PARASHAUNT

HABITAT MANAGEMENT PLAN



A SIKES ACT COOPERATIVE FEDERAL — STATE MANAGEMENT PLAN TO IMPROVE WILDLIFE HABITAT ON PUBLIC LANDS.

U.S. Department of the Interior

Bureau of Land Management

Arizonia Strip District
Shivwits Resource Area

ARIZONA GAME AND FISH DEPARTMENT
KINGMAN REGIONAL OFFICE

THE PARASHAUNT

HABITAT MANAGEMENT PLAN

WILDLIFE HABITAT AREA-T3

EFFECTIVE DATE: NOVEMBER 1982

ARIZONA STRIP DISTRICT-ARIZONA

BUREAU OF LAND MANAGEMENT

T33N R13W GILA-SALT RIVER BASE MERIDIAN



Snap Point - A familiar landmark

Form 6780–1
(July 1981)
(formerly 6620–1)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CHECKLIST FOR PREPARATION AND REVIEW OF HABITAT MANAGEMENT PLANS

State: Arizona
District: Arizona Strip
Resource Area: Shivwits
HMP Name and Number: Parashaunt WHA-T3
HMP Prepared by: Curtis Warrick, Neal Middlebrook, Rick Rice

REVIEW CHECKLIST	SURNAME	DATE
1. Master Memorandum of Understanding, Sikes Act Agreement and/or Supplemental with State Agency.		
2. Preliminary meeting(s) with State Agency *(or other appropriate cooperators)* to jointly discuss HMP objectives.		2-12-82 2-19-82
3. Endangered Species Act Compliance completed by	Warrick	3-15-82
4. Review by District/Resource Area Specialists	Hughes Beckstrom Walker Johnson Stovall	4-21-82 4-20-82 4-5-82 5-3-82 4-26-82
Range	Ash	4-28-82
Wild Horse and Burro	Stovall	4-26-82
Hydrologist		
Forestry	Davis	4-26-82
Fisheries/Botanist/Wildlife Biologist	Middlebrook	5-5-82
Lands	Swapp	4-20-82
Minerals	Swapp	4-20-82
Recreation	Sokal	5-7-82
Wilderness/ACEC	Sokal	5-7-82
Cultural	Malcomson	4-12-82
Visual	Ray	4-21-82
Environmental Coordinator *(reviews EAs)*	Drew	8/4/82
Support *(Chief of Operations/Fire Management)*	Drew	5-3-82
Others	Mapston Costellano McGinty Moore	5-4-82
5. Reviewed by Area Manager		4-26-82
6. Reviewed by Chief of Resource Management	Anderson	4-12-82
7. Draft HMP and EA reviewed by State Agency authorized officer *or other cooperators).*	Martin	4-20-82
8. Final review *(if appropriate)* by State Director		
9. Reviewed and approved by District Manager		
10. Approved by State Agency authorized officer		

Remarks

* U.S. Government Printing Office: 1981-780-779/692 Reg 8

ABSTRACT

The Parashaunt Wildlife Habitat Area (WHA-T3) provides habitat for a wide variety of wildlife as well as potential for increases in the quantity and quality of habitat.

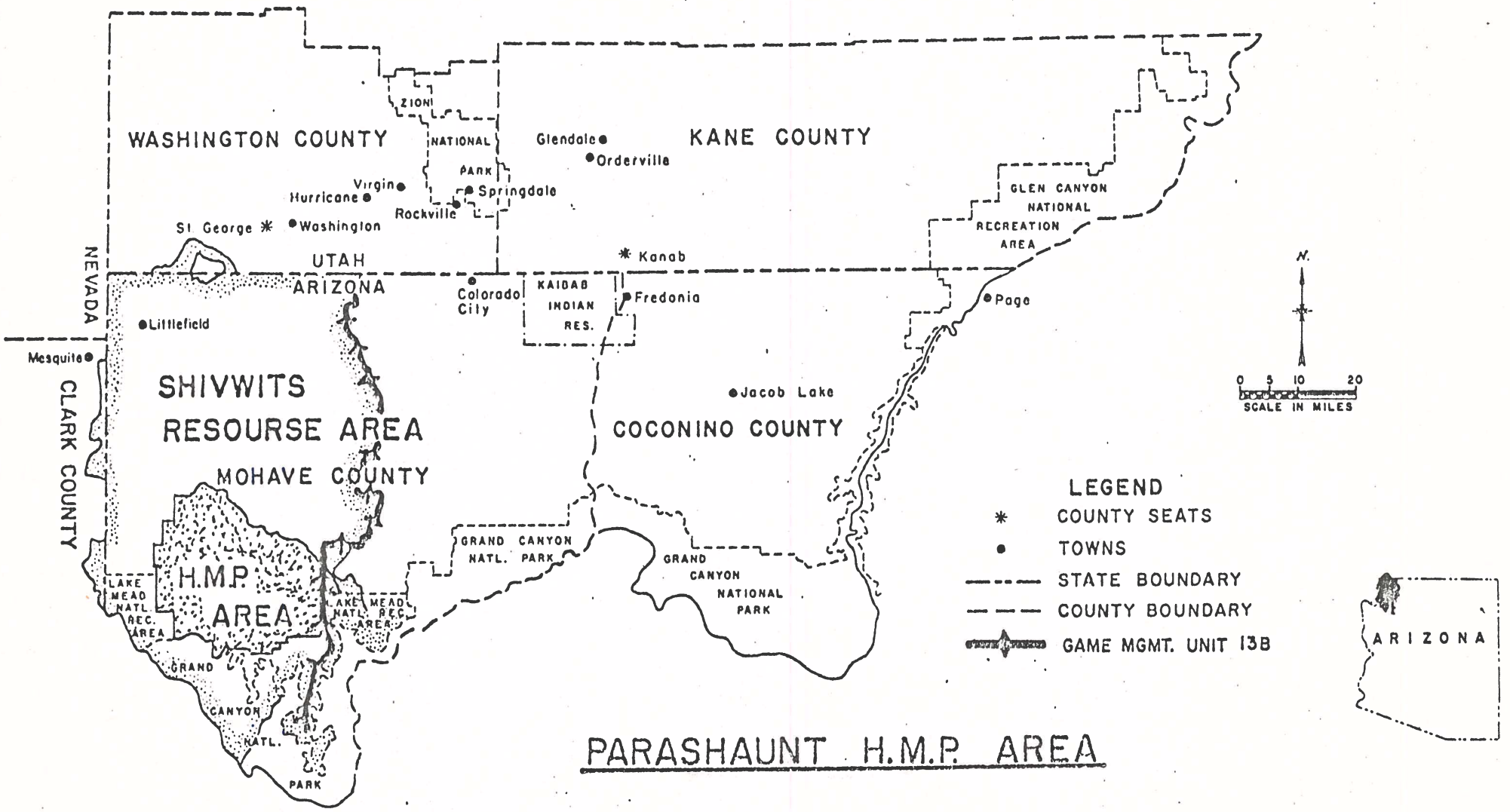
Objectives for the area are to improve the quantity and quality of nutrients, water, food, cover, living space and the mixture of these to meet desired levels of abundance and diversity. Habitat that historically supported now diminished species will be evaluated for future reintroductions.

Planned actions to accomplish the objectives involve intensive efforts to develop water sources (catchments and springs), modify existing water sources, and monitor conditions around waters. Chemical, mechanical, and fire treatments will improve vegetation composition and availability. Some wildlife species that historically inhabited the area will be evaluated for reintroduction and possible establishment in the area.

Efforts to accomplish the objectives will depend upon the success of coordination with other resource disciplines. The multiple-use concept must be perpetuated and other land use activities conducted to compliment HMP objectives.

The implementation schedules and cost estimates have been determined for a 7-year period. An annual evaluation report and a 5-year HMP revision are included as a part of this HMP.

The environmental assessment and the habitat analysis will be included as a part of the HMP to support and analyze the HMP's planned actions.



PARASHAUNT H.M.P. AREA

TABLE OF CONTENTS

I. INTRODUCTION..... 1
A. Location..... 1
B. Acreage..... 1
C. Justification..... 1
D. Topography..... 3
E. Soils..... 4
F. Climate..... 4
G. Flora..... 5
H. Fauna..... 6
I. Livestock..... 7
J. Burros..... 9
K. Water..... 10
L. Fences..... 11
M. Human Population and Use of the Area..... 12
N. Wilderness and Unique Characteristics..... 13
O. MFP Decisions..... 13
P. Constraints..... 14

II. MANAGEMENT OBJECTIVES/NUMBERS..... 16
Water Developments/MD-1a,BS-2,T-1,C-2..... 19
Vegetation Treatments/MD-5,T-3..... 21
Habitat Studies and Monitoring/MD-2,MD-3,MD-8,BS-3,BS-12,F-1,R-3,NG-3..... 22
Livestock Grazing Management/MD-4,BS-4,BS-6,BS-7,R-1,NG-1,SG-1..... 27
Waterfowl Habitat Development/WF-1..... 31
Riparian Area Management/R-2..... 32
Turkey Habitat Management/T-5..... 33
Ecosystem Management in Ponderosa Pine Habitat Types/T-4,KS-2,R-4..... 34
Protective Fencing/NG-2..... 36
Criteria for Land Use Authorizations/MD-6,MD-9,BS-8,BS-9,NG-4,NG-5..... 37
Species Management/MD-7,BS-1,BS-13,T-2,F-2,KS-1,BB-1,ML-1,C-1..... 40
Modification of Existing Water Developments/MD-1b,BS-10,BS-11,F-3,SG-2,MD-1c 44
Wild Burro Management/BS-5.....46

III. PLANNED ACTIONS/PLANNED ACTION NUMBER..... 47
Water Developments/MD-1a,BS-2,T-1,C-2..... 47
Vegetation Treatments/MD-5,T-3..... 50
Habitat Studies and Monitoring/MD-2,MD-3,MD-8,BS-3,BS-12,F-1,R-3,NG-3..... 54
Livestock Grazing Management/MD-4,BS-4,BS-6,BS-7,R-1,NG-1,SG-1..... 58
Waterfowl Habitat Development/WF-1..... 62
Riparian Area Management/R-2..... 63
Turkey Habitat Management/T-5..... 64
Ecosystem Management in Ponderosa Pine Habitat Types/T-4,KS-2,R-4..... 65
Protective Fencing/NG-2..... 67
Criteria for Land Use Authorizations/MD-6,MD-9,BS-8,BS-9,NG-4,NG-5..... 68
Species Management/MD-7,BS-1,BS-13,T-2,F-2,KS-1,BB-1,ML-1,C-1..... 73
Modification of Existing Water Developments/MD-1b,BS-10,BS-11,F-3,SG-2,MD-1c 76
Wild Burro Management/BS-5..... 81

IV. EVALUATION AND MONITORING..... 82
Forms 6870-2

V. PROGRESS REPORT..... 83

VI. COORDINATION..... 84
Other BLM Programs..... 84
Other Agencies and Organizations..... 91

VII. WILDLIFE ECONOMICS..... 93

VIII. PUBLIC AFFAIRS..... 97

IX. IMPLEMENTATION SCHEDULE..... 100

X. COST SCHEDULE..... 103

XI. CONCURRENCE AND APPROVAL..... 105

XII. ENVIRONMENTAL ASSESSMENT.....

XIII. APPENDIX.....

I. INTRODUCTION

A. Location

The Parashaunt Wildlife Habitat Area - Terrestrial Number Three (WHA-T3) lies within the Bureau of Land Management's (BLM) Arizona Strip District in Arizona. The "Strip" is separated from the rest of Arizona by the Colorado River and politically separated from Utah and Nevada by state lines. The area is bordered on the south by the Lake Mead National Recreation Area and the Grand Canyon National Park, on the west by the Grand Wash Cliffs, on the north by Hidden Canyon, and on the east by a line running from Parashaunt Canyon to Hidden Canyon.

B. Acreage

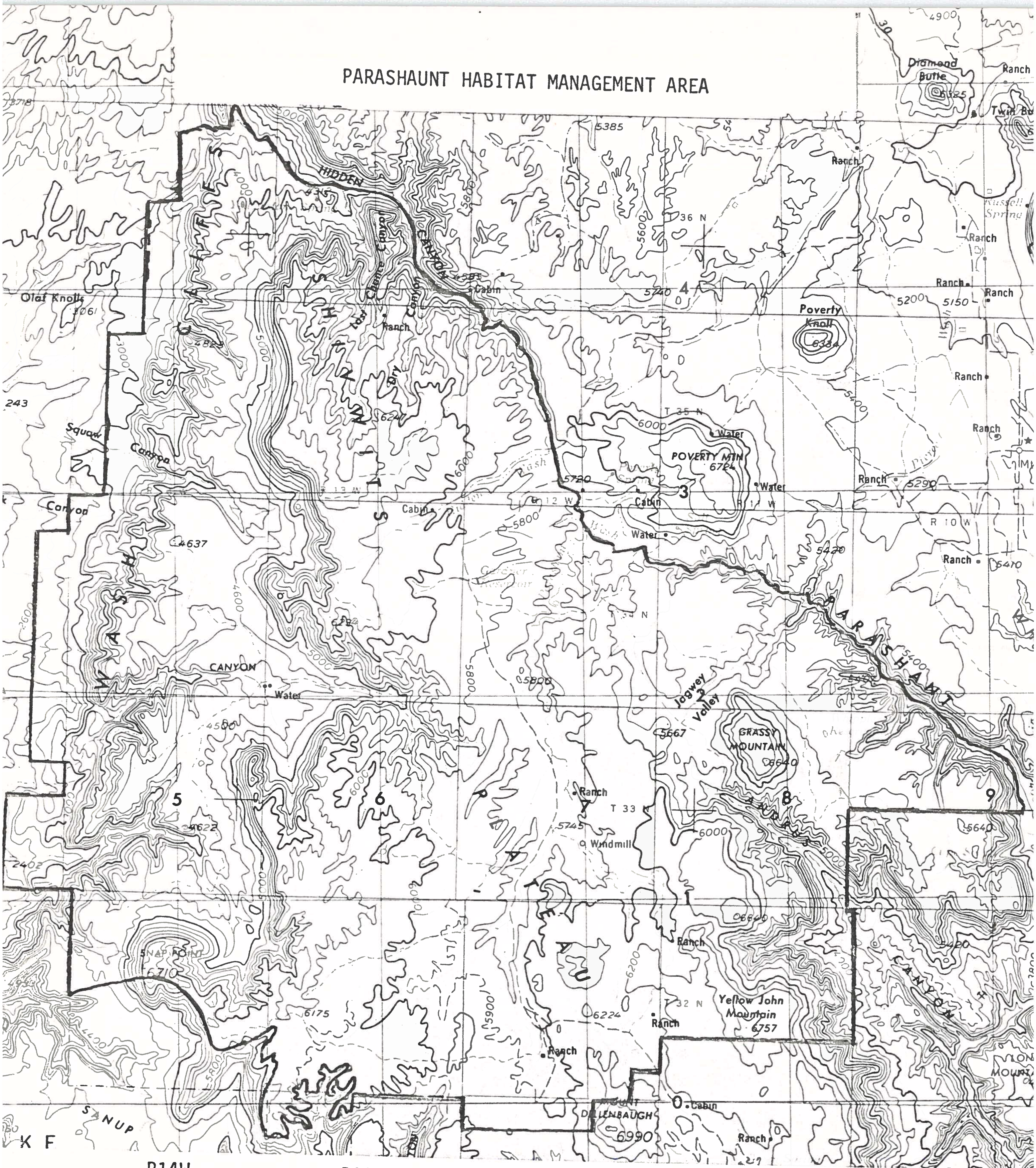
The area encompasses approximately five townships and five ranges of the Gila-Salt River Base Meridian. It is centered in T. 33 N., R. 12 W., and totals 376,760 acres, including state and private land.

The public lands of WHA-T3 are administered by the BLM. Species management is the responsibility of the Arizona Game and Fish Commission and is administered by the Arizona Game and Fish Department (AGFD) Region III in Kingman, Arizona. The area is in game management unit 13B.

C. Justification

The Parashaunt represents a diverse combination of wildlife habitats and their associated species. The quantity and quality of nutrients, water, food, cover, and living space within the ecosystem are in need of improvement and management.

PARASHAUNT HABITAT MANAGEMENT AREA



R14W R13W R12W R11W R10W

To achieve proper ecosystem mixtures, a habitat management plan (HMP) was planned for development. To determine management actions needed to develop an HMP, the following steps were taken:

1. An intensive vegetation inventory of the HMP area was conducted during the 1980/81 field season.
2. Pertinent data were reviewed from AGFD wildlife surveys and harvest records, published literature, and BLM records.
3. A habitat analysis was written, based on all existing data.
4. The habitat analysis was reviewed by BLM at the District and State Office levels and by personnel of the AGFD at the Regional office.
5. From opportunities and recommendations identified in the habitat analysis and guidance and decisions of the Grand Wash Management Framework Plan (MFP), objectives and planned actions were developed.

Public land legislation requires that habitat for wildlife species be conserved and that the recreational, aesthetic, and scientific values of these species be perpetuated for present and future generations.

This HMP has been developed under Sikes Act authority to be implemented and funded from money appropriated under the act. The HMP was cooperatively developed under the Master Cooperative Agreement between the AGFD and the Department of the Interior, BLM which states:

"The Department and Bureau mutually agree:

To cooperate in the identification of the national resource lands having wildlife values, as determined by the Department and the Bureau, and in the formulation and execution of comprehensive plans or programs for the management of wildlife resources on the national resource lands and by revisions as needed to keep such plans or programs current.

To cooperate in the inventory, cooperative research, and management study of wildlife and wildlife habitat relationships on or adjacent to national resource lands, as necessary to ensure the welfare and proper management of the species and its habitat.

To cooperate in the restoration, harvesting, and general management of the wildlife resources of the State of Arizona consistent with the multiple land use program."

The plan calls for the AGFD and BLM to work in harmony for the common purpose of maintaining, improving, and managing the wildlife resources and their habitat for the best interest of the people of Arizona and the United States. It in no way diminishes the authority of the State of Arizona to own, control, and manage the wildlife within the state or the BLM's mandate to manage wildlife habitat on the public lands.

