. The cowbird is more abundant in overgrazed habitats.

Riparian habitats would fully develop with reduced grazing pressure, by limiting plant utilization along the small spring sources throughout the ecosystem. This is especially beneficial to animals dependent on these small riparian zones. Fencing Burn's Spring would directly benefit the Kingman springsnail whose known distribution is limited to three springs in the Black Mountains, including Burns Spring. It may also benefit the southwestern willow flycatcher, although it is unknown if this spring would support habitat suitable for the flycatcher.

The brown pelican, bonytail, and razorback sucker are aquatic species known to inhabit the Colorado River. These species are not likely to be adversely affected by the actions because they are designed to enhance the upland habitat and watershed values that are adjacent to the Colorado River. Only minor benefits to these species are expected, as actions under this alternative probably do not significantly affect the habitat quality. The Colorado River is adjacent to but outside of the ecosystem boundaries delineated in the plan.

The ferruginous hawk, western burrowing owl, California black rail, spotted bat, Hualapai southern pocked gopher, Arizona toad, rosy boa, cheese-weed moth lacewing, and California floater (see Table 5), have distributions that may include the Black Mountains but are presently undocumented here. These species are not likely to be adversely affected by the proposed vegetative actions because the actions are designed to enhance habitat and watershed quality.

Table 5. List of Species of Special Concern III

Species (known)	Status	
American peregrine falcon	Federally listed	Endangered**
southwestern willow flycatcher	Federally listed	Endangered
desert tortoise	Federal Candidate	Category 2+
chuckwalla	Federal Candidate	Category 2
fringed myotis	Federal Candidate	Category 2
Yuma myotis	Federal Candidate	Category 2
California leaf-nosed bat	Federal Candidate	Category 2
greater western mastiff bat	Federal Candidate	Category 2
Townsend's big-eared bat	Federal Candidate	Category 2
Allen's lappet-browned bat	Federal Candidate	Category 2
Kingman springsnail	Federal Candidate	Category 2
two-color beard-tongue	Federal Candidate	Category 2
white-margined penstemon	Federal Candidate	Category 2
Mohave sandpaper bush	Sensitive Species•	
crownless milkweed vine	Sensitive Species	
desert antelopebrush	Sensitive Species	
Mohave cottonthorn	Sensitive Species	
three-hearts	Sensitive Species	
yellow-flowered bear poppy	Sensitive Species	
Species (potential)		
bald eagle	Federally listed	Endangered
Yuma clapper rail	Federally listed	Endangered
brown pelican	Federally listed	Endangered
California black rail	Federal Candidate	Category 1*
ferruginous hawk	Federal Candidate	Category 2
western burrowing owl	Federal Candidate	Category 2
cave myotis	Federal Candidate	Category 2
pocket free-tailed bat	Federal Candidate	Category 2
small-footed myotis	Federal Candidate	Category 2
long-legged myotis	Federal Candidate	Category 2
spotted bat	Federally listed	Endangered
Hualapai southern pocket gopher	Federal Candidate	Category 2
rosy boa	Federal Candidate	Category 2
Arizona toad	Federal Candidate	Category 2
cheese-weed moth lacewing	Federal Candidate	Category 2
California floater	Federal Candidate	Category 2
bonytail	Federally listed	Endangered
razorback sucker	Federally listed	Endangered

** Endangered: Species that are in danger of extinction throughout all or a significant part of their range.

* Candidate Category 1: Species for which the U.S. Fish and Wildlife Service has enough information to support proposal to list.

+ Candidate Category 2: Species for which the U.S. Fish and Wildlife Service has information that indicates listing may be appropriate, but for which adequate information to support or refute the proposal is lacking.

• Sensitive Species: Species for which BLM keeps records because of concerns for population status. Some of these species are also tracked by the Arizona Game and Fish Department Heritage Data Management System.

*** This list was developed utilizing information from the BLM "TEDS" data base in Kingman Resource Area; Arizona Game and Fish Department Heritage Data Base; and the U.S. Fish and Wildlife Service Memorandum #AESO/SE 2-21-95-I-308.

• *Wild Burros*

Wild burros should benefit from this alternative as a result of increases in both the quantity and quality of available forage. Drought-induced stress to burros should be reduced under this alternative as a result of reduced competition, both intra and inter- specific, and also because of the presence of a forage reserve during drought times.

• *Livestock*

Livestock are expected to benefit as a result of improved vegetative health and increased diversity and availability of palatable plants. Improved range condition would stimulate increased calf crops and livestock weight gains which would have a positive affect on livestock operations.

• *Recreation and Wilderness*

Recreation and wilderness resources would benefit from an improved natural appearance created by healthier more abundant vegetation.