D. Topography

The habitat area varies from steep cliffs of the Upper and Lower Grand Wash Cliffs and Parashaunt Canyon to flat-topped mesas of the Shivwits Plateau and benches of the Lower Grand Wash Cliffs.

The formation of diversified topographic features in the HMP area has resulted from uplifting in fault areas which has also created a wide variety of habitats within a small geographic area.



View of Grand Wash Cliffs and Shivwits Plateau

Other prominent features in the HMP area include: Mt. Dellenbaugh, Snap Point, Grassy Mountain, Yellow John Mountain, and Pigeon, Snap, Parashaunt, and Andrus Canyons.

E. Soils

Soils of the Shivwits Plateau are formed mainly from basalt. Five soil associations occur within the HMP area. See the habitat analysis for a complete discussion of the soils.

F. Climate

Three major air masses, the tropical, Pacific, and the northern jet stream, create a biseasonal climatic pattern. Two major storm

periods occur in the winter (December to March) and summer (July and August). Precipitation during these periods provides most of the annual total. Average annual precipitation varies from 6-15 inches depending on the elevation and year. Refer to the habitat analysis for a detailed discussion.

G. Flora

A vegetative inventory conducted during the 1980/81 field season identified nine vegetative communities within WHA-T3. They are:

1. Ponderosa Pine
2. Pinyon-Juniper Woodland
3. Sagebrush
4. Mountain Brush/Desert Shrub
5. Blackbrush
6. Creosotebush/Bursage
7. Joshuatree Woodland
8. Wet Meadow
9. Seedings



Typical Pinyon-Juniper Woodland

The wide range in elevation, precipitation, soil, and land use accounts for the diversity of plant species.

The Federal Registers of July 1, 1975 and June 16, 1976 list names of plants proposed for classification as endangered or threatened. Eighteen plants within the Grand Wash area were proposed as endangered. Thirty-four plants were proposed as threatened. (See Grand Wash URA Step II).

The total acreage, health, and composition of the vegetation communities is discussed in great detail in the Parashaunt Habitat Analysis.

H. Fauna

Animal species that inhabit WHA-T3 are as diverse as the plant communities in which they live. Two of the big game species in the area are the mule deer (Odocoileus hemionus) and the bighorn sheep (Ovis canadensis nelsoni), neither of which is numerous. Mountain lions (Felis concolor) are believed to be common and may be responsible in combination with other factors for suppressing the other big game species. Potential exists for obtaining desirable balances of all big game species in WHA-T3.



Mule deer inhabit the more desirable sites in the area.

Bird species are abundant constituting the majority of the wildlife species in the area. Reptiles and amphibians are also abundant. The sensitive species desert tortoise (Gopherus agassizii) (State-listed T and E) and Gila monster (Heloderma suspectum) inhabit the area at the lower elevations.

Potential exists for increasing the number of animals in the area as well as the diversity of species through transplants.

Information is lacking on the occurrence of wildlife species by specific habitats and needs to be obtained. The most reliable listing of the animal species, their abundance and the vegetative type in which they occur is found in the Grand Wash URA Step II.

No known federally-listed threatened or endangered animal species exist within WHA-T3. The bald eagle (Haliaeetus leucocephalus) and the peregrine falcon (Falco peregrinus) may inhabit the area during seasonal migrations, but their occurrence is rare.

I. Livestock

Cattle graze within WHA-T3 on all, or portions of 10 grazing allotments. No domestic sheep are currently authorized. Competition for food and water with wildlife is a recognized problem within the HMP area. Multiple use management concepts support the continuation of livestock grazing throughout the area. The Grand Wash MFP identifies the guidance and decisions that permit the continuation of livestock grazing.



Multiple Use Concepts Support Livestock Grazing in the Area

Areas surrounding water sources and drainage bottoms are most heavily grazed. Steep rocky ridges receive little or no grazing. Areas more than 2 miles from waters also are lightly grazed.

Two allotments in the area, Parashaunt and Grassie Mountain, have approved allotment management plans (AMPs) that identify the management goals and methods that will be applied to the allotments. The AMPs restrict grazing intensity to no more than 50 percent utilization of the key forage species. Livestock will be removed or relocated once BLM determines that proper utilization has been achieved.

The eight remaining allotments are also scheduled for AMP implementation. AMPs will be written and approved before 1985.

The following table identifies the current livestock grazing operations in WHA-T3.

Livestock Grazing Operations in WHA-T3

Allotment	AMP Written	Permittee	AUMs	Class of Livestock	Season-of-Use
Grassie Mountain	Yes	Roland Esplin	10,174 (5,519 Suspended)	Cattle	3/1-2/28
Parashaunt	Yes	G & F Ranches	3,178	Cattle	3/1-2/28
Wildcat	1983	J. D. Waring	4,593 (2,090 Suspended)	Cattle	3/1-2/28
Pakoon	No	Roland Esplin G & F Ranches	989 534	Cattle	2/1-6/15
Tassi	1982	Dennis Whitmore	1,188	Cattle	3/1-2/28
Last Chance	1983	LeGrand Brinkerhoff	609 (346 Suspended)	Cattle	3/1-2/28
Link Springs	No	Annabelle Brinkerhoff	1,094 (685 Suspended)	Cattle	3/1-2/28
Hidden Springs	1985	Kay Bundy	1,256 (631 Suspended)	Cattle	3/1-2/28
Penns Well	1982	Afton Snyder	144	Cattle	6/1-11/30
Dripping Spring	1982	Afton Snyder	448 (525 Suspended)	Cattle Horses	12/1-5/31

J. Burros

Burros inhabit the lower benches of the HMP area, especially where the low desert rises from Lake Mead into the Lower Grand Wash Cliffs. Total numbers of burros are not known, but the HMP area possibly supports 20 burros at any given time.

The general health of the population is good. Thirteen foals per 100 adults translate to approximately 26 young/100 adult female burros.

Management of the burros as proposed in the final Tassi-Gold Butte Herd Management Plan, will:

1. Maintain a healthy population of wild free-roaming burros in ecological balance with rangeland resources.
2. Remove excess burros.
3. Plan range improvements and future grazing AMPs in the area to enhance the burro program.
4. Implement studies and perform annual evaluations to monitor attainment of the plan's objectives.

The plan is expected to be implemented in fiscal year 1983.

K. Water

The HMP area has about 40 springs and seeps and no perennial streams, lakes, or rivers. Additional water sources are provided by precipitation that accumulates in rock depressions and stock ponds.

The spring environments are characterized by wet surface areas and the establishment of hydrophilic plants. Spring conditions vary according to their accessibility by cattle and burros.



Typical Canyon-bottom Spring

Some of the springs have been developed and fenced to provide water storage and reduce the deterioration of the natural spring environment. The habitat analysis describes in detail the water situation in WHA-T3.

L. Fences

Fences were not constructed until the early 1900s when homesteads were being taken up. After that time fences were constructed to control livestock. Allotment and pasture boundary fences are still used and maintained to control livestock use. Fences constructed in modern times have been assigned project numbers and can be found in the project files located in the district office. Overall, none of these fences have been identified as being hazardous to the free-roaming nature of mule deer and other wildlife species.

A common livestock practice in the area is for the ranchers to fence springs and water troughs so that these areas can be used as catch pens for cattle. This often precludes the safe access by deer into these waters. The HMP area has 25 of these fenced spring areas.



A common practice is to fence springs and troughs

M. Human Population and Use of the Area

The HMP area has no year-round residents, homesteads, communities, or towns. Seven old range cabins provide living quarters for cowboys and recreationists. Two of the cabins are used regularly and are inhabited about 9 months out of the year. There are no electrical or telephone systems.

The main use of the HMP area is for livestock grazing on the public lands. The area provides the basis for supporting the year-round ranching operations that support a dozen families in Southern Utah.

Recent energy exploration for uranium has resulted in a large influx of approximately 100 people on the southern tip of the Parashaunt. Money generated from these operations support families throughout the country.



Uranium exploration field camp

N. Wilderness and Unique Characteristics

The Parashaunt HMP area encompasses all or part of 13 wilderness study areas (WSAs). Three of these areas, 1-111, 1-109, and 1-105A, were recommended as suitable for wilderness designation in Step 1 MFP but were dropped from the MFP Step 2 recommendation.

The HMP area provides unconfined opportunities for primitive recreation and has splendid scenic views. Man's activity has been slight in the past, leaving few scars on the landscape.

Though all of the wilderness study areas have been recommended as unsuitable for wilderness designation all 13 WSAs will be managed under the Interim Management Policy and Guidelines of December 1979 until Congress makes a final wilderness determination.

O. MFP Decisions

The Grand Wash Management Framework Plan (MFP) provides a long list of recommended actions to be employed within the HMP area. The MFP serves as a decision-making document, and in so doing it modified or rejected several wildlife recommendations. The MFP may be reviewed in the Shivwits Resource Area Office of the Arizona Strip District.

The wildlife recommendations that survived the MFP process are listed below. The recommendations cover a wide variety of wildlife proposals including; wildlife access to water developments, inventories, spring development, transplants, fencing, fence modification, vegetation manipulation, and ORV designations. The recommendations are WL-1.2, 1.3, 2.2, 2.3, 5.1, 6.1, 7.1, 7.3, 7.4, 7.5, 11.3, 11.4, 12.1, 14.3, 14.4, 14.6, 15.1, 15.3, 15.5, 16.1, 18.1, 18.3.

P. Constraints

This HMP has been developed under the HMP Manual 6780 and all applicable guidelines.

Certain constraints serve as guidelines and channel the development of HMP objectives and planned actions. The constraints and the restrictions are as follows:

Wilderness - All actions conducted under the HMP in WSAs will comply with the IMP and will not detract from the wilderness suitability.

Recreation - All actions conducted for wildlife enhancement will be conducted in such a manner to comply with ORV Limited designation for off-road vehicle use. Special permission will be required to provide vehicle access into project development areas. Projects will also be designed and located to meet visual resource management objectives.

Minerals - The Grand Wash MFP is the source of the following range management constraints. Mineral entry and oil and gas exploration will continue to be allowed in the HMP area.

Range - The Grand Wash MFP is the source for range management constraints: increase livestock forage production and later increase livestock grazing management intensity; allocate AUMs of forage to wild burros; increase water distribution and livestock distribution patterns.

Forestry - Thinning and removal of decadent and dead ponderosa pine and the removal of desert vegetation for landscaping will be allowed. However, all thinning and removal will be conducted in compliance with the guidelines listed on page 71 of this HMP.

Coordination during the wildlife project feasibility analysis will be required of all resource disciplines to insure that all wildlife actions are conducted in accordance to the various activity constraints.

II. MANAGEMENT OBJECTIVES

The management objectives of the Parashaunt HMP area have been developed as a result of the URA-MFP planning process and the Parashaunt Habitat Analysis. The Arizona Game and Fish Department also contributed to formulating the management objectives.

MFP recommendations of the Grand Wash MFP were listed under section O. of the Introduction section. The Grand Wash MFP may be reviewed in the Shivwits Resource Area Office of the Arizona Strip District.

HMP objectives are listed under habitat oriented categories that exhibit potential or need for more intensive management. Categories used in the HMP are:

-Water Development

-Modification of Existing Water Developments

-Vegetation Treatments

-Habitat Studies and Monitoring

-Livestock Grazing Management

-Wild Burro Management

-Waterfowl Habitat Development

-Riparian Area Management

-Turkey Habitat Management

-Ecosystem Management in Ponderosa Pine Habitat

-Protective Fencing

-Criteria for Land Use Authorizations

Since an HMP is a joint effort of the BLM and the State species managing agency, some objectives refer strictly to species management. These objectives will be the sole responsibility of the Arizona Game and Fish Department to accomplish. These objectives will be listed under the Species Management category.

The objectives, listed under the habitat oriented categories, are numbered according to the wildlife species for which habitat management is directed. For example, habitat management to benefit mule deer will be identified in the HMP under the letters MD. Habitat management to benefit desert bighorn sheep will be identified by the letters BS. A number which follows the letters identifies the priority along a spectrum of objectives to enhance habitat for a particular species. A low number represents a high priority objective in the HMP for a particular species. Objective letters used in the HMP are as follows:

Mule deer habitat.....MD

Desert bighorn sheep.....BS

Turkey.....T

Furbearers.....F

Kaibab squirrels.....KS

Black bear.....BB

Mountain lion.....ML

Chukar.....C

Waterfowl.....WF

Raptors.....R

Nongame.....NG

Small game.....SG

A background discussion was developed for each objective to briefly explain the existing situation and provide a basis on which to establish the objective.

Certain objectives may enhance habitat for a wide variety of wildlife species but are described for the species most likely to benefit.

Subsequent planned actions needed to achieve the objectives are correspondingly lettered and numbered to the objective they support.

WATER DEVELOPMENT

Water Developments

MD-1a Background: Historically, mule deer were not numerous in the Parashaunt area, but from 1950 to 1970 they were abundant. Since 1970, the deer herd has continually declined for no apparent reason. Water distribution is poor and could be expanded. Water availability and distribution are important to mule deer success, thus enhancement of available water could be one way mule deer populations can be increased. Considering a 1-1/2 mile service area between water sources, opportunity exists for increasing water distribution and availability.

Objective: Insure that adequate water sources are provided year round by 1988 to support a maximum population of 2,200 mule deer throughout the HMP area.

BS-2 Background: A survey of potential bighorn sheep habitat in the Parashaunt area revealed poor water distribution. If provided for bighorn sheep water sources would provide a radius service area of 2.5 miles and should provide at least 3 quarts of water/day/animal.

Objective: Provide adequate water for bighorn sheep yearlong in potential sheep habitat by 1988. By 1984 a cooperative maintenance agreement will be developed and approved to insure equitable involvement in the maintenance of the water projects.

T-1 Background: The AGFD released 17 turkeys in 1964 northeast of Mt. Dellenbaugh.

Over 100 turkeys were seen in the Penn's Well area in the late 1960s. The turkeys did well for about 10 years but then disappeared. Possible reasons for their disappearance include lack of water, lack of winter roost sites, predators, and poor forage conditions. The Parashaunt could support a viable population of turkeys with additional habitat improvements.

Objective: Provide sufficient water sources throughout turkey habitat prior to 1988.

C-2 Background: Lack of sufficient water on the Lower Grand Wash Cliffs will reduce the chances of success of a chukar transplant.

Objective: Ensure that any water development in the lower cliffs is accessible to chukars.

VEGETATION TREATMENTS

Vegetation Treatments

MD-5 Background: The Parashaunt HMP area supports dense stands of pinyon-juniper and sagebrush which provide almost no deer forage in the summer. The potential for treatment and rehabilitation of these areas is good, and if conducted would increase the quantity and improve the quality of mule deer summer range in the HMP area.

Objective: Increase the quantity and improve the quality of mule deer summer range within the HMP area to attain fawn survivals of 50 fawns per 100 does by 1995.

T-3 Background: Since the disappearance of turkeys from the Parashaunt area, several range improvement projects have been completed. These projects provide more water and better forage conditions than existed in the area before the turkeys disappeared. Habitat is now believed to be sufficient to better support turkeys than during the initial transplant period. More improvements would further enhance turkey habitat.

Objective: Improve grass/forb components within turkey habitat areas by 1990.

HABITAT STUDIES AND MONITORING

Habitat Studies and Monitoring

MD-2 Background: The quality of forage in mule deer habitat directly influences the reproductive success of deer. Information is currently limited that defines the forage values of the Parashaunt area. Mule deer diet information is used in connection with forage production values to assess the desirability of habitat for deer. When information exists to rate the value of the forage and to key the diet of deer to specific locations, then a habitat rating system can be developed.

Objective: Establish a habitat rating system that identifies the forage values provided to mule deer in the HMP area by 1988.

MD-3 Background: An accepted procedure in mule deer management is obtaining information on the intensity of deer use of certain areas by conducting pellet plot transects. The information does not reliably show current year population levels, but is a reliable method of monitoring population trend and use of certain areas over a period of years. Currently the HMP area has 320 deer pellet plots, but deer pellet plots are not established over most of the area. More pellet plot transects are needed if unit-wide population and utilization trends are to be established.

Objective: Provide information on an annual basis that is sufficient to identify mule deer population trends, use areas, and mule deer diet information.

MD-8 Background: Efforts to determine the dynamics of mule deer populations and habitat can be conducted in several ways. The diversity of habitat and the large size of the Parashaunt area make difficult the gathering of habitat information over the entire area. The lack of manpower and funding prohibits such efforts. The concept of key areas is a simple solution to obtaining the needed information. To obtain widespread information on deer herd dynamics of the Parashaunt area and to be most cost efficient, key areas need to be identified and monitored.

Objective: Provide a source of information sufficient enough to detect changes in mule deer habitat condition, trend, and utilization in the HMP area by 1988.

BS-3 Background: Desert bighorn sheep are considered a sensitive species. The selection of key areas once sheep are established will allow for the monitoring of habitat condition and trend. Key areas such as lambing areas and concentration areas will be identified to better monitor sheep habitat.

Objective: Once bighorn sheep are established, monitor sheep habitat condition and trend.

BS-12 Background: BLM Policy stipulates that all livestock water facilities on public lands remain on yearlong, where freezing, for instance, does not cause the system to malfunction. All pipelines and troughs associated with springs in Pigeon, Snap, and Hidden Canyons should remain on yearlong where feasible to ensure adequate wildlife water is available.

Objective: Provide water yearlong at all livestock water facilities within bighorn sheep habitat by 1985.

F-1 Background: The following furbearers inhabit the Parashaunt HMP area: bobcat, coyote, gray fox, kit fox, skunk, weasel, ring-tailed cat, and badger. Hunting of furbearers is an important recreation use of the area, providing hunting opportunities in the Parashaunt second only to those for big game. Predators are also believed to influence the reproductive capacity of other wildlife populations. To identify the impacts and values of Parashaunt furbearer populations, additional information should be obtained.

Objective: Gather information by 1990 on occurrence, distribution, and relative abundance of furbearers by habitat type.

R-3 Background: Distribution and relative abundance of woodland hawks and owls is essential knowledge for managing land uses that affect these birds. Some information has been collected on goshawks, but little data exists on other accipiters and owls. Specific accipiter habitat requirements must be known in order to provide for their needs in silvicultural treatments planned for the Parashaunt forest. Periodic surveys should also be conducted for threatened and endangered raptors, especially the peregrine falcon which historically nested within the HMP area. The spotted owl may also inhabit the HMP area.

Objective: Provide an adequate level of information on raptors, especially threatened and endangered species for other resource actions that may potentially degrade existing habitat conditions.

NG-3 Background: An abundance of nongame species inhabit the HMP area. Some of these species have been discussed under previous sections of the HMP. Many other species such as reptiles and amphibians, bats, small mammals and nongame birds have yet to be discussed. The HMP area's nongame species outnumber all other species combined. The habitat analysis provides a list of the nongame species in the HMP area.

The occurrence and abundance of nongame species result from habitat conditions. Good range management practices, including limiting livestock utilization of key forage species to 50 percent, provides adequate feed and cover for most nongame species. The provision and maintenance of water sources as discussed in several of the previous sections (e.g. MD-1, BS-2) is also essential to the health and vigor of nongame populations. The provision of cavities for primary and secondary

cavity nesters and the protection of important roosting sites are habitat requirements of certain nongame species.

General information currently exists on the location and occurrence of most nongame species and their habitat requirements, however, information is not sufficient to assess site specific impacts of all land use activities. Information on the occurrence and habitat of nongame species needs to be continually updated, so that management actions can be applied most effectively in areas identified for needed improvement and/or protection.

Objective: Insure that information on the occurrence and health of nongame species is kept current and is sufficient for assessing impacts of all land use activities.

LIVESTOCK GRAZING MANAGEMENT

Livestock Grazing Management

MD-4 Background: Coordinated approaches to rangeland management provides maximum benefits to most land users. Contrasting uses of the forage resource when conducted in a coordinated manner can become complimentary over the long term. Livestock use of deer habitats is not always detrimental, and often is the key to good forage production when proper distribution and stocking levels are achieved. Only one AMP has been implemented within the HMP area. To ensure that habitat and forage conditions are maintained and improved, intensive grazing management systems need to be developed.

Objective: Support the development and implementation of intensive grazing systems needed to maintain and enhance quality and quantity of rangeland resources.

BS-4 Background: Range conditions within bighorn habitat are fair to good, except in major canyon bottoms. Because of poor livestock distribution on the lower Grand Wash Bench, much of the area is lightly used by livestock. Proper range use by livestock and wild burros is essential especially in the major canyon bottoms, to maintain adequate habitat conditions for bighorns.

Objective: Encourage proper grazing management to meet the habitat needs of 100 bighorn sheep in the Parashaunt HMP area.

BS-6 Background: The construction of new livestock waters in bighorn sheep habitat should be carefully evaluated to prevent potential forage conflicts. Bighorns do not compete well with livestock, and thus, light livestock utilization should be a key habitat management goal. Increased grazing pressure next to good escape cover and sheep concentration areas would also increase the likelihood of disease transmission to bighorns. Construction of livestock water facilities along the upper and lower Grand Wash Cliffs and Andrus and Parashaunt Canyons should be evaluated on a case-by-case basis.

Objective: Encourage only light livestock utilization next to good escape cover and bighorn concentration areas, including lambing grounds.

BS-7 Background: Domestic sheep diseases are thought to have caused major bighorn sheep declines throughout western North America. The following quotation was abstracted from ASO IM No. AZ-79-185, 9/30/80. "Prior to any extensions of present domestic sheep authorizations or issuance of new authorizations, the case should be evaluated on a case-by-case basis after coordination with AGFD's local regional supervisor. AGFD recommends limiting domestic sheep grazing 20 miles from known bighorn sheep ranges."

Objective: Discourage any change in class of livestock to domestic sheep within the Parashaunt HMP area.

R-1 Background: Data from past aerial surveys in the HMP areas have been used to identify important nesting areas. Crucial nesting areas are the Upper Grand Wash Cliffs, Pigeon, Snap, Hidden, Andrus, and Parashaunt Canyons, and Snap Point. Major cliff nesting species include golden eagles, red-tailed hawks, and prairie falcons. The abundance and quality of prey base populations associated with crucial cliff-nesting habitat is a function of range conditions above and below cliff areas. Therefore, to assure adequate production of various species of birds of prey, good range conditions should be the key habitat management goal within one mile above and below cliff and canyon areas. Livestock waters should be placed away from rim and canyon areas, and light-to-moderate utilization should be maintained in these areas.

Objective: Provide for suitable raptor habitat conditions in and next to crucial cliff nesting areas.

NG-1 Background: See NG-3 (page 25).

Objective: Support the development and implementation of intensive grazing management systems needed to maintain and enhance the quality and quantity of nongame habitat.

SG-1 Background: Small game species in the HMP area include Gambel's quail, mourning dove, desert cottontail, and band-tailed pigeon. Spring forage production is important to the success of small-game species because they rely heavily upon the production of adequate food and cover, in close proximity. The abundance of food and cover provided on a

summer-long basis, is responsible for the success of small game populations. Water availability is also important especially during drought and after maturation of the succulent forb species. Free water availability is a critical habitat requirement for mourning doves. Livestock and big game waters are often hazardous or not available to small game.

Objective: Support the development and implementation of intensive grazing management systems to maintain and enhance quality and quantity of small game food and cover.

WATERFOWL HABITAT DEVELOPMENT

Waterfowl Habitat Development

WF-1 Background: All stock reservoirs and erosion control structures in the HMP area were inventoried. Because most of the stock reservoirs are small and greatly fluctuate in water level due to evaporation and livestock water consumption, these habitats cannot be easily managed for waterfowl. The combination of rapid water level fluctuations and livestock grazing pressure on the reservoir itself makes it difficult to establish cover and food plants. Most reservoirs in the HMP area are too small and unreliable to warrant development for waterfowl. Kelly Dam is the only area considered feasible for waterfowl habitat development.

Objective: Provide nesting and feeding habitat areas for migrant waterfowl within the HMP area by 1986.

RIPARIAN AREA MANAGEMENT

Riparian Area Management

R-2 Background: Riparian and semiriparian habitats are extremely scarce in the HMP area. Canyons with springs and good overstory species components, such as Mathis and Schultz Springs are highly productive raptor nesting and feeding areas. These habitats are critical to accipiters and various owls. It is essential that overstory species reproduction is adequate to provide long term conditions required by birds of prey.

Objective: Provide acceptable nesting and feeding habitat conditions for birds of prey in riparian and semi-riparian areas throughout the HMP area.

TURKEY
HABITAT MANAGEMENT

Turkey Habitat Management

T-5 Background: The Arizona Strip District Modified Fire Suppression Plan identifies ponderosa pine stringers as Area VI full suppression areas because of their limited occurrence and high resource value. Wildfires, if not controlled immediately, can possibly eradicate pine stringers. Without fire undergrowth of pinyon, juniper tends to become dense and compete with young ponderosa pine. To perpetuate ponderosa pine stringers the competing understory must be removed or thinned by prescribed burning or hand-thinning.

Objective: Perpetuate the health and abundance of ponderosa pine stringers throughout turkey habitat.

ECOSYSTEM MANAGEMENT IN PONDEROSA PINE HABITAT

Ecosystem Management in Ponderosa Pine Habitat Types

T-4 Background: The Arizona Strip BLM District conducted two timber sales in the Parashaunt in the 1950s, approximately 800 MBF on the East Parashaunt in 1950 and 300 MBF on the West Parashaunt in 1955. The scars from both sales remain, especially on the East Parashaunt where poor logging practices left little to no regeneration. The lack of sufficient pine reproduction of existing stands and the small amount of habitat (1940 AC), required that special management actions be formulated. In October 1981 the District Manager determined that sufficient information on pine regeneration did not exist. He thus decided to establish test plots to evaluate pine reproduction. The decision to harvest timber would be based on study plot findings.

Objective: Ensure the proper management of Ponderosa Pine habitat needed to support turkeys.

KS-2 Background: Kaibab squirrel habitat on the Arizona Strip is limited in proportion to other types of habitat found in the area. The Kaibab squirrel provides a wonderful opportunity for observation by recreationists and is an asset to the wildlife community.

An estimated 821 acres of squirrel habitat is available on the Parashaunt. With such limited habitat suitable for squirrels, proposed timber harvests would have to be carefully evaluated, if squirrel transplants are programmed.

Objective: Ensure all future timber harvest proposals for the Parashaunt forest are analyzed for their compatibility with Kaibab squirrels.

R-4 Background: From the results of the proposed ponderosa pine seedling study for the Parashaunt forest, BLM will determine if a timber harvest is feasible. Due to the limited amount of ponderosa habitat, any timber harvest proposal must be carefully evaluated to prevent a severe reduction or removal of habitat for accipiters and woodland owls from public lands. Silvicultural treatments that lower the basal area below 100 BA/AC will eliminate virtually all goshawk nesting in the harvest area. Only 446 acres of habitat exist on public lands for goshawk nesting. Stand age structure is a parameter of suitable habitat. The density of trees should not fall below 20 trees/acre within the 15" to 25" DBH classes. Likewise 200' buffers should remain around nest trees to ensure their use and prevent abandonment. Proper snag densities are also required to maintain adequate habitat for cavity nesting owls. Ponderosa pine stringers within the HMP area should be protected against wildfire and improved through prescribed burning to promote seedling establishment.

Objective: Ensure that enough habitat is kept to maintain healthy accipiter and woodland owl populations and to ensure that silvicultural treatments are compatible with the ecology of these woodland species.

PROTECTIVE FENCING

Protective Fencing

NG-2 Background: See NG-1.

Objective: Maintain and upgrade spring environments, riparian areas, and all livestock and wildlife watering facilities for the benefit of nongame species.

CRITERIA
FOR
LAND USE AUTHORIZATIONS

Criteria for Land Use Authorizations

MD-6 Background: Mule deer are influenced by the location and intensity of vehicle travel within their use areas but, more specifically, by the activities of occupants of the vehicles. Harrassment, poaching, camping at waters, and destruction of habitat all result from vehicular access into mule deer habitat. Access becomes especially critical on deer winter ranges as the animals become restricted to smaller areas and are subject to physical stress. Other land use activities that result in the construction of trenches, open pits, and physical barriers are also detrimental to deer. The provision of additional vehicle access and the construction of physical barriers are actions that detract from the desirability of mule deer habitat.

Objective: Ensure that all range improvements, developments, and land use activities are compatible and not restrictive or hazardous to mule deer.

MD-9 Background: BLM lands are managed under the multiple use concept, which allows for a variety of land uses in common areas. Without a coordinated approach, and the idea of mule deer cover conditions considered in the approval of land treatments, mule deer habitat may be impacted. To maintain the cover condition requirements of deer, all land use activities need to include adequate consideration of mule deer cover condition requirements.

Objective: Maintain adequate mule deer cover conditions to support 2,200 deer by 1995.

BS-8 Background: Access to bighorn sheep habitat has mainly resulted from mining and livestock operations. Only 3 mines lie within bighorn sheep habitat, and none are operating. Increased road construction for mining or ranching would decrease the suitability of this area for bighorns. Human-sheep encounters would increase, as would potential poaching problems. Any new road construction should be carefully evaluated on a case-by-case basis.

Objective: Discourage the creation of new vehicular access in bighorn sheep habitat.

BS-9 Background: Off-road vehicles (ORV) are restricted to existing roads and trails throughout the resource area. This MFP Decision will benefit bighorn sheep habitat and should remain in effect.

Objective: Support existing resource area ORV designations.

NG-4 Background: As discussed in NG-1, certain nongame species are closely associated with specific habitats. Habitat requirements are a combination of several elements and often are limited in their size or occurrence. For this reason, in order to perpetuate a certain nongame species all habitat elements within its micro-environment need to be protected.

Objective: Ensure that all the components needed to sustain certain populations of nongame species are conserved.

NG-5 Background: See NG-4.

Objective: Ensure that all land treatment projects and activity plans include stipulations for the maintenance and improvement of nongame populations.

SPECIES MANAGEMENT

Species Management

MD-7 Background: An accepted management practice is to assess mule deer population trends by conducting pre and post hunt classifications, sex ratio, and fawn survival studies. Data have been gathered over the years to provide this information for the Parashaunt HMP area, but more intensive and widespread data will be needed in the future to more accurately monitor the trend in mule deer populations and to establish harvest quotas and hunter numbers.

Objective: Provide information on an annual basis that identifies trends, sex ratios, and fawn survival to be used to establish harvest quotas and hunter numbers.

BS-1 Background: Periodic bighorn sheep sightings have been reported from 1930 to the present. Most of these recent sightings have been south of Savanic Mine and represent a small transient population (20 animals) that moves between BLM and National Park Service (NPS) administered lands. The majority of sheep reside on Park Service lands. According to sheep ranchers bighorns were detected as far north as Hidden Canyon in the early 1930s. The reason for the disappearance of desert bighorn sheep from the majority of the Grand Wash Cliff area can only be speculated. However, as with many other bighorn sheep ranges the disappearance of bighorns coincided with appearance of domestic sheep. Competition between bighorn sheep and domestic sheep for forage, removal

of water from spring sources, and disease vectors are suspected to have led to the extirpation of bighorns, especially in the northern portions of the Grand Wash Cliffs. Domestic sheep grazing in the area ended in 1974. Bighorn sheep habitat was analyzed in the habitat analysis and suitable habitat was found to exist for bighorns.

Objective: Reintroduce desert bighorn sheep in the Grand Wash Cliff area by 1985.

BS-13 Background: Once sheep are established in the HMP area, some degrees of monitoring will be needed. Population numbers, health, movement, lambing areas, and concentration areas must be determined to provide needed data for other land use activity proposals in the HMP area.

Objective: Determine important sheep use areas, population numbers, health, and movement once bighorns are established in the HMP area.

T-2 Background: See T-1 (page 20).

Objective: Establish viable populations of turkey in suitable areas within the Parashaunt HMP area by 1990.

F-2 Background: See F-1 (page 24).

Objective: Obtain information on the magnitude and economic importance of furbearer species by 1990.

KS-1 Background: Kaibab squirrels were introduced into the Mt. Trumbull/Logan area in the spring of 1972. Over a 5-year period 21 squirrels were transplanted, and a viable and stable population now exists in the area. The habitat analysis compared structural characteristics of Mt. Trumbull/Logan and the Parashaunt forests. Food, cover, and nest site requirements were considered in the habitat analysis. It was determined the Parashaunt forest could support a viable population of squirrels. Since no tree squirrels inhabit the HMP area, the introduction of Kaibab's should not displace native wildlife.

Objective: Establish a population of Kaibab squirrels in the Parashaunt forest by 1985.

BB-1 Background: In recent years, isolated occurrences of black bears have been documented in the HMP area. The historical occurrence of the bear in the HMP area is not known, but potential exists for the occurrence of the bear in the Parashaunt area. The value of the area for bears needs to be established.

Objective: Identify the suitability and use of the habitat area by black bear.

ML-1 Background: Information is lacking about the occurrence and significance of mountain lions in the HMP area.

Objective: Determine population densities and distribution of mountain lion within the HMP area and assess the lion's impact on other big-game species.

C-1 Background: Chukars were released in the Hacks Canyon area of the Arizona Strip from 1930 through 1950. Today a viable population exists in the Hacks Canyon and Heaton Knoll areas. The success of these releases prompted the AGFD to investigate additional areas on the Strip for future chukar releases. The Lower Grand Wash Cliffs have been identified as chukar habitat. The Black Rock HMP has also identified the Tweedie Points area as a future release site. The proximity of the two areas increases the potential for chukar reestablishment.

Objective: Establish a viable population of chukars in the Lower Grand Wash Cliffs.

MODIFICATION OF EXISTING WATER DEVELOPMENTS

Modification of Existing Water Developments

MD-1b Background: See MD-1a under Water Development objective section.

Objective: Ensure that adequate water sources are provided year round by 1988 to support a maximum population of 2,200 mule deer throughout the HMP area.

BS-10 Background: BLM Policy requires that all livestock water facilities on public lands be accessible to wildlife including projects under Section 4 permits and cooperative agreements. During the habitat field survey most reliable livestock water projects inspected will require modification to provide bighorn access.

Objective: Provide suitable bighorn sheep access to all existing and proposed livestock water facilities by 1985.

BS-11 Background: Most developed springs in Hidden, Pigeon, and Snap Canyons provide limited water at spring sources. Removal of water from spring sources, which are usually associated with good escape cover is suspected to have contributed to bighorn sheep declines in this area. Wildlife water should be provided at these springs.

Objective: Provide wildlife water at all spring sources on public lands in bighorn sheep habitat by 1986.

F-3 Background: During summer as water levels decrease in stock watering facilities predators have less access to water. The ability of some furbearers to jump great heights allows them access into deep above-ground tanks but the water precludes their escape. Better access to water sources needs to be provided to furbearer species.

Objective: Ensure proper and safe furbearer access to water developments year-round in the HMP area.

SG-2 Background: See SG-1.

Objective: Ensure the availability and safe use of water at springs and water troughs, especially at Snap Spring, Link Spring, Pigeon Spring (Lower), and Hidden Spring (Lower).

MD-1c Background: See MD-1a under Water Development objective section.

Objective: Support objective MD-1a.

WILD BURRO MANAGEMENT

Wild Burro Management

BS-5 Background: Wild burro use overlaps a small portion of bighorn sheep habitat. Burro use in lower Pigeon and Snap Canyons was detected during field surveys. Burro use and distribution should be monitored closely to prevent deterioration of range resources and competition with bighorn sheep.

Objective: Ensure habitat conditions remain acceptable where wild burro and bighorn sheep ranges overlap.

WATER DEVELOPMENT

III. PLANNED ACTIONS

Water Developments

MD-1a Improve water distribution in the HMP area for mule deer before 1988 to enable the establishment and support of 2,200 deer.