Biodiversity/Ecosystem Health Objective

• *Wildlife and Species of Special Concern*

Constructing seven new water developments in the ecosystem would help provide dependable year-round water for wildlife, especially big game. It would also change three seasonal habitat areas to year-round use. One of these developments would also provide additional water for burros and livestock. The waters in the Mount Wilson Wilderness Area would provide a refuge for animals that can no longer water consistently at Lake Mead due to recreational pressures along the lake shore. Boaters and campers, along with their dogs, often use the lake shore and coves in such densities that wildlife is inhibited from watering in these areas. A negligible amount of vegetation would be destroyed during construction of the waters. Vegetation use pattern by sheep and other large mammals would be altered, but this should have only a slight effect on the vegetation when done in concert with the new utilization levels.

Species of special concern, both plants and animals, would benefit under the actions of this objective as a result of improved general ecosystem health and productivity. Inventories conducted for these little-known plant and animal species listed in Table 5 would further the knowledge of the distribution and habitat requirements for these rare species.

The Sitgreaves Pass biological corridor would positively affect wildlife and plants in the area, helping to ensure movement of plants and animals across State Route 68. It would have a negligible affect on other resources.

• *Recreation and Wilderness*

Additional waters would have a positive effect on recreation because consistent wildlife viewing opportunities increase as would water availability for visitors. The three wilderness area water developments would have a negative visual impact to visitors in the vicinity. This would be reduced considerably with consideration to placement, size considerations, and camouflage painting.

Recreation Objective

Implementing zoning and recreational guidelines would positively affect vegetative, species of special concern, and wildlife resources. Resources in the Black Mountain ACEC would be better protected. Based on existing area use, impacts to commercial and casual recreation would be minimal. Because recreational use would be encouraged away from sensitive cultural sites, fewer incidents of cultural resource damage and artifact removal would occur. Developing a trail system and recreational zoning would create a greater variety of recreational opportunities to meet visitor demands.

Designated parking would help to reduce unauthorized use of private lands. The dirt parking areas would completely destroy vegetation on these areas, but would protect

other areas from OHV impacts. Additional legal access routes would help disperse visitor use and reduce recreational pressures. Impacts of trails would be positive. Because there would be no additional construction, no soil or vegetative resources would be affected. Converting closed motor vehicle routes into trails would allow vegetative reclamation on half of the route. Some additional soil compaction and erosion would occur on the side used as a trail; the magnitude would depend how much it is used.

Wilderness Objective

Revegetation at abandoned mine sites in wildernesses would increase vegetative cover in these areas. Reclaiming administratively closed motor vehicle routes to recreational travel corridors would increase hiking and equestrian opportunities and concentrate use. Recreational zoning throughout the ecosystem would provide areas of different visitor experiences and help to preserve wilderness values. The area's natural appearance would be improved with the removal of abandoned materials and non-functional developments and rehabilitation of areas disturbed by mining activities. Motor vehicle access barriers would greatly reduce unauthorized motor vehicle use and enhance primitive conditions. Acquisition of private inholdings would prevent construction of access roads and structures visible in the wilderness area and would increase the area usable for recreation. Inholding acquisition would also increase the money the county receives in lieu of taxes.

Exchange of inholdings for lands suitable for development would increase the county tax base.

No Action Alternative

Vegetation Objective

The benefits described under the Proposed Alternative would not be achieved. Periodic overutilization of plant resources would continue to occur. Canopy, litter, plant productivity and plant vigor would decrease. Ultimately, plant diversity would decline as highly palatable plants disappear from the community. Habitat conditions for species of special concern listed in Table 5 would not improve under this alternative. Species such as the desert tortoise and chuckwalla would continue to compete with large mammals for frequently overutilized and scarce food resources in poor years. Riparian habitat quality for the southwestern willow flycatcher, bald eagle, and Yuma clapper rail is expected to remain the same or decline in quality along Lake Mead and the river shoreline. Cowbird parasitism of southwestern willow flycatcher nests is not expected to be reduced under this alternative because actions within this ecosystem probably do not significantly affect the habitat quality of the Colorado River. Wildfire suppression impacts would be the same as under the Proposed Alternative.

Biodiversity/Ecosystem Health Objective

Water development would be similar to the Proposed Alternative, only the numbers of waters may be slightly different, higher or lower. Without the Sitgreaves Pass biological linkage corridor, wildlife and plants would not move as freely across State Route 68.

Recreation Objective

Recreation opportunity enhancement in the Black Mountains would not occur under this alternative. Recreation management would be inefficient as information about visitor use would not be gathered. Cultural resource damage caused by recreational use would be more difficult to control. Access to wilderness areas would be limited without access easements, concentrating visitor use, and promoting unauthorized use of private lands.