Water catchments will be constructed in accordance with the schedule on the following list:

Catchment Location Implementation Schedule

Year	Priority	Catchment Name	Location
1	1	Foremaster	T35N, R13W, Sec. 6, NW,NE1/4
	2	Ft. Garrett	T32N, R14W, Sec. 15, NE,SW1/4
	3	Mt. Dellenbaugh	T32N, R12W, Sec. 34, SE1/4
	4	Yellow John	T32N, R11W, Sec. 22, SE,SE1/4
	5	Mociac	T32N, R13W, Sec. 8, SW,NW1/4
	6	Kelly Dam	T33N, R13W, Sec. 29, SE,SW1/4
2	7	Pine Well	T32N, R11W, Sec. 20, Center
	8	Twin Point	T31N, R12W, Sec. 6, SW1/4
	9	Sanup	T32N, R14W, Sec. 25, SE,NW1/4
	10	Tincanebitts Can.	T32N, R13W, Sec. 34, SE,SE1/4
	11	Snap Rim	T32N, R12W, Sec. 32, NE,NE1/4
	12	Gardner	T32N, R12W, Sec. 23, SE1/4
3	13	Castle Peak	T32N, R12W, Sec. 4, SE1/4
	14	Dansil Canyon	T32N, R11W, Sec. 5, SW1/4
	15	Upper Pigeon	T33N, R13W, Sec. 13, NW1/4
	16	Grassy Point	T33N, R10W, Sec. 9, SW,NE1/4
	17	Andrus Canyon	T33N, R11W, Sec. 28, SE1/4
	18	Dry Canyon	T35N, R13W, Sec. 14, NW,NW1/4
4	19	Hidden Canyon	T35N, R12W, Sec. 18, NW,NE1/4
	20	Grassy Mountain	T33N, R11W, Sec. 10, NW1/4
	21	Tincanebitts Pt.	T33N, R14W, Sec. 23, NW,NE1/4
	22	Pigeon Canyon	T33N, R13W, Sec. 16, SW,NW1/4
	23	Gardner Canyon	T33N, R13W, Sec. 26, SW,SW1/4
5	24	Snap Draw	T32N, R13W, Sec. 10, NW,SE1/4
	25	Oak Grove	T32N, R12W, Sec. 18, Center
	26	Salt House	T32N, R13W, Sec. 21, SE,SW1/4
	27	Parashaunt	T33N, R12W, Sec. 14, Center
	28	Lower North Tank	T34N, R13W, Sec. 1, SE,NE1/4
	29	Empey	T35N, R12W, Sec. 29, NE,NE1/4
6	30	Wildcat	T34N, R12W, Sec. 35, NW,SW1/4
	31	Red Pond	T34N, R11W, Sec. 20, SW,NW1/4
	32	Agway Wash	T34N, R11W, Sec. 27, NE,NE1/4
	33	Agway Valley	T34N, R12W, Sec. 14, NW,SE1/4
	34	Parashaunt Wash	T34N, R12W, Sec. 9, NW1/4
	35	Overnight	T34N, R12W, Sec. 19, SE,NW1/4
	36	Hidden Hills	

BS-2 Construct eight bighorn sheep waters by 1988 in the various locations listed below. Develop waters without creating vehicular access, and where feasible locate waters so they are not accessible to livestock and burros. Fencing may be required in some cases to insure inaccessibility to livestock and burros. The Squaw Canyon and Grand Gulch Catchments should be constructed before the release of sheep.

Year	Priority	Name	Location	Remarks
1	1	Squaw Canyon Catchment	T35N, R14W, Sec. 28	Locate close to good escape cover.
	2	Grand Gulch Catchment	T34N, R14W, Sec. 17	" " "
	3	Pick Spring Development	T33N, R14W, Sec. 4	Develop with storage.
2	4	Olaf Knolls Catchment	T35N, R14W, Sec. 3	Locate close to escape cover.
	5	Cunningham Can. Catchment	T33N, R14W, Sec. 30	" " "
	6	Ferguson Pockets Catch.	T36N, R14W, Sec. 14	" " "
3	7	Mustang Point Catchment	T33N, R14W, Sec. 23	" " "
	8	Grand Gulch Bench Water Development	T34N, R14W, Sec. 35	Pipe off from Pigeon Water Tank to a ground-level drinker. Place close to escape cover.

Once the catchments have been constructed, and in future years when the need for maintenance of the projects becomes greater, maintenance responsibilities will present a significant financial obligation. By 1984 a maintenance agreement between BLM and AGFD will be developed, specifically defining the maintenance obligations of each agency. The agreement will provide for an equitable ratio of responsibilities

including financial obligations. The agreement will appear as a supplement to the cost and implementation schedule of the HMP. Signatures of both agencies will be required on the agreement which will supercede all discussion and implication of maintenance needs addressed in the HMP as it was originally approved.

T-1 Construction of water catchments in turkey habitat as a result of planned action MD-1 and ensuring that existing waters on public lands are accessible to turkey would provide for adequate water distribution. The catchments identified for construction that would best enhance turkeys are:

1. Kelly Catchment
2. Mociac
3. Oak Grove
4. Castle Peak
5. Mt. Dellenbaugh
6. Pine Well

A ground level drinker installed and fenced at the existing Burnt Canyon Catchment would provide water in the Mt. Dellenbaugh area.

C-2 Water developments already proposed for bighorn sheep will supply sufficient water for chukar. At least two catchments should be developed before the release.

VEGETATION TREATMENTS

Vegetation Treatments

MD-5 To improve the quality and increase the quantity of mule deer summer range within the HMP area will require completing several land treatments in pinyon-juniper and sagebrush communities. Allotment management plans also propose large areas of land treatment. These treatment areas could be coordinated to include and support this objective. The treatment areas, methods of treatment, and extent of the areas are:

Management Unit	Service Area	No.	Est. Acres	Type and Method of Treatment
Hidden Hills	Foremaster	FM-1	25	Burn side canyon
		FM-2	35	with good understory
	Upper Last Chance	ULC-1	35	" "
	Spring	ULC-2	25	" "
	Rattlesnake Spring	RS-1	20	" "
		RS-2	25	" "
		RS-3	32	" "
	Dry Canyon	DC-1	30	" "
		DC-2	40	" "
	Last Chance	LC-1	25	
		LC-2	23	
		LC-3	45	
		LC-4	28	
		LC-5	30	
	North Tank #2	NT-1	32	
		NT-2	28	
	North Tank #1	NT-1	26	
		NT-2	20	
	Hidden Canyon	----	--	Program at later date when deer numbers warrant treatment
	Empey	----	--	
	Lower North Tank	----	--	
	Hidden Lake	HL-1	50	Herbicide or chain*
		HL-2	45	" "

*Herbicide application proposals will be reviewed by AGFD prior to implementation.

Management Unit	Service Area	No.	Est. Acres	Type and Method of Treatment
	Coyote Spring	----	--	Program at later date
	Pigeon Tank	----	--	" "
Snap Point	Upper Pigeon	----	--	Program at later date
	Upper Pigeon Spring	----	--	" "
	Pigeon Canyon	----	--	" "
	Gardner	G-1	35	Burn or chain
Snap Point	Gardner Canyon	GC-1	26	Chain or herbicide, then plow
		GC-2	40	
		GC-3	20	
	Snap Draw	SD-1	30	" "
		SD-2	35	" "
	Salt House	SH-1	28	" "
		SH-2	20	" "
		SH-3	15	" "
	Snap Rim	SR-1	25	Burn
		SR-2	55	"
		SR-3	50	"
		SR-4	58	"
		SR-5	60	"
	Sanup	S-1	20	"
		S-2	23	"
		S-3	30	"
	Snap Spring	SS-1	40	"
		SS-2	42	"
	Ft. Garret	----	--	Program at later date
	Tincanebitts Spring	----	--	" "
	Tincanebitts	----	--	Sufficient treatment nearby
Mt. Dellenbaugh	Mociac	----	--	" "

Management Unit	Service Area	No.	Est. Acres	Type and Method of Treatment
	Oak Grove	----	--	" "
	Dellenbaugh	----	--	" "
	Twin Point	----	--	" "
	Castle Peak	CP-1 CP-2	50 43	Chain were soils permit
	Govt. Well	GW-1 GW-2 GW-3	25 25 25	Plow and seed " "

The order of accomplishment of the actions will depend on weather conditions, methods, and funding. All work will be completed before 1995. Seed mixtures for the treated areas, if required, will be according to those identified for specific vegetal types in the publication; Restoring Big Game Range in Utah, 1968 (Plummer, 1968).

T-3 Adequate grass/forb component will be provided within turkey habitat areas. This will be accomplished by treating selected areas. They are: K.D. 1,2,3 (already identified in MD-1) and are high priority turkey habitat improvements.

Insuring that important turkey forage species are included during seed mixture preparation for livestock/wildlife treatment areas within turkey habitat will also increase the grass/forb component. Some of the seed that will be included in the mixtures are:

1. Sand Dropseed (Sporobolous cryp.) - 1 lbs./acre
2. Blue Gramagrass (B. gracilis) - 1/2 lbs./acre
3. Fescue (Festuca arizonica) - 1 lbs./acre
4. Golden eye (Viguiera multiflora) - 1/2 lbs./acre
5. Ragweed (Ambrosia artem.) - 1 lbs./acre

Close coordination with the range conservationists in developing and implementing grazing systems will ensure that acceptable range conditions are provided for turkey, especially close to turkey roost and watering sites.

HABITAT STUDIES AND MONITORING

Habitat Studies and Monitoring

MD-2 A habitat rating system that identifies the forage values provided to mule deer in the HMP area will be developed by 1988. To develop such a system, information will be collected. Data collection will involve the following:

A. Determining mule deer diets at various elevations, cover sites, and seasons. Systematically collecting fecal samples at established collection sites will be continued.

B. Determining the percent crude protein, phosphorous, calcium, acid detergent fiber in-vitro digestibility, and other applicable parameters of key mule deer forage species. Sampling seasonally from various soil types and elevations by clipping key forage species.

Once sufficient information exists, the habitat rating system will be completed for the HMP area.

MD-3 Enough information to identify mule deer population trends, use areas, and diets will be provided annually by continuing to monitor the 320 pellet plots already established and by creating and monitoring sufficient plots in existing and proposed key areas. The existing and new plots will continue to be established and monitored as a cooperative effort of AGFD and BLM.

At a minimum, pellet plots will be established in

1. Rattlesnake Canyon Key Area #1 and #2.
2. Last Chance Canyon Key Area #3.
3. Dry Canyon Key Area #1 and #2.

MD-8 A source of information to detect changes in mule deer habitat condition, trend, and utilization will be developed by identifying key areas in all the management units. Key areas will be established in summer and winter range habitats in each management unit. Enough key areas will be established to detect the changes. Key areas will be established by 1988.

BS-3 After establishing bighorn sheep, identify key areas to monitor wildlife habitat condition and trend. Key areas would be lambing areas and concentration areas in which diet information and overall habitat studies would be initiated.

BS-12 Monitor livestock water facilities in Hidden, Pigeon, and Snap Canyons to ensure water exists yearlong for bighorn sheep.

F-1 Information will be gathered on the occurrence, distribution, and relative abundance of furbearers according to the habitat types by 1990. This information will be obtained by:

a. Documenting furbearer sightings.

b. Establishing and monitoring scent post transects as necessary and feasible.

c. Annually gathering and analyzing furbearer harvest data and the FWS predator control information.

The efforts to achieve this planned action will be a cooperative effort of the FWS, AGFD, and BLM.

R-3 Continue to monitor and collect site-specific habitat data for various species of raptors through the following actions:

a. Continue to monitor important existing nest areas, and through periodic aerial and ground surveys, identify additional nesting habitat.

b. Survey ponderosa pine habitat to determine the distribution and habitat requirements of goshawks, Cooper's hawks, sharp-shinned hawks, and flammulated and spotted owls.

c. Record all sightings of threatened, endangered, and sensitive species of raptors and investigate any potential nesting areas. If peregrine falcons occur in the area, they will be managed in accordance with the peregrine falcon recovery plan.

NG-3 To keep current on nongame species occurrence and specific areas of use, wildlife observations will continue to be used. As a supportive action, BLM will encourage and support species occurrence, distribution, and basic habitat requirements studies. The information obtained can then be used to aid BLM in managing specific areas. Issue oriented, site specific data gaps will be filled as necessary and as funding allows, especially when the habitat of the desert tortoise and Gila monster is involved.

BLM Manual 6602 will serve as a guide in classifying habitats and determining habitat requirements, species occurrence, and distribution of nongame animals.

LIVESTOCK GRAZING MANAGEMENT

Livestock Grazing Management

MD-4 To accomplish the objective of improving current range conditions, it will be necessary that wildlife input is an integral part of the development and/or implementation of allotment management plans. The following allotments are most critical:

1. Grassie Mountain.
2. Wildcat.

At a minimum, the following areas must be improved through intensive grazing management.

1. Pigeon Canyon.
2. Hidden Canyon.
3. Hidden Rim (Grassie Mountain Allotment).
4. Grassie Mountain Area and vicinity.
5. Parashaunt Canyon (breaks on west side and bottom).
6. Andrus Canyon (bottom).

These AMPs will be developed with wildlife consideration to allow the improvement of desirable deer forage species and the overall vegetation composition.

BS-4 Encourage the implementation of livestock grazing systems and forage utilization compatible with bighorn sheep habitat needs. Implementing the Grassie Mountain and Wildcat AMPs would improve current habitat conditions.

BS-6 Limit the construction of additional livestock waters in bighorn sheep habitat that would cause moderate to heavy utilization next to good escape cover and sheep concentration areas, including lambing grounds. Construction would be evaluated on a case-by-case basis and primarily refers to proposed projects along the Upper and Lower Grand Wash Cliffs. AGFD recommends that livestock waters not be constructed within 2.25 miles of good escape cover and sheep concentration areas.

BS-7 Ensure that domestic sheep are not authorized in bighorn sheep habitat before coordination with AGFD as outlined in ASO IM No. AZ-79-185, 1/30/80.

R-1 Encourage good range conditions through intensive grazing management systems, and light-to-moderate utilization one mile above and below crucial cliff nesting areas in Pigeon, Hidden, Snap, Andrus, and Parashaunt Canyons, the upper Grand Wash Cliffs, and Snap Point. Light-to-moderate utilization along rim areas would be accomplished by adjusting proposed livestock water facilities.

NG-1 In order to accomplish the objective to improve current range conditions and thus enhance the quality and quantity of nongame habitat, it will be necessary that wildlife habitat is an integral consideration in the development of allotment management plans. In as much as the desert tortoise and the gila monster are sensitive species, the areas

inhabited by them will rate as high priority for development of AMPs. Areas suspected to support the desert shrew and the desert kangaroo rat will also be high priority.

Because of the limited size and occurrence of wash bottoms and riparian areas that support the greatest diversity of nongame species, special emphasis must be included in the AMPs to insure livestock utilization is compatible with the habitat requirements of various nongame. If grazing seasons or systems are detrimental to isolated habitats, fencing may be required to remedy the problem as a last resort. Areas of greatest concern are Pigeon (upper and lower), Lower Snap, Hidden, Foremaster, Parashaunt, and Andrus Canyons, Grassy Mountain and West Breaks. Maintaining utilization of 40-60 percent and deferring grazing until after seed ripening and nesting is one alternative that should be considered. Short duration high-intensity grazing should be discouraged, especially in spring and summer.

SG-1 a. Herbaceous vegetation (food) and shrub species (cover) in the HMP area, especially in Hidden, Pigeon, Andrus, Parashaunt, and Grassy Mountain Canyons will be improved with the developement and implementation of intensive grazing management systems. Restricting utilization of forage species to 50 percent will ensure that adequate food and cover remain to support small game species.

b. Seeding mixtures for rehabilitating land treatment projects will include plants preferred by Gambel's quail and desert cottontail--primarily forbs.

c. At the completion of vegetation manipulation projects adequate cover will be left to support small game. These will be brush piles and/or felled trees evenly distributed over the treatment areas.

WATERFOWL HABITAT DEVELOPMENT

Waterfowl Habitat Development

WF-1 Develop Kelly Dam as a waterfowl habitat area by 1986.

a. Reconstruct the present dam to include a bentonite core and an adequate drain and overflow system. Bentonite the area from the toe of the dam outward.

b. Plow and seed 15 acres around the dam site with plants that will benefit both waterfowl and big game.

c. Fence seeded areas to aid establishment of seeded species.

Project feasibility will be conducted prior to any construction work. As a result of the feasibility, changes may have to be made in overall objective.

RIPARIAN AREA MANAGEMENT

Riparian Area Management

R-2 Continue to monitor riparian and semiriparian habitats and upgrade the habitat condition of areas in which resource deterioration is occurring by 1986. Canyon and spring areas with good overstory components must be monitored to ensure that adequate reproduction and habitat conditions are maintained, or take actions to correct resource conflicts.

TURKEY

HABITAT MANAGEMENT

Turkey Habitat Management

T-5 To perpetuate pine stringer stands and allow turkeys to continue to benefit from them, the following actions will be taken:

a. Pine stringers will be protected by banning timber harvests within isolated pine stringers.

b. The Class VI designation will continue and wildfires will continue to be suppressed immediately.

c. Implementing prescribed burning or hand thinning projects in pine stringer areas, as the need is identified, will ensure that pine stringers are perpetuated.

d. BLM will investigate the possibility of acquiring portions or all of the ponderosa pine habitat in Sections 20 E1/2, 29, 31, and 33, T. 32 N., R. 12 W.

ECOSYSTEM MANAGEMENT IN PONDEROSA PINE HABITAT

Ecosystem Management in Ponderosa Pine Habitat Types

T-4 Ponderosa pine habitat will be managed to ensure that turkey roost tree stands are not jeopardized as a result of timber harvesting. Before any timber harvest authorizations, specific roost sites and nest site recommendations and actions will be subject to the following stipulations:

a. Roost trees with DBH of 25 inches or greater and average height of 80.2 feet will not be removed, especially on sloping ground.

b. Roost tree groups will involve at least 13 trees per group.

c. Roost sites will not be thinned below 80 square feet/acre basal area.

d. Nest sites (brush piles) will be left at distances within 1/2 mile of water.

e. Areas will not be logged between May 1 and June 30 of each year because of nesting activities and the physical condition of the trees.

KS-2 To insure timber harvest proposals are compatible with Kaibab squirrel requirements:

a. Maintain 50 percent of the habitat or 360 acres at greater than 75 BA/AC, this will require at least 123 acres (nesting habitat) remain above 100 BA/AC, and at least 238 AC are maintained above 75 BA/AC.

b. Maintain a 75-100 foot buffer around squirrel nest trees and retain all trees with interlocking crowns around the nest tree.

c. Detain all feed trees with 10 or more clippings.

R-4 The following planned actions are required to maintain sufficient habitat quality and quantity for accipiters and woodland owls:

a. Maintain existing accipiter nesting densities, especially in relation to goshawks on the Parashaunt-Mt. Dellenbaugh forests (public lands). This would be accomplished by maintaining 246 acres of > 100 square feet Ba/Ac for goshawks and retaining existing stands > 50 square feet Ba/Ac until proposed study plots indicate adequate natural regeneration is assured (PTMP).

b. If a limited timber harvest is found feasible, apply the following:

(1) Maintain 246 acres of 100 square feet Ba/Ac and maintain 200 more ac of > 75 square feet Ba/Ac at all times to ensure adequate nesting densities.

(2) Density of trees should not fall below 20 trees/acre within the 15-25 inch DBH class.

(3) Keep at least 200 foot buffers around nest trees.

c. Maintain adequate snag densities, 3 per acre and an additional 3 per acre with snag potential to ensure adequate nest cavities for pygmy, flammulated and saw-whet owls. See nongame bird section for snag stipulations.

d. Ensure that broad-leaved trees, such as Gambel oak and locust, are not removed during silvicultural operations.

e. Maintain and improve existing ponderosa pine stringers in the HMP area through a prescribed burning program to promote seedling establishment.

PROTECTIVE FENCING

Protective Fencing

NG-2 Planned actions identified in MD-1, BS-10, and BS-11 provide for the improved management of wildlife waters. Because the vegetation associated with live water sources is an important component of certain nongame habitat, spring environments and certain riparian areas must be protected from livestock grazing. Fencing will be required in areas that have failed to respond to livestock management practices. The availability and safe use of watering facilities by nongame species will be enhanced by implementing planned actions MD-1 and SG-2. Should more watering facilities be identified to be hazardous to nongame species they will be modified.

Because of its unique values to nongame wildlife, Log Spring should be managed under multiple use. Currently in private ownership, this area must be acquired by BLM or through the Nature Conservancy to ensure the continued maintenance of optimum habitat conditions.

CRITERIA
FOR
LAND USE AUTHORIZATIONS

Criteria for Land Use Authorizations

MD-6 Proposed actions for various land use activities will be evaluated on a case-by-case basis. The BLM wildlife biologist and the AGFD will contribute to the analysis of the anticipated impacts of a certain project and needed mitigating measures.

MD-9 At least 66 percent of the HMP area will be maintained in acceptable cover condition. The four units and specific cover requirements of each unit are as follows:

Management Unit	Available Cover (Ac)	Minimum Cover Required (Ac)	Available For Treatment (Ac)
Mt. Dellenbaugh	44,773	37,588	7,185
Hidden Hills	56,634	37,378	8,416
Grassy Mountain	37,395	24,680	5,129
Snap Point	48,302	36,611	8,573
TOTALS	187,104	136,257	29,303

In addition to cover requirements for each unit, specific criteria will be considered during the feasibility and design phases of land treatment projects to ensure adequate cover is provided. The criteria not considering multiple use objectives are listed below. The criteria are to be used as a guideline from which final designs will be developed.

1. Pinyon-juniper control projects should be confined to extensive, dense stands more than 1/2 mile wide and exhibiting:

-average crown cover exceeding 20 percent;

-overall densities greater than 75 trees per acre; and

-widespread scarcity of all forage species, including herbaceous and shrubby.

2. Cleared areas should be no wider than 660 feet.

3. Clearings need not be of equal length and width but should not be excessively long.

4. Clearings should have irregular boundaries.

5. Cleared areas in the aggregate, should cover less than 1/3 of the project area (no more than 213 acres per section should be cleared.)

6. Control strips or patches (leave areas) should be at least 100 feet wide.

7. Leave areas should be at least as wide as control areas.

8. Roadways should be bordered by leave areas.

9. Leave areas should occur within a 1/4 mile radius around recreational developments.

10. Riparian vegetation must remain undisturbed.

11. Ponderosa pine stringers must remain undisturbed.

12. Pushing (bulldozing) is preferrable to chaining where mature cliff-rose plants occur.

13. Most of the dead tree debris should be left scattered and intact. Disposal serves little or no useful purpose for most wildlife species and may even be detrimental. As an alternative, debris could also be piled in openings and left in place. To reduce fire hazard, burning may be necessary.

BS-8 Continue to monitor all mineral and oil and gas exploration and production activities. Discourage any significant habitat deterioration and new road construction. The BLM wildlife biologist and the AGFD will analyze specific impacts and propose mitigating measures.

BS-9 Closely monitor and enforce ORV use in bighorn sheep habitat.

NG-4 Certain habitat components are necessary to the life requirements of some nongame species. Caves are essential to bats for rearing their young and as a place for hibernating in winter. Suitable roosting sites, such as caves, crevices, trees, old buildings, and areas of rugged terrain, may also be valuable to meet the physiological requirements of bats. Cavity nesting birds require specific habitats that must be maintained in suitable condition.

This HMP is not intended to construct or provide for additional habitat components as those described but to insure that naturally existing habitats are maintained and protected. As a result of this planned action, such protection and maintenance will require before any land use authorization, information sufficient to determine that nongame wildlife values in the area are protected. Site specific field investigations will be held to assess the nongame wildlife values. The findings will be included as a component of the environmental analysis. Non-game impacts will be projected and mitigating measures devised from the analysis of site-specific wildlife data.

NG-5 If certain land use activities, especially land treatments are deemed necessary and allowable, nongame requirements will be included in the design and mitigation of the projects.

In designating areas for either personal use or contract woodcutting, the following guidelines will be followed to insure the habitat

in the Parashaunt and Mt. Dellenbaugh forests remains in suitable condition for the primary and secondary cavity nesters.

- Diameter of snag should be greater than 13 inches.
- Total height of snag should be greater than 20 feet.
- Percent bark cover should be greater than 40 percent.
- Snags with broken tops should be used if they fit the above criteria.
- Ponderosa snags in the most frequently used age range of 5-29 years should be saved.
- Largest snags should be saved.
- All oaks (Gambel) and locust trees must be left uncut.
- Secondary cavity nesters such as white-breasted nuthatch utilize the dead strips from lightning strikes. Since such trees are usually poor quality timber trees, they should be saved for immediate use by the birds and as a means of producing future snags.
- Hard snags could be removed in preference to soft snags, if necessary. If possible, however, hard snags should be saved as territory and perching posts.
- Live ponderosa pines with dead tops should be left for nest and roost sites and for future snag replacement.
- The density of snags in reference to woodpecker populations should be determined through the use of the identified function, based on District breeding bird data, silvicultural systems and rotations, and actual stand characteristics. The SCN snag rate should be based on Balda's 1975 figure 6.5 snags/Ha or on District breeding bird data.
- The irregular shelterwood (Hawley and Smith 1954) to allow a limited harvest should be the only silvicultural system used in the Parashaunt

once it is determined if this area can be properly managed through the use of silvicultural treatments.

Other vegetation manipulation projects besides woodcutting practices, will include the spacial and cover design requirements, especially in pinyon-juniper communities. These requirements have been addressed in the MD-9 section of this HMP. Nongame will benefit from vegetation manipulation of forest woodlands if the above guidelines are followed.

In addition, brush piles must randomly remain throughout the treatment area. The brush piles will serve several purposes for non-game species, including providing a protected seed bed for new plant establishment. The abundance of litter following land treatments will enhance the nongame species that inhabit the area.

The development of presuppression fire breaks at key points around identified Joshuatree woodlands is required in the fire management plan.

The issuance of free-use permits for live plants is not an approved action in the Arizona Strip District. This policy must continue in the HMP area. The Joshuatree woodland must be protected from plant removal to ensure the continuation of this unique plant community and it's associated nongame.

SPECIES MANAGEMENT

Species Management

MD-7 AGFD will continue to annually conduct studies to identify trends, sex ratios, and fawn survival. The information will also be used as an indicator of how well deer populations are responding to intensified habitat management. Additional objectives or modification of existing ones may result from the studies. BLM will cooperate in the studies as requested.

BS-1 Reintroduce desert bighorn sheep by 1985 into the Grand Wash Cliffs area and ultimately establish a viable population. Tentative release sites are discussed in the habitat analysis. This action will be based on the availability of sheep and funding and would be conducted by AGFD in cooperation with BLM.

BS-13 AGFD will conduct sheep population monitoring as needed to determine numbers, health, movement and important use areas on a yearly basis. BLM specialists will assist as requested. Data from these monitoring programs will be available to monitor HMP progress. BLM will document incidental sightings of bighorn sheep for support of the sheep monitoring.

T-2 Reintroduce turkey in the Mt. Dellenbaugh unit following construction of the Kelly and Mociac catchments at any or all of the following sites: Oak Grove, Kelly Dam, Lake Flat. Additional trans-

plants will be made as needed to establish a viable flock by 1990. The transplants will be done by the AGFD in cooperation with BLM as funding and manpower priorities allow.

F-2 Information will be obtained on the significance and economic value of fur-bearers in the area by 1990 by continuing to gather and analyze predator harvest data from the FWS and from the AGFD sport harvest reports. This information will provide fur harvest trend and the economic value of fur-bearers to the sporting community.

KS-1 Introduce Kaibab squirrels into the Parashaunt forest and establish a viable population level that will provide recreational opportunities as funding and manpower priorities allow.

BB-1 Before 1995 identify the area used by black bear.

a. Record all sightings and signs of bear.

b. Conduct a habitat suitability inventory for bears. AGFD will conduct the inventory as funding and manpower priorities allow and explore the possibility of black bear reintroduction into the area.

ML-1 By 1990 AGFD will conduct a mountain lion population density and distribution assessment within the HMP area if funding and manpower priorities allow.

If mountain lions are found to be restricting the ability of mule deer and bighorn sheep to reach management goals, AGFD will try to remedy the problem.

C-1 Introduce chukars into the Lower Grand Wash Cliffs as funding and manpower priorities allow. More chukars will be transplanted as needed to establish a viable population.

MODIFICATION OF EXISTING WATER DEVELOPMENTS

Modification of Existing Water Developments

MD-1b Mule deer access will be provided at the following livestock water facilities. At least 50 percent of the water facility will be negotiable by deer in compliance with BLM Manual 1737. If solutions are not achieved as a result of fence modification then additional measures or modifications may be needed. Gates for access should only be installed as a last resort and should not be used in high density areas. Spring sources will be modified before 1988 to provide ground level wildlife troughs to permit year-round deer use.

Priority	Water Facility	Location	Remarks	
			Fence	Trough
Year 1:				
1	Gordon Springs Protection Fence	T36N, R13W, Sec. 35	X	X
2	Lower, Lower Last Chance Spring & Upper, Lower Last Chance Spring	T36N, R13W, Sec. 33	X	X
3	Rattlesnake Spring Corral	T35N, R13W, Sec. 3	X	X
4	Tincanebitts Tank	T32N, R13W, Sec. 32	X	
5	Fence Pond	T33N, R13W, Sec. 33	X	
6	Snap Spring	T32N, R14W, Sec. 13	X	X
7	Upper Hidden Spring	T36N, R12W, Sec. 31	X	X
Year 2:				
8	Snap Tank	T32N, R13W, Sec. 12	X	
9	Hidden Lake	T34N, R13W, Sec. 11	X	

Priority	Water Facility		Location	Remarks Fence	Trough
10	Grassy Point	(LMNRA)	T33N, R10W, Sec. 21	X	
11	North Tank		T34N, R13W, Sec. 3	X	
12	Gardner Tank		T33N, R13W, Sec. 27		
13	Upper Hidden Spring Corral		----------	X	
14	Grassy Spring Corral		----------	X	
Year 3:					
15	Pymn Canyon Pond		T33N, R11W, Sec. 11	X	
16	Link Spring		----------	X	X
17	Lower North Tank	(state)	T34N, R13W, Sec. 2	X	
18	Lower Hidden Spr. Corral	(state)	T36N, R13W, Sec. 36	X	
19	Coin Spring	(state)	----------	X	X
20	Salt House Tank (Middle)		----------	X	
21	Tungsten Spring Corral		----------	X	
Year 4:					
22	Andrus Spring, Trough, Pond		T33N, R11W, Sec. 17	X	
23	Head of Hidden Pond		T35N, R12W, Sec. 28	X	
24	Overnight Pond		T34N, R12W, Sec. 18	X	
25	Cedar Pocket Reservoir		T34N, R11W, Sec. 35	X	
26	Pine Pond		T33N, R11W, Sec. 12	X	

Priority	Water Facility		Location	Remarks Fence	Trough
27	Pigeon Tank		T33N, R12W, Sec. 6	X	
Year 5:					
28	Lower Link Ferguson Pipeline and Storage Trough		T36N, R13W, Sec. 18	X	
29	Lower Pigeon Spring Corral Sec. 33		T34N, R13W,	X	
30	Broken Pond Sec. 28		T34N, R11W,	X	
31	Red Pond Sec. 25		T34N, R12W,	X	
32	Esplin Tank Sec. 16	(state)	T34N, R12W,	X	
33	Salt Spring Corral		----------	X	X

BS-10 Ensure that all livestock water facilities are modified to provide adequate access for bighorn sheep by 1985. Most facilities requiring modification were identified in the mule deer or the spring habitat section of the habitat analysis. Future water developments in sheep habitat will be designed to allow bighorn sheep access.

BS-11 Provide ground level water at spring sources within bighorn sheep habitat by 1985. Springs needing modification were documented under mule deer section of the HMP and the spring habitat section of the habitat analysis.

F-3 To ensure proper and safe furbearer access to water developments on a year round basis, escape ramps will be placed in all watering facilities as they are identified.

SG-2 a. Spring habitats will be protected, and especially at Snap, Link, Pigeon (lower), and Hidden (lower) Springs by implementing planned action MD-1.

b. Ground level troughs at all watering facilities will provide water for small game. All troughs in the HMP area will have incorporated into them (as a result of Manual requirement) an escape mechanism (bird ladder) to allow the exit of small game species. Existing troughs will be modified before 1990, and all new projects will include bird ladders.

MD-1c In addition to the modification of existing spring and water areas, information needs to be obtained about the condition, availability, and accessibility of the following spring sources. A spring card will be filled out on each of the springs and used for identifying future development potential.

Spring Source	Location
Coyote	T. 34 N., R. 13 W., Section 33
Yellowstone	T. 36 N., R. 13 W., Section 29
Maverick Seep	T. 36 N., R. 13 W., Section 35
Cupe Seep (LMNRA)	T. 33 N., R. 10 W., Section 26
Seep	T. 32 N., R. 11 W., Section 14
Mud	T. 32 N., R. 11 W., Section 2
Oak	T. 32 N., R. 11 W., Section 15
Joe (LMNRA)	T. 31 N., R. 13 W., Section 7
Nipple (LMNRA)	T. 32 N., R. 10 W., Section 31
Upper Pigeon	T. 33 N., R. 13 W., Section 2
Lower Pigeon	T. 34 N., R. 13 W., Section 33
Amos	T. 29 N., R. 12 W., Section 1
Lower	T. 31 N., R. 12 W., Section 16
Twin	T. 31 N., R. 12 W., Section 8
Tincanebitts	T. 31 N., R. 13 W., Section 5

All spring sources need to be periodically monitored as to habitat condition, availability and accessibility. The following springs should receive special attention. If habitat conditions or water availability of the springs become unacceptable, actions will be taken to remedy the situation.

Spring Source	Location
Schultz	T. 34 N., R. 10 W., Section 31
Mathis	T. 31 N., R. 12 W., Section 20
Log	T. 33 N., R. 12 W., Section 35
Green	T. 31 N., R. 11 W., Section 16
Burnt Canyon	T. 31 N., R. 13 W., Section 22
Upper Pigeon	T. 33 N., R. 13 W., Section 2
Log Well (upper, lower)	T. 33 N., R. 12 W., Section 35
Twin	T. 31 N., R. 12 W., Section 8

WILD BURRO MANAGEMENT

Wild Burro Management

BS-5 Ensure that wild burro distribution and density within the HMP area remain at the 1971 level (100 animals) and remove burros as needed to prevent habitat degradation. Areas of range overlap are lower Pigeon and Snap Canyons.

IV. EVALUATION AND MONITORING

See forms 6780-2.