Wilderness Objective

Under the No Action Alternative, benefits described above for the Proposed Alternative for wildlife, species of special concern, wild burros, cultural resources. ACEC, recreation and wilderness would not be realized. The planned reclamation efforts would not be completed leaving visual disturbance in place. Without physical access barriers, unauthorized motor vehicle use in wilderness would be difficult to control.

Cumulative Impacts

Proposed Alternative

The cumulative effects of the combined actions identified in the plan would improve ecosystem health and function. Management of this area would be enhanced with efficiently completed projects rather than planning each project individually.

No Action Alternative

Under this alternative, no integrated, interdisciplinary approach would be pursued. Individual activity plans for wildlife, wild burros, recreation, wilderness, cultural, livestock, etc., would continue to be written and implemented in a disjunct, relatively uncoordinated manner. Periodic overgrazing would continue with a resulting decline in vegetative vigor, cover, productivity and diversity as noted above. The net result would be a decline in ecosystem health and function.

Mitigation Measures

Proposed Alternative

The proposed actions are typically developed so that additional mitigating measures are not needed. For instance, the standard operating procedures section of the burro capture plans are designed to minimize stress on burros and adverse impacts to the environment. Additional mitigating measures may be associated with specific projects that cannot be evaluated until a site-specific plan is completed.

In wilderness areas the following mitigating measures would apply.

- Post notices in the Kingman Resource Area Office to notify the public prior to planned motorized or mechanized use within the wilderness.
- Schedule motorized/mechanized use during week days, periods of extreme weather, or at other times when visitor use is expected to be low.
- Construct riparian exclosures with natural materials to make them as visually unobtrusive as possible.
- Use rocks and other natural materials to the maximum extent possible when constructing access barriers.
- Use hand tools or horse drawn plow only to complete road reclamation.

No Action Alternative

Mitigation measures would continue to be identified on a case by case basis.

V. CONSULTATION AND COORDINATION

The public was thoroughly involved in developing the proposed plan. Specifically, public input was solicited and incorporated at several critical planning stages:

1. Start of public involvement

In February 1992 a public scoping tour of the Black Mountain ecosystem took place in an attempt to assemble interested publics and open a dialogue between those with polarized views about Black Mountains management. Among groups invited to participate were the Hualapai and Mohave Indian tribes, and the Mohave County Board of Supervisors.

2. Scoping of management issues

By March of 1993, the interested publics had been assembled and the group began to

identify issues. Meetings were held periodically from 1993 through 1995. These meetings were open to the public with a core group of individuals representing the Mohave County Sportsman's Club, Mohave County Livestock Association, Sierra Club, Arizona Desert Bighorn Sheep Society, the International Society for the Protection of Mustangs and Burros, National Park Service, Lake Mead National Recreation Area, Bureau of Land Management, and Arizona Game and Fish Department. These group members helped identify issues, and developed management goals, objectives, and actions for the plan.

Two public scoping meetings for wilderness issue identification were held in July 1993 in Kingman and Bullhead City.

On December 14, 1994, a meeting was held with representatives from BLM and the Mohave tribe to discuss various BLM planning efforts including the Black Mountain Ecosystem Management Plan. On January 27, 1995, the Hualapai tribe and representatives from BLM met to discuss BLM's annual work plan that included the Black Mountain Ecosystem Management Plan.

3. Review of draft management plan

Each successive version of the draft plan was reviewed by the core team members and their constituents. The county board of supervisors was notified. Periodic news releases reported progress on the plan and reminded the public that meetings were open. As the plan developed, it was periodically reviewed by other BLM specialists at the resource area level, as well as at the district and state levels. Native Americans will be included in any future scientific investigations and/or development of cultural resources for public use. Required consultation with the Arizona State Historic Preservation Office will also be completed.

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FINDING OF NO SIGNIFICANT IMPACT and DECISION RECORD

ENVIRONMENTAL ASSESSMENT FOR THE
BLACK MOUNTAIN ECOSYSTEM MANAGEMENT PLAN
(EA Number AZ-025-95-032)

Decision: It is my decision to approve the Black Mountains Ecosystem Management Plan.

Finding of No Significant Impacts: Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that impacts are not expected to be significant and an environmental impact statement is not required.

Rationale for Decision: The plan provides for improved health of the land, sustainability of natural resources, preservation and enhancement of biodiversity, minimization and rehabilitation of disturbance, and maintenance of wilderness values. Thoughtful monitoring and periodic evaluations provide for modification of the plan as new information or changes in conditions dictate.

Stipulations: All mitigation measures are incorporated within the proposed action.

Recommended by: _____ 4-19-96
Area Manager, Kingman — Date

Recommended by: _____ 4/19/96
Acting District Manager, Phoenix — Date

Approved by: _____ 4/19/96
State Director, Arizona — Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Kingman Resource Area
2475 Beverly Ave.
Kingman, AZ 86401

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