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-1 Ensure adequate water sources are provided year-round by 1988 to support a maximum population of 2,200 mule deer.		Construct 36 precipitation catchments with troughs. Modify 33 livestock watering facilities and spring sources to permit year-round use by deer. Gather information on the condition, availability, and accessibility of 26 additional springs and take actions to remedy identified problems.		BLM & AGFD biologists and engineers conduct project feasibility and inspect project work with Contract or Operations Supervisor. Success, availability, and use of the water developments will be monitored on a yearly basis. Areas needing additional water will be identified. All water developments will be inspected yearly with needed maintenance and repair provided.	
MD-2 Establish a habitat rating system that identifies the forage values provided to mule deer in the HMP area by 1988.		Determine mule deer diets at various elevations, cover sites, and seasons. Determine % crude protein, phosphorous, calcium, acid detergent fiber in-vitro digestability of key mule forage species.		Conduct plant nutritional analysis studies. Conduct fecal analysis studies. Systematically rate habitats according to the nutritional components of	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-2 (continued)		Rate the mule deer habitat as to its forage values. A computer will be used to assign values to specific habitats.		the forage as well as the dietary composition. Annually investigate how the intensity of deer use in certain areas corresponds with the habitat ratings. Modify ratings as required.	
MD-3 Provide information on an annual basis that is sufficient to identify mule deer population trends, use areas, and mule deer diet information.		Continue to monitor the existing 320 pellet plots. Establish pellet plot transects as a minimum in five new key areas.		Using information from the pellet plots monitor mule deer population trends. Incorporate the trend data into the annual habitat evaluation report and five year HMP revision.	
MD-4 Support the development and implementation of intensive grazing systems needed to maintain and enhance quality and quantity of rangeland resources.		Wildlife input will be an integral part of the development of the Wildcat AMP and the implementation of the Grassy Mountain AMP. Other areas of concern in the WHA should be improved by the implementation of		The area biologist will monitor the development of AMPs to ensure the plans compliment the objectives of the HMP. Annual utilization and trend studies, as well as actual use records will be	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-4 (continued)		intensive grazing management.		evaluated to monitor the progress of AMPs.	
MD-5 Improve the quantity and quality of mule deer summer range within the HMP area to attain fawn survivals of 50 fawns/ 100 does by 1995.		Several land treatment projects will be conducted in the pinyon-juniper and sagebrush communities by burning, chaining, plowing, and applying herbicide.		BLM & AGFD biologists will identify priority treatment areas. BLM & AGFD biologists will conduct project feasibility studies in cooperation with the Division of Operations. Project design and locations will be finalized by biologists, engineers, fire management and the AGFD. Area and District office engineers and biologists inspect work with Contract Supervisor and/or Division chief. The intensity of deer use in the treated areas as well as success of the treatments will be evaluated yearly. The infor-	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-5 (continued)				mation will be used to supplement the annual habitat evaluation report and 5 year revision. The AGFD will conduct deer classification studies to monitor fawn survival.	
MD-6 Insure all range improvements, developments and land use activities are compatible with mule deer and are not restrictive or hazardous to deer.		Evaluate proposed actions for various land use activities on a case-by-case basis to determine impacts and mitigating measures.		Conduct site specific analysis upon application to conduct certain activities in mule deer habitat. Monitor land use activities to determine reactions by mule deer to the actions as well as the response of the habitat to rehabilitation measures.	
MD-7 Provide information on an annual basis to identify trends, sex ratios, and fawn survival which will be used to establish harvest quotas and hunter numbers.		The AGFD will continue to conduct studies to provide information sufficient to support hunting quotas.		AGFD will evaluate the health and dynamics of mule deer populations. Hunter questionaires will aid in monitoring hunter success and deer herd population dynamics.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/693

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-7 (continued)				Information from the studies will aid in the development of the annual habitat report and to develop future modification of habitat objectives.	
MD-8 Provide information sufficient to detect changes in mule deer habitat condition, trend, and utilization in the HMP area by 1988.		Key areas will be established in summer and winter range habitats.		The BLM biologists will gather and analyze habitat data in the key areas. Data from the key areas will be used to establish habitat condition and trend and included in the annual evaluation report.	
MD-9 Maintain adequate mule deer cover conditions needed to support 2,200 deer by 1995.		Two-thirds of the habitat area will be maintained in acceptable cover condition. Cover requirements for each of the 4 main units will be insured, by compliance to 13 criteria to be used in vegetation manipulation projects.		Proposals to conduct pinyon-juniper control will be evaluated by the area biologist and AGFD. The design of projects will incorporate 13 criteria for project enhancement. The area and district biologists, and the contract	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
MD-9 (continued)				inspector will inspect work as it progresses to insure adequate cover is maintained. The projects will be evaluated as to how they can be improved in future efforts.	
BS-1 Reintroduce desert bighorn sheep in the Grand Wash Cliff area by 1985.		Reintroduce sheep as money and animals become available.		The AGFD will relocate and monitor the sheep transplant and success. Information about the transplant will be evaluated in the annual habitat report.	
BS-2 Provide adequate water for bighorn sheep yearlong in potential sheep habitat by 1988.		Construct 8 bighorn sheep waters in various locations.		Area and District office personnel will conduct project feasibility. Success, availability, and use of the water developments will be monitored yearly. Areas needing additional water will be identified. All water developments will	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
BS-2 (continued)				be inspected yearly with needed maintenance and repair provided.	
BS-3 Monitor bighorn sheep habitat condition and trend.		Establish key areas of bighorn sheep habitat.		Identify the specific value of key habitat components. Monitor sheep use in the key habitats including lambing and concentration areas. Evaluate sheep habitat condition and trend in the annual habitat report.	
BS-4 Encourage proper grazing management to meet the habitat needs of 100 bighorn sheep in the HMP area.		Encourage the initiation of livestock grazing systems.		The area biologist and AGFD will provide information on needs of bighorn sheep to be included in the AMP development. Annual utilization and trend studies as well as actual use records will be evaluated to monitor the progress of AMPs.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
BS-5 Ensure habitat conditions remain acceptable in areas where wild burros and bighorn sheep ranges overlap.		Ensure burro numbers remain at no greater than 1971 levels (100 animals).		The burro population will be evaluated and monitored in the Tassi-Gold Butte herd management plan. The area biologist will be responsible to identify any conflict areas and make recommendations for improvement.	
BS-6 Encourage light livestock utilization levels in areas adjacent to good escape cover.		Limit the construction of additional livestock waters in bighorn sheep habitat, which would cause conflicts with sheep escape cover.		Evaluate on a case-by-case basis, additional livestock water developments especially along the upper and lower Grand Wash Cliffs. Monitor conditions at established water sites. Information will be used for analyzing future developments.	
BS-7 Discourage any change in class of livestock to domestic sheep within the HMP area.		Ensure domestic sheep authorizations are not permitted in bighorn sheep habitat prior to appropriate coordination.		ASO IM. No. AZ-79-185, 1/30/80 identifies the course of action for determining domestic sheep authorizations.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
BS-8 Discourage the creation of new vehicular access in bighorn sheep habitat.		Discourage the significant habitat deterioration and new road construction in sheep areas.		Monitor all mineral and oil and gas exploration and production activities. Evaluate with the Surface Protection Specialist, anticipated impacts of energy application. The area biologist will provide mitigation or alternatives for anticipated negative impacts.	
BS-9 Support the District ORV designations.		The ORV designations will continue to be supported by wildlife.		The supervision of ORV activities will be the responsibility of all BLM & AGFD personnel. Area manager will enforce ORV designations. Violations will be discouraged.	
BS-10 Provide suitable bighorn sheep access to all existing and proposed livestock water facilities by 1985.		Modify all livestock water facilities in bighorn sheep range, to provide sheep access. Future water developments		BLM & AGFD biologists will evaluate the suitability of livestock water developments and make recommendations for modification.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/593 Reg. 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
BS-10 (continued)		if approved, will be designed to allow bighorn sheep access.		Plans for future water developments will be evaluated as to their need and compatibility with sheep. If allowed they will be accessible to bighorn sheep.	
BS-11 Provide water at all spring sources in bighorn sheep habitat by 1986.		Provide ground level water at spring sources with bighorn sheep habitat.		Evaluate the success and future need of water modifications at springs sources. Incorporate the success and need for modification into the annual habitat evaluation report.	
BS-12 Provide water yearlong at all livestock water facilities within bighorn sheep habitat by 1985.		If winter freezing does not present problems, the existing livestock water facilities in sheep habitat will be left on year-round.		Monitor water facilities in Hidden, Pigeon, and Snap canyons annually. Encourage range users to leave the water on at troughs.	
BS-13 Determine important sheep use areas, population numbers, health, and move-		Determine numbers, health, movement and important use areas on a yearly basis.		AGFD will conduct population monitoring as needed. BLM will assist as re-	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
BS-13 (continued) ment once bighorns are established in the HMP area.				quested. Information from the monitoring will be used to develop the annual habitat evaluation report.	
T-1 Provide sufficient water sources throughout turkey habitat prior to 1988.		Construct catchments as per planned action MD-1.		Turkey use of the catchments will be evaluated and the importance of the water source documented by BLM and AGFD.	
T-2 Establish viable populations of turkey in suitable areas within the HMP area by 1990.		Reintroduce turkey into the Mt. Dellenbaugh unit following the construction of the Kelly and Mociac Catchments.		Monitor turkey transplant to determine the need for additional transplants and/or success. Evaluate the transplant efforts in the annual habitat evaluation report.	
T-3 Improve the grass/forb components within turkey habitat by 1990.		Treating selected areas identified in MD-1 will provide adequate grass/forb component.		The area biologist will coordinate with the range conservationist in the development of range treatments and grazing systems.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
T-3 (continued)		Turkey forage species will be included in seed mixture preparation.			
T-4 Ensure the proper management of ponderosa pine habitat for the enhancement of turkey.		Ponderosa pine habitat will be managed to ensure turkey roost tree stands are not jeopardized as a result of timber harvest operations.		Proposals for timber harvest will be analyzed prior to approval. Area biologist will insure stipulations as outlined are followed to protect pine habitat.	
T-5 Perpetuate the health and abundance of ponderosa pine stringers throughout turkey habitat.		Pine stringers will be protected by not permitting timber harvest within isolated pine stringers. Continuing with Class VI fire control designation and immediate fire suppression. Implement prescribed burning or hand thinning projects. Acquire privately owned parcels of ponderosa pine habitat.		Area biologist and AGFD will have input into forestry activity proposals. The fire management plan will be updated each year and evaluated to include proper designation. The area biologist will evaluate the understory component and initiate burn plans or hand thinning projects.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/593 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
T-5 (continued)				The area biologist will make sure realty actions are initiated to acquire land.	
F-1 Gather information by 1990 on the occurrence, distribution, and relative abundance of furbearers according to habitat types.		Document furbearer sightings. Establish and monitor scent post transects. Gather and analyze furbearer harvest data.		Area biologist will encourage all BLM employees to document furbearer observations. BLM and AGFD biologists will evaluate the information from transects. AGFD will monitor harvest of furbearers. The information obtained will be used to complete the annual wildlife habitat report.	
F-2 Obtain information on the magnitude and economic importance of furbearer species by 1990.		Continue to gather and analyze furbearer harvest data from the FWS and AGFD sport harvest records.		Evaluate the data annually to determine the importance of furbearers. Determine annual harvest of furbearers.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
F-3 Ensure proper and safe furbearer access to water developments year-round in the HMP area.		Place escape ramps in all watering facilities.		BLM and AGFD personnel will continually evaluate the need for modification of troughs.	
KS-1 Establish a population of Kaibab squirrels in the Parashaunt Forest by 1985.		Introduce Kaibab squirrels and establish a viable population.		Monitor the success of the transplant and the need for additional management. Evaluate the success of the transplant annually in the wildlife habitat report.	
KS-2 Ensure all timber harvest proposals for the Parashaunt Forest are analyzed for their compatibility with Kaibab squirrels.		Provide input into harvest proposals that will sufficiently protect squirrel habitat.		Area biologist will evaluate all harvest proposals and provide criteria necessary to protect squirrel habitat.	
BB-1 Identify the suitability and use of the habitat area by black bear.		Record all sightings of black bear. Conduct habitat suitability inventory for bears.		The BLM and AGFD will document all sign of black bear. The AGFD will evaluate the habitat suitability of the area for supporting black bear if funding and manpower priorities allow.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
ML-1 Establish population density and distribution of mountain lion within the HMP area, and assess its impact on other big game species.		Conduct a population density and distribution assessment of mountain lion within the area before 1990.		AGFD will monitor the significance of the mountain lion in the HMP area as funding and manpower allow. AGFD will evaluate the need for population control of mountain lions.	
C-1 Establish a viable population of chukars in the Lower Grand Wash Cliffs.		Introduce chukars. Additional transplants will be done as necessary.		AGFD will monitor the success of the initial transplant to determine the need for future efforts. The annual wildlife habitat report will evaluate the success of the transplant.	
C-2 Ensure any water development in the lower cliffs is available to chukars.		At least 2 catchments should be developed before the chukar release. Water developments proposed for bighorn sheep will supply sufficient water for chukars.		Monitor water developments to ensure they continue to provide adequate water. Provide maintenance as required.	
WF-1 Provide nesting and feeding habitat area for migrant waterfowl within the HMP area by 1986.		Develop Kelly Dam as a waterfowl habitat area by 1986.		Area and district biologists and engineers conduct project feasibility.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office: 1981-780-780/693 Reg. 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
WF-1 (continued)				Area and district engineers and biologists inspect work as it progresses. Establish photo trend plot to monitor plant response.	
R-1 Provide for suitable raptor habitat conditions in and adjacent to crucial cliff nesting areas through intensive grazing management.		Encourage good range conditions through the development and implementation of intensive grazing systems.		Area biologist and range conservationist will monitor livestock utilization levels. Range conservationist will conduct studies to monitor livestock use and remedy identified problems.	
R-2 Provide acceptable nesting and feeding habitat conditions for birds of prey in riparian and semi-riparian areas.		Continue to monitor riparian and semi-riparian habitats and upgrade the habitat condition of those areas in need by 1986.		BLM will monitor conditions in the riparian and semi-riparian areas. Habitat conditions will be evaluated in the annual wildlife habitat report.	
R-3 Provide an adequate level of information on raptors, especially threat-		Continue to monitor and collect site specific habitat data for various species		BLM and AGFD will monitor land use activities.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

☆ U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
R-3 (continued) ened and endangered species for other resource actions that may degrade existing habitat conditions.		of raptors. Record all sightings of raptors especially threatened or endangered species.		Review applications for proposed activities to ensure raptor habitat is not deteriorated. Evaluate land use proposals to ensure raptor habitat criteria is a requirement to be enforced.	
R-4 Ensure sufficient habitat is retained to maintain healthy accipiter and woodland owl populations and ensure silvicultural treatments are compatible with the ecology of these woodland species.		Maintain existing accipiter nesting densities, especially in relation to goshawks. Maintain adequate habitat according to planned action R-4 by ensuring silvicultural activities are compatible.		Evaluate use of the woodland habitat by accipiters and owls. Evaluate and monitor forestry proposals for timber harvest to insure habitat for accipiters and owls is perpetuated.	
NG-1 Support the development of intensive grazing systems needed to maintain and enhance the quality and quantity of nongame habitat.		Develop allotment management plans to direct livestock grazing.		Evaluate specific allotments prior to development of AMPs. Provide input sufficient to to protect nongame species especially the desert tortoise and gila monster.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
NG-1 (continued)				Monitor the success of the AMPs with the use of utilization transects, trend plots, and actual use.	
NG-2 Maintain and upgrade spring environments, riparian areas, and all livestock and wildife watering facilities.		Protect vegetation associated with water areas. Provide for the safe use of watering facilities by nongame animals. Acquire Log Spring to maintain optimum habitat conditions.		BLM and AGFD biologists evaluate certain spring habitats for condition. Provide fencing of water areas to protect vegetation. Evaluate the need and approach with the realty specialist, to acquire Log Spring area. Evaluate the need for trough modifications as per planned action P-3.	
NG-3 Insure that information on the occurrence and health of nongame species is kept current and is sufficient for assessing impacts of all land use activities.		Continue to document species observations. Encourage species occurrence, distribution, and habitat requirement studies for nongame species. AGFD has right of first refusal.		Annually display species occurrence on an overlay. Classify habitats according to IHICS (6602) and describe species occurrence.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office:1981-780-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
NG-3 (continued)				Evaluate land use proposals for anticipated impacts on nongame species.	
NG-4 Ensure that all components necessary to sustain certain populations of nongame species are conserved.		Provide protection for special habitat features (caves, snags, cliffs)		Area biologist conduct field survey to identify special habitat features (6602).	
				Analyze land use activities to determine anticipated impacts and make recommendations for mitigation.	
NG-5 Ensure land treatment projects benefit nongame populations.		Protect habitat for cavity nesting species.		Area biologist conduct prework studies to determine habitat values.	
		Provide wildlife input into pinyon-juniper chaining proposals.		Establish mitigating measures and conduct followup.	
		Develop presuppression fire breaks at key points in Joshuatree woodlands.		Annually monitor the need for presuppression fire breaks.	
		Continue to deny free-use permits for live vegetation.		Establish photo plots to monitor Joshuatree woodland response to land use activities.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

* U.S. Government Printing Office: 1981-730-780/693 Reg 8

Form 6780–2
(July 1981)
(formerly 6620–3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION/MONITORING	DATE COMPLETED
SG-1 Support the development of intensive grazing systems.		Improve the condition of herbaceous vegetation. Enhance Gambel's quail and desert cottontail with desirable seed mixtures in range improvement projects. Provide brush piles over treatment areas.		Area biologist and range conservationist will monitor livestock utilization levels. Provide seed mixture requirements to be included in land treatment projects. Evaluate treatment projects to ensure ample brush piles are left at random.	
SG-2 Ensure the availability and safe use of water at springs and water troughs.		Implement planned action MD-1. Incorporate bird ladders into all watering troughs in the HMP area.		Area biologist and AGFD supervise water trough construction. Monitor the condition of all water troughs to determine the need and type of escape device. Evaluate success of trough developments in the annual wildlife habitat report.	

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation/monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

U.S. Government Printing Office: 1981-780-780/693 Reg 8

V. PROGRESS REPORT

A habitat management plan progress report will be completed annually. The report will include accomplishments, expenses, and a general summary of HMP progress. The report should also evaluate how well HMP objectives have been accomplished. The annual report will be filed in this section of the HMP each year, and serve as a chronological documentation of progress.

VI. COORDINATION WITH OTHER BLM PROGRAMS, AGENCIES, AND ORGANIZATIONS

A. Other BLM Programs

1. Livestock Grazing Management

The HMP area encompasses portions of 10 grazing allotments, 2 of which have approved AMPs. To ensure that wildlife objectives are achieved, it is necessary that close coordination is included in the development and monitoring of existing and future allotment management plans. Specific planned actions have been identified in this HMP to provide the needed information for AMP development. Information for the AMP will be extracted from this HMP. Without complete duplication of specific planned actions in this section, reference is provided to those sections that identify wildlife habitat considerations. They are:

(1) The availability, placement, and safe use of water sources year-round within the HMP area. Planned action MD-1, BS-6, BS-10, BS-11, BS-12, F-3, NG-2, SG-2, C-2.

(2) Improve the quality and quantity of wildlife forage species and encourage the development of intensive livestock grazing systems. Planned action MD-4, BS-4, T-3, R-1, NG-1, SG-1.

(3) Provide for adequate cover requirements in land treatment projects. Planned action MD-9, NG-5, SG-1.

(4) Ensure that applications for changes in livestock class are reviewed by wildlife biologists. Planned action BS-7.

(5) Provide seed mixtures to enhance wildlife species on land treatment areas. Planned action T-3, SG-1.

The location, design, and construction of projects identified in this HMP will be coordinated with the responsible range

conservationist to insure that the wildlife projects are compatible with the livestock grazing program.

2. Woodland Products Management

Woodland management in the HMP area involves the use and management of timber and wood products. Because woodlands are such an important component of wildlife habitat in the area and because certain species, such as the turkey and Kaibab squirrel, so heavily rely on ponderosa pine, wildlife actions must be included in the development, design, and rehabilitation of woodland management projects. Wildlife objectives will be included in woodland management plans and projects by referring to the various planned actions of the HMP. By subject and section these actions are as follows:

a. Manage ponderosa pine habitat for certain wildlife species. Planned action T-5, KS-2.

b. Protect Joshuatree woodlands. Planned action NG-5.

c. Manage pine string stands for certain wildlife species. Planned action T-5, KS-2.

d. Maintain snags and trees important for cavity-nesting species. Planned action R-4, NG-4, NG-5, KS-2.

e. Ensure mature Gambel oak and Locust trees are not removed. Planned action R-4, NG-5.

The feasibility of timber sales in the area has yet to be determined. If such sales are determined to be feasible, the above wildlife requirements will be incorporated into the forest management plan.

3. Recreation Management

Recreational opportunities and experiences are closely associated with the health and abundance of wildlife species. Increased wildlife populations will increase recreational values on the Parashaunt area. Local communities will also benefit as more revenues are generated. For these reasons coordination with recreation management is not expected to be controversial and contribution to recreation plans will be invited. Specific reference in the HMP by subject and section is:

a. Monitor off-road vehicle use. Planned action BS-9.

The wildlife program will be involved in issuing special land use permits or authorizations for recreational events to reduce adverse impacts. The designation and use of camping and sanitary facilities would complement the HMP wildlife objectives by reducing the widespread and unconfined recreation use of the area.

4. Wilderness

The Parashaunt HMP area encompasses 13 wilderness study areas (WSAs). All thirteen have been recommended as unsuitable for wilderness designation, but all 13 units will be managed in compliance to the Interim Management Policy and Guidelines of December 1979 until Congress makes a final decision.

Wilderness designation is beneficial to the establishment of bighorn sheep, because it restricts land use activities. Bighorn sheep have evolved with and require wilderness type environments in which human-sheep encounters are minimal.

Compliance to the 3802 and 3809 mining regulations as established will also mitigate human-wildlife encounters and habitat destruction.

The wildlife program will have to coordinate with the wilderness programs to ensure wildlife projects do not impair wilderness suitability. Wilderness designation with the exception of bighorn sheep is not always compatible with productive wildlife habitat. Wilderness designation favors the climaxation of vegetation communities and therefore reduces the abundance of wildlife species that depend upon the early seral stages of plant communities. The need to improve wildlife habitat and its associated species should be considered an acceptable and required action in WSAs.

5. Areas of Critical Environmental Concern (ACECs)

No identified ACECs lie within the HMP area. If an ACEC is identified, the recommendation for protection or management will include wildlife considerations that support the wildlife objectives of this HMP.

6. Soil, Water, and Air Resources

Most projects initiated under watershed guidance will complement the wildlife objectives of this HMP. Likewise, most of the planned actions of this HMP will enhance the long term watershed qualities of the area. A soil scientist and hydrologist will be consulted in the design of wildlife projects when needed, to insure adequate consideration for enhancing watershed values.

Soil, water, and air resources impacted by other land uses must be maintained in an acceptable condition to complement this HMP's objectives.

7. Wild Free-Roaming Horses and Burros

Wild horses do not inhabit the HMP area. Wild burro management will be considered in the Tassi-Gold Butte Herd Management Area Plan (HMAP).

This HMAP identifies the bighorn-burro competition as conflicting uses of common areas. Ninety burros will be maintained throughout the Arizona portion of the herd management area, which includes part of the HMP area.

The HMP and the HMAP must be coordinated to ensure that food and water competition does not restrict the objectives of both plans. Excess burros will be removed from the area. Wildlife considerations in the HMP that require coordination are

a. Ensure that wildlife water developments are not accessible to burros. Planned action: BS-2.

b. Maintain burros at 1971 levels. Planned action: BS-5.

8. Energy/Minerals Management

The interest in mineral exploration has intensified in recent years. The HMP area is believed to contain high quality reserves of uranium bearing ore. The objectives of the HMP are dependent upon what levels of exploration and development the area can support.

Energy and minerals exploration destroys habitat (short- and long-term), and increases accessibility, human harrassment, contamination, use of water sources, and poaching.

It is necessary that minerals exploration and development be conducted under certain stipulations and conditions as to be compatible with the objectives of this HMP. These actions by subject and section are:

a. Provide wildlife input into project proposals for mineral and energy developments. Planned action: MD-6, BS-8, NG-4.

Construction of specific wildlife projects should not conflict with energy and minerals development. Most mineral exploration and development will be regulated according to the 3802 and 3809 mining regulations. A surface protection specialist will have to closely supervise mining to ensure that stipulations and mitigating measures are followed.

9. Fire Management

To insure meeting HMP objectives, coordination will be required to identify high risk areas where fire is detrimental to resources or if uncontrolled could become detrimental. Coordination in this area has been identified in the HMP in planned actions T-5 and NG-5. Fires need to be controlled as quickly as possible to reduce the damage to ponderosa pine stringers and Joshuatree woodlands. Presuppression fire breaks would aid the control of wildfire in the Joshuatree woodlands.

A fire management plan has been completed for the Arizona Strip District, which should provide adequate fire management for the HMP area. Firelines and firebreaks should not be built so as to provide future vehicular access into inaccessible areas.

The use of the fire helicopter and fire crews would be beneficial during low fire danger periods to keep the fire crews productive and physically fit.

Prescribed burning will be used to accomplish several objectives, including the conversion of vegetation to a more desirable seral stage. The need for prescribed burning is identified in planned actions MD-5, T-5, and R-1.

A fire plan for individual prescribed burns prior to burning will identify the objectives of the burn. Fire prescription will also be included. The district fire management officer will be responsible for writing the prescription and the plan. The area wildlife biologist will develop the objectives and assist in writing the plan. The use of the helitorch will be helpful in completing the burns. The fire management officer will supervise all prescribed burns.

10. Support Actions

The success of the HMP depends upon the completion of a wide variety of projects. The Division of Operations will ensure the completion of the majority of the projects. Operations will be responsible for project survey and design, supervise contracts, order materials, and complete force account projects. Equipment, tools, and manpower will also be required.

Support will also be required of the realty specialist for land acquisition. The district landscape architect will be involved in designing and locating structures and land treatment areas to assure compliance with VRM guidelines.

The cost and implementation schedule will identify the work-months, time frame, money, and responsibility of all the Bureau programs needed for the success of the HMP.

Specific planned actions identify the location of projects, water sources of importance, maps of land acquisition, and other support actions.

B. Other Agencies and Organizations

1. State Agencies

The Arizona Game and Fish Department is the State species managing agency for the HMP area. AGFD involvement has been intense. The field surveys to gather data for preparing the habitat analysis were conducted in cooperation with the AGFD. In addition AGFD prepared and reviewed the habitat analysis and formulated the HMP objectives and planned actions in cooperation with BLM.

2. Universities

Representatives of the University of Arizona helped develop the habitat analysis, especially the bighorn sheep and mule deer sections. The objectives and planned actions of the HMP were extracted from the information found in the habitat analysis.

3. Nongovernmental Organizations

Nongovernmental organizations include wildlife groups, councils, societies, and the public. BLM enlisted the involvement of these organizations during the preparation of the URA/MFP planning document from which this activity plan has evolved. BLM considered the concerns and recommendations of these organizations and the public in issuing its final management decisions. Many of these decisions favor the enhancement of wildlife species on the Parashaunt area (see the Grand Wash URA/MFP).

Specific comments will not be listed in this HMP, but people and groups providing wildlife comments, concerns, or recommendation are listed below.

Steve Gallizioli	- Outdoor Writers Association of America	
Clayton Atkin	- Livestock Permittee	
Dan Frehner	"	"
LeMoyne Esplin	"	"
Barnard Seegmiller	"	"
Lynn Gardner	"	"
Eddie Bundy	"	"
Orvel Bundy	"	"
Duane Blake	"	" & Advisory Board Member
Brent Atkin	"	"
Gary LaMonica	- Arizona Wildlife Federation	

VII. WILDLIFE ECONOMICS

The purpose of this section is to estimate and compare the benefits and costs associated with the Parashaunt Habitat Management Plan (HMP). Benefit/Cost (B/C) Analysis is the principal analytical technique used to evaluate expenditure and allocation decisions in the public sector. The rationale for B/C analysis is economic efficiency. The procedures used in a B/C analysis consists of the following steps:

A. The project or projects to be analyzed are identified.

B. All the impacts, both favorable and unfavorable, present and future, on all of society are determined.

C. Dollar values, when possible, are used to estimate impacts. Favorable impacts are counted as benefits, while unfavorable ones as costs.

D. The net benefits divided by net costs give the B/C ratio.

The management objectives are discussed in section II of this HMP. These objectives will be accomplished by a series of actions discussed in section III. A very brief summary of these actions follows:

A. Construction of catchments and spring developments to create new water sources.

B. Modify existing water sources and monitor conditions around water areas.

C. Land treatments to improve vegetation.

D. Various studies and monitoring activities.

All benefits and costs in the following analysis are converted to present value dollars using a discounting procedure with a 7.625 percent discount rate.

Benefit Estimates

Benefits resulting from the HMP will include increased hunting opportunities for deer, bighorn sheep, turkey and ducks. The dollar values for the various hunting days for all these outputs was available. The hunter day estimate for this HMP were made by Arizona Game and Fish Department personnel.

	Hunter Day Increase Projected with the HMP per year
Deer	3,295
Bighorn Sheep	30
Turkeys	180
Ducks	50

Wildlife Benefit Formula:

Hunting Day Increase	X	Dollar Value of a Hunter Day	* X	Build up factor for 15 years

*Values for hunter days obtained from W.O. Instruction Memo 76-455 and updated to 1981 prices.

Calculations for benefits:

Deer	3,295 X 33.50 X 7.91 =	873,126
Bighorn Sheep	30 X 490 X 7.91 =	116,277
Turkeys	180 X 9.50 X 7.91 =	13,526
Ducks	50 X 9.50 X 7.91 =	3,757

The total present value of benefits using a 7.625 percent discount rate is $1,006,686.

Costs

The costs associated with the HMP will be construction costs, replacement costs, and operation and maintenance costs. The construction and operation and maintenance costs follow:

FY 82	$ 18,900
FY 83	$ 117,050
FY 84	$ 170,200
FY 85	$ 125,450
FY 86	$ 101,400
FY 87	$ 90,100
FY 88	$ 78,700

Once the HMP is fully implemented, there is expected to by $31,300 of annual operation and maintenance costs. To compare these costs with benefits occurring in different time periods, they must also be discounted to present day dollars. The discounted costs are as follows using 7.625 percent discount rate:

Year	Undiscounted Costs	Discount Factor	Present Value of Cost
1	18,900	.929	$ 17,558
2	117,050	.863	101,014
3	170,200	.802	136,501
4	125,450	.745	93,460
5	101,400	.693	70,270
6	90,100	.643	57,934
7	78,700	.598	47,063
8.50	31,300	7,508	235,000
TOTAL Improvement & O&M Costs			$ 758,800

Replacement Costs are calculated as follows:

|Replacement Factor| X |Initial Cost| = Replacement Cost

Improvement	Years Before Replacing	Replacement Factor	X Cost =	Replacement Cost
Catchments	30	.12	315,000 =	$ 37,800
Spring Developments	25	.18	5,000 =	900
Land Treatment	20	.29	15,000 =	4,350
TOTAL Replacement Cost				$ 43,050

Summary - Improvement + O&M Cost	$ 758,800
- Replacement Cost	43,050
TOTAL Net Costs	$ 801,850

The B/C Ratio = $\frac{1,006,686}{801,850}$ = 1,26/1

The benefit cost ratio (benefits divided by costs) is 1.26/1. This B/C ratio leads to the conclusion that benefits will exceed costs.

VIII. PUBLIC AFFAIRS PLAN

A. Objective

This plan will be developed to inform state and Federal agencies and interested public groups and individuals of the HMP objectives and planned actions. The intent of the HMP is to maintain and/or improve habitat and the associated requirements of various wildlife species on the Shivwits Plateau involving 376,760 acres of the Parashaunt area in the western part of the Arizona Strip. HMP objectives are based upon habitat analysis; and guidance and decision of the Grand Wash Management Framework Plan (GWMFP).

B. Key Points and Concepts

1. Potential exists to increase the numbers and species of animals inhabiting the area, especially desert bighorn sheep and mule deer.
2. Point out that the decline in quality and quantity of wildlife habitat and associated species requires action to be taken over a period of years.
3. Emphasize that past records indicate mule deer and bighorn formerly inhabited this area in greater abundance than at present. The HMP objective is to revive historical habitat and abundance levels.
4. Most projects will enhance the existing situation under the multiple use concepts, and de-emphasize livestock/wildlife conflicts.
5. The public lands are administered by BLM but species management is the responsibility of AGFD. Funding will be available through the Sikes Act.

C. Public Attitudes

Considerable support for the plan is anticipated by sportsmen and conservation groups. Anticipated increase in game species and enhancement of habitat will increase recreational opportunities. Protection and management proposed for the few remaining stands of ponderosa pine and provisions for transplanting wildlife species into historical habitat will be welcomed by these groups.

On the other hand livestock permittees, the timber industry, and groups involved with energy-related exploration and development will be opposed to the plan because of conflicting land use proposals. Controversy is limited, however.

D. Public Affairs Tools

1. News releases
2. Personal contacts and letters
3. Slide show
4. Signs erected at all project sites

E. Time/Action Sequence

Date and Responsible Party	Action
February 11-12, 1982 (Middlebrook, Warrick)	Wildlife biologists will present rough draft objectives and planned actions to Arizona Game and Fish Department representatives.
	Complete rough draft and circulate for agency review.
April 15, 1982 (Warrick, Avey)	Issue news release and summarize what has gone into HMP preparation: HMP history, habitat analysis, inventories, planning system, proposed projects for FY 1983 and following years.
(Warrick, Avey)	Issue news release upon final approval of plan.

Date and Responsible Party	Action
	Succeding news releases will be issued to the media as major projects are accomplished: controlled burns catchment developments species transplants Slide show will be developed to present our intention to concerned groups and another follow-up slide show explaining results of our efforts.
(Sokal, Ray)	Signs will be developed and placed at all project sites: catchments, chainings, controlled burns, and fenced riparian areas.

Because of the current political atmosphere and the uncertainty of manpower and available funding, the actual timing and accomplishment of events cannot be guaranteed. The above guidelines, however, will be used to take action as the HMP progresses.

IX. IMPLEMENTATION SCHEDULE

The following implementation schedule has been developed through fiscal year 1988. The project activities have been identified as well as who will be responsible to insure their completion. The units of completion are identified by reporting period as well as by the planned action they support.

The implementation schedule depends upon the availability of money and manpower for the particular years, but implementation will be sequential.

IMPLEMENTATION SCHEDULE

Project Activity	Responsibility	Work By	Total Units	P.A.	FY 82 1st	FY 82 2nd	FY 82 3rd	FY 83 1st	FY 83 2nd	FY 83 3rd	FY 84 1st	FY 84 2nd	FY 84 3rd	FY 85 1st	FY 85 2nd	FY 85 3rd	FY 86 1st	FY 86 2nd	FY 86 3rd	FY 87 1st	FY 87 2nd	FY 87 3rd	FY 88 1st	FY 88 2nd	FY 88 3rd
1. Catchments																									
a. Project Survey & Design	Bio.	Bio./ Oper.	42	C-2 T-1 MD-1 BS-2	5	5		5	5		5	5		3	3		3	3							
b. Construction	Oper.	AGFD Contract Force Acct.	42	C-2 T-1 MD-1 BS-1						6			6			6			6			6			6
c. Cooperative Maintenance Agreement	BLM/AGFD		1	MD-1 BS-1									1												
2. Spring Development																									
a. Project Survey & Design	Bio.	Bio./ Oper.	1	BS-2 C-2					1																
b. Construction	Oper.	AGFD Contract Force Acct.	1										1												
3. Waterlot Modification																									
a. Project Survey & Design	Bio.	Bio./ Oper.	34	MD-1 BS-2 C-2	3	4		3	4		3	4		3	4		3	3							
b. Construction	Oper.	AGFD Contract Force Acct.	34							7			7			7			7			6			
4. Land Treatment																									
a. Project Survey & Design	Bio.	Oper./ Bio./FMO	44	MD-5 T-3	4			4			4			4			4			4			4		1/ T6
b. Treatment Actions	FMO/ Oper.	FMO/Oper. Contract	44	MD-5 T-3			4			4			4			4			4			4		4	1/ T6
5. Establish Key Areas	Bio.	Bio.	4	BS-3 MD-8			1			1			1			1			1			1		1	2/ T
6. Establish Pellet Plot Transects	Bio.	Bio.	4	BS-3 MD-8					1			1		1			1								
7. Plant Nutritional Anal.	Bio.	Bio./ Contract	4 3/	MD-2							1	2	1												
8. Fecal Anal.	Bio.	Bio./ Contract	2 4/ 4 5/	MD-2 BS-3	1	1		1	1	2	1	1	2												
9. Dev. Habitat Rating System	Bio.	Bio./ Consultation	1	MD-2												1									
10. Species Habitat Assessment	Bio.	AGFD/Bio.	2	BB-1 ML-1												1			1						
11. Waterfowl Habitat Development																									
a. Project Feasibility & Design	Bio.	Bio./ Oper.	2, 15 ac.	WF-1					1																
b. Construction	Bio.	Force Acct.	2, 15 ac.	WF-1									2												
12. Transplants																									
a. Cooperative Agt.	Bio.	Bio./ASO	4	BS-1 T-2 KS-1 C-1									1 6/			1 7/									8/ 2
b. Transplants	AGFD	AGFD	4	BS-1 T-2 KS-1 C-1												1			1						2
13. Support																									
a. Forestry	Bio.	Bio.	None	T-4,5 KS-2, R-3 NG-4,5																					
b. Fire	Bio.	Bio.	None	T-5,NG-5																					
c. Range	Bio.	Bio.	None	MD-4,9 T-3,BS-4,7,6, R-1,2,NG-1,2 SG-1																					
d. Lands/ Realty	Bio.	Realty Spec.	None 2 4/	NG-2 T-5																					
14. Activity Compliance																									
a. Mineral Develop.	Bio.	Surface Protection Spec.	None	MD-6 BS-8																					
b. ORV	Bio.	Surface Protection Spec.	None	BS-9																					

1/ Four/Year Until Completed. 2/ Establish 1/Year or as Needed. 3/ Represents nutritional analysis for four seasons. 4/ Collect twice a year-F.Y. 82. 5/ Collect 4 seasons FY 83, 84. 6/ Bighorn Sheep. 7/ Wild Turkey. 8/ Chukar, squirrel.

IMPLEMENTATION SCHEDULE (continued)

Project Activity	Responsibility	Work By	Total Units	P.A.	FY 82			FY 83			FY 84			FY 85			FY 86			FY 87			FY 88		
					1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
15. Monitoring																									
a. Range (trend util.)	Bio.	Bio.	None	MD-4,9 T-3 BS-4,6,7 R-1,2 NG-1,2			X			X			X			X			X			X			X
b. Pellet Plot Trans.	Bio.	Bio.	2/yr.			1	1		1	1		1	1		1	1		1	1		1	1		1	1
c. Riparian Areas	Bio.	Bio.	None	NG-1 R-2																					
d. Aerial Surveys	AGFD	AGFD	None	MD-7 BS-13						X			X			X			X			X			X
e. Game Sport Harvest	AGFD	AGFD	None	MD-7						X			X			X			X			X			X
f. Predator Removal, Fur Harvests	AGFD/ BLM/FWS	AGFD/ BLM/FWS	None	P-1 P-2						X			X			X			X			X			X
g. Wildlife Observations	Bio./ AGFD	Bio./ AGFD	None	BS-13 P-1, NG-3 BB-1, R-1,3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16. Habitat Evaluation	Bio.	Bio.	1/yr.					1			1			1			1			1			1		1
17. Maintenance of Wildlife Projects	Bio.	Oper.	48										11			23			32			38			42
18. HMP Revision	Bio.	Bio./AGFD	1																						1

X. COST SCHEDULE

Costs for implementing and maintaining the HMP have been estimated through fiscal year 1988. The costs are not broken down for each unit of accomplishment but are calculated for the total of all units. Costs do not include the money needed to cover workmonths.

Expenses required for AGFD to carry out their transplant programs and on-going studies have not been included in the cost estimates.

The costs for the AGFD's share of the plan implementation have not been identified by specific projects but were estimated to be approximately 10 percent of the total cost of implementing the plan.

COST SCHEDULE
($ in thousands)

Project Activity P.A.	F.Y. 82 $	F.Y. 82 W.M.	F.Y. 83 $	F.Y. 83 W.M.	F.Y. 84 $	F.Y. 84 W.M.	F.Y. 85 $	F.Y. 85 W.M.	F.Y. 86 $	F.Y. 86 W.M.	F.Y. 87 $	F.Y. 87 W.M.	F.Y. 88 $	F.Y. 88 W.M.	Total $	Total W.M.
1. Catchments																
a. Project Survey Design		2.0		2.0		2.0		1.5		1.5						9.0
b. Construction			60.0	.5	60.0	.5	60.0	.5	45.0	.5	45.0	.5	45.0	.5	315.0	3.0
c. Maintenance					.3	1.0	.6	2.0	.9	3.0	1.2	3.5	1.5	4.0	4.5	13.5
2. Spring Dev.																
a. Project Survey Design				.5												.5
b. Construction					5.0	.5									5.0	.5
c. Maintenance							.1	--			.1	--			.1	
3. Waterlot Modification																
a. Project Survey Design		2.0		2.0		2.0		2.0		2.0						10.0
b. Construction			7.0	.5	7.0	.5	7.0	.5	7.0	.5	6.0	.5			34.0	2.5
c. Maintenance					.1	.5	.1	.5	.1	.5	.2	1.0			.5	2.5
4. Land Treatment																
a. Project Survey Design		2.0		2.0		2.0		2.0		2.0		2.0		2.0		14.0
b. Treatment			2.5	1.0	2.5	1.0	2.5	1.0	2.5	1.0	2.5	1.0	2.5	1.0	15.0	6.0
c. Maintenance 1/																27.5 out years
5. Establish Key Areas		.5		.5		.5		.5		.5		.5		.5		3.5
6. Establish Pellet Plots Transects		.5		.5		.5		.5								2.0
7. Plant Nutritional Analysis					7.5	3.0									7.5	3.0
8. Fecal Analysis			3.0	2.0	3.0	2.0									6.0	4.0
9. Dev. Habitat Rating System							2.5	2.0							2.5	2.0
10. Species Habitat Assessment								.5		.5						1.0
11. Waterfowl Habitat Dev.																
a. Project Survey Design				1.0												1.0
b. Construction					20.0	3.0									20.0	3.0
12. Transplants																
a. Cooperative Agreements						1.0		1.0								2.0
b. Transplants								1.0		1.0						2.0
13. Waterlot Modification																
a. Lands/Realty, Forestry, Fire, Range				1.0		1.0		1.0		1.0		1.0		1.0		6.0
14. Activity Compliance																
a. Mineral Dev. ORV				1.0		1.0		1.0		1.0		1.0		1.0		6.0
15. Monitoring																
a. Range (trend utilization) aerial surveys, Game Sport Harvest, Furbearer Removal and Sport Harvest, Wildlife Observations				1.0		1.0		1.0		1.0		1.0		1.0		6.0
b. Pellet Plot transects, riparian areas.				1.0		1.0		1.0		1.0		1.0		1.0		6.0
														7-year Total Expenditure	410.1	103.0
														Total BLM Costs	369.1	103.0
TOTALS														Estimated Contribution AGFD 10%	41.0	-----

1/ 11 years to accomplish. 9 year repeat cycle.

XI. CONCURRENCE AND APPROVAL

This HMP as written meets with our concurrence and approval.

Acting Julian L. Anderson — Sept 27, 1982
District Manager, Arizona Strip District, BLM — Date

Bud Bristow — Nov. 4-82
Director, Arizona Game and Fish Department — Date

Wesley M. Martin — 11/22/82
Regional Supervisor, Kingman Regional Office, AGFD — Date

Kenneth C Moore — 9/27/82
Area Manager, Shivwits Resource Area, BLM — Date

RECEIVED
NOV 26 '82
Arizona Strip District
St. George, Utah
BUREAU OF LAND MANAGEMENT

X	ACT	EMPLOYEE READ	X
		D M	
		R P M	
		Operations	
		[illegible] M	
		E & PS	
		RA 1	
		RA 1	
		File	

We will approve changes to the approved version of this HMP before any associated action is implemented.

The 5-year revision of this HMP will involve contributions from all the above agencies and will be contingent upon the approval of these agencies.

EAR REGISTER NO.: AZ-01[illegible] 82-[illegible]

ENVIRONMENTAL ASSESSMENT RECORD CHECKLIST/COVERSHEET

TITLE: PARASHAUNT HABITAT MANAGEMENT PLAN
ENVIRONMENTAL ASSESSMENT RECORD

SUBACTIVITY: 4350

RESOURCE AREA SHIVWITS PLANNING UNIT GRAND WASH

INTENSITY OF EAR: LOW ☐ HIGH ☒ NEGLIGIBLE IMPACT ☐

PLANNING COMPLETED: URA 3/78 (Date) MFP 1/79 (Date) ACTIVITY PLAN DATE: 7/1/82

AMP: PARASHAUNT-GRASSIE MTN
Name

			Initials	Date
1. Area Manager: Action and Intensity of EAR				
2. Prepare Environmental Assessment Worksheet				
3. Prepare EAR in Rough Draft				
4. Review by: Environmental Coordinator		Carter	DRK	8/24
Lands		Sokal		8/3
Minerals	X	Swapp		7/22
Wildlife				
Range		Walker-Ash-Johnson-Stovall-Beckstrom	LEH	
Watershed		Smith		
Forestry		see HMP Comments X Davis	R	7-25
Recreation		Sokal	DS	8/3
Cultural Resources	X	Malcomson	DDm	7/26
Visual Resources		Ray		8/2
Rare or Endangered Plants				
Wilderness		Sokal		8/3
Surface Protection		Sokal		8/3
District Engineer				
Chief Operations	X	DREW	KRD	7-22-82
Chief Resources	X	ANDERSON		7-22
5. Revise EAR and Sign by Preparer				
Signed by Area Manager			KCM	8-24-82
6. Environmental Coordinator Prepare Decision/ Record/Rationale				
7. Decision/Record/Rationale Memo Signed by DM			OJ	8/26/82
8. Administration--Record Signed EAR on Form 1790-2				
File: One copy in EAR Register				
One copy in Project File				
One copy to Area Manager				

Mtg 8/30
8/20

EA #AZ-010-82-300

Environmental Assessment Record

PARASHAUNT HABITAT MANAGEMENT PLAN
WHA-T3

Arizona Strip BLM District, Arizona

Prepared by Curtis Warrick

Participating Staff

Dennis Carter	- Environmental Coordinator
Julian Anderson	- Chief of Resources
Ken Drew	- Chief of Operations
Lee Hughes	- Range Conservationist
Ken Beckstrom	- Range Conservationist
L.D. Walker	- Range Conservationist
John Ash	- Range Conservationist
Jack Johnson	- Range Conservationist
Scott Stovall	- Range Conservationist
Dan Sokal	- Outdoor Recreation Planner
Ron Ray	- Landscape Architect
Bob Smith	- Natural Resource Specialist
Bob Davis	- Forester
Cloyd Swapp	- Natural Resource Specialist
Rick Malcomson	- Archaeologist

EA #AZ-010-82-300

EA Decision Record/Rationale

PARASHAUNT HABITAT MANAGEMENT PLAN

DECISION

I have determined to proceed with the proposed action as it is described in the HMP and the accompanying EA, that is, to implement the Parashaunt Habitat Management Plan.

RATIONALE

As discussed in the environmental assessment, the anticipated adverse environmental impacts would be minimal and the mitigating measures would adequately remedy anticipated problems. Site-specific clearances would provide protection for archaeological and visual resource values prior to project initiation. Failure to implement the proposed action would result in a failure to reach the potential to enhance and manage valuable wildlife habitat. Based on the analysis and nature of environmental impacts of the proposed action, I have determined that an environmental statement is not necessary.

Kenneth C Moore
Kenneth C. Moore, Shivwits Resource Area Manager — Date 8/26/82

Billy R. Templeton
Billy R. Templeton, Arizona Strip District Manager — Date 8/26/82

EA #AZ-010-82-300

Environmental Analysis

PARASHAUNT HABITAT MANAGEMENT PLAN
ARIZONA STRIP DISTRICT, SHIVWITS RESOURCE AREA

I. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action

As a result of the planning system, intensive inventories and field work over several years, objectives and planned actions have been developed for the enhancement of wildlife habitat on the Parashaunt area. The objectives and planned actions have been described in detail in the Parashaunt Habitat Management Plan (HMP). The intent of the HMP is to bring about changes for the enhancement of wildlife habitat.

The proposed action is to implement the HMP as it has been developed, to the extent described and within the time frames identified.

The proposed action would involve management activities to be conducted according to 13 separate categories. They are:

1. Water Developments
2. Vegetation Treatments
3. Habitat Studies and Monitoring
4. Livestock Grazing Management
5. Waterfowl Habitat Development
6. Riparian Area Management
7. Ecosystem Management to Enhance Turkey Habitat
8. Ecosystem Management in Ponderosa Pine Habitat Types
9. Protective Fencing
10. Criteria for Land Use Authorizations
11. Species Management
12. Modification of Existing Water Developments
13. Wild Burro Management

Specific actions by category are:

1. Water Developments

MD-1: Improve water distribution in the HMP area for mule deer before 1988 to enable the establishment and support of 2,200 deer.

Water catchments will be constructed in accordance with the schedule on the following list:

Catchment Location Implementation Schedule

Year	Priority	Catchment Name	Location
1	1	Foremaster	T35N, R13W, Sec 6, NW,NE1/4
	2	Ft. Garrett	T32N, R14W, Sec 15, NE,SW1/4
	3	Mt. Dellenbaugh	T32N, R12W, Sec 34, SE1/4
	4	Yellow John	T32N, R11W, Sec 22, SE,SE1/4
	5	Snap Rim	T32N, R13W, Sec 8, SW,NW1/4
	6	Gardner	T33N, R13W, Sec 29, SE,SW1/4
2	7	Pine Well	T32N, R11W, Sec 20, Center
	8	Twin Point	T31N, R12W, Sec 6, SW1/4
	9	Sanup	T32N, R14W, Sec 25, SE,NW1/4
	10	Tincanebitts Can.	T32N, R13W, Sec 34, SE,SE1/4
	11	Mociac	T32N, R12W, Sec 32, NE,NE1/4
	12	Kelly Dam	T32N, R12W, Sec 23, SE1/4
3	13	Castle Peak	T32N, R12W, Sec 4, SE1/4
	14	Dansil Canyon	T32N, R11W, Sec 5, SW1/4
	15	Upper Pigeon	T33N, R13W, Sec 13, NW1/4
	16	Grassy Point	T33N, R10W, Sec 9, SW,NE1/4
	17	Andrus Canyon	T33N, R11W, Sec 28, SE1/4
	18	Dry Canyon	T35N, R13W, Sec 14, NW,NW1/4
4	19	Hidden Canyon	T35N, R12W, Sec 18, NW,NE1/4
	20	Grassy Mountain	T33N, R11W, Sec 10, NW1/4
	21	Tincanebitts Pt.	T33N, R14W, Sec 23, NW,NE1/4
	22	Pigeon Canyon	T33N, R13W, Sec 16, SW,NW1/4
	23	Gardner Canyon	T33N, R13W, Sec 26, SW,SW1/4
5	24	Snap Draw	T32N, R13W, Sec 10, NW,SE1/4
	25	Oak Grove	T32N, R12W, Sec 18, Center
	26	Salt House	T32N, R13W, Sec 21, SE,SW1/4
	27	Parashaunt	T33N, R12W, Sec 14, Center
	28	Lower North Tank	T34N, R13W, Sec 1, SE,NE1/4
	29	Empey	T35N, R12W, Sec 29, NE,NE1/4
6	30	Wildcat	T34N, R12W, Sec 35, NW,SW1/4
	31	Red Pond	T34N, R11W, Sec 20, SW,NW1/4
	32	Agway Wash	T34N, R11W, Sec 27, NE,NE1/4
	33	Agway Valley	T34N, R12W, Sec 14, NW,SE1/4
	34	Parashaunt Wash	T34N, R12W, Sec 9, NW1/4
	35	Overnight	T34N, R12W, Sec 19, SE,NW1/4
	36	Hidden Hills	

BS-2: Construct eight bighorn sheep waters by 1988 in the various locations listed below. Develop waters without creating vehicular access, and where feasible locate waters so they are not accessible to livestock and burros. Fencing may be

required in some cases to insure inaccessibility to livestock and burros. The Squaw Canyon and Grand Gulch Catchments should be constructed before the release of sheep.

Year	Priority	Name	Location	Remarks
1	1	Squaw Canyon Catchment	T35N, R14W, Sec. 28	Locate close to good escape cover.
	2	Grand Gulch Catchment	T34N, R14W, Sec. 17	" " "
	3	Pick Spring Development	T33N, R14W, Sec. 4	Develop with storage.
2	4	Olaf Knolls Catchment	T35N, R14W, Sec. 3	Locate close to escape cover.
	5	Cunningham Can. Catchment	T33N, R14W, Sec. 30	" " "
	6	Ferguson Pockets Catch.	T36N, R14W, Sec. 14	" " "
3	7	Mustang Point Catchment	T33N, R14W, Sec. 23	" " "
	8	Grand Gulch Bench Water Development	T34N, R14W, Sec. 35	Pipe off from Pigeon Water Tank to a ground-level drinker. Place close to escape cover.

T-1: Construction of water catchments in turkey habitat as a result of planned action MD-1 and ensuring that existing water on public lands are accessible to turkey would provide for adequate water distribution. The catchments identified for construction that would best enhance turkeys are:

1. Kelly Catchment
2. Mociac
3. Oak Grove
4. Castle Peak
5. Mt. Dellenbaugh
6. Pine Well

A ground level drinker installed and fenced at the existing Burnt Canyon Catchment would provide water in the Mt. Dellenbaugh area.

C-2: Water developments already proposed for bighorn sheep will supply sufficient water for chukar. At least two catchments should be developed before the release.

2. Vegetation Treatments

MD-5: To improve the quality and increase the quantity of mule deer summer range within the HMP area will require completing several land treatments in pinyon-juniper and sagebrush communities. Allotment management plans also propose large areas of land treatment. These treatment areas should be coordinated to include and support this objective. The treatment areas, methods of treatment, and extent of the areas are:

Management Unit	Service Area	No.	Est. Acres	Type and Method of Treatment
Hidden Hills	Foremaster	FM-1	25	Burn side canyon
		FM-2	35	with good understory
	Upper Last	ULC-1	35	" "
	Chance Spring	ULC-2	25	" "
	Rattlesnake	RS-1	20	" "
	Spring	RS-2	25	" "
		RS-3	32	" "
	Dry Canyon	DC-1	30	" "
		DC-2	40	" "
	Last Chance	LC-1	25	
		LC-2	23	
		LC-3	45	
		LC-4	28	
		LC-5	30	
	North Tank #2	NT-1	32	
		NT-2	28	
	North Tank #1	NT-1	26	
		NT-2	20	
	Hidden Canyon	----	--	Program at later date when deer
	Empey	----	--	numbers warrant treatment
	Lower N. Tank	----	--	
	Hidden Lake	HL-1	50	Herbicide or chain
		HL-2	45	" "
	Coyote Spring	----	--	Program at later date
	Pigeon Tank	----	--	" "
Snap Point	Upper Pigeon	----	--	Program at later date
	Upper Pigeon Spring	----	--	" "
	Pigeon Canyon	----	--	" "
	Gardner	G-1	35	Burn or chain
Snap Point	Gardner Canyon	GC-1	26	Chain or herbicide,
		GC-2	40	then plow
		GC-3	20	

Management Unit	Service Area	No.	Est. Acres	Type and Method of Treatment
	Snap Draw	SD-1	30	" "
		SD-2	35	" "
	Salt House	SH-1	28	" "
		SH-2	20	" "
		SH-3	15	" "
	Snap Rim	SR-1	25	Burn
		SR-2	55	"
		SR-3	50	"
		SR-4	58	"
		SR-5	60	"
	Sanup	S-1	20	"
		S-2	23	"
		S-3	30	"
	Snap Spring	SS-1	40	"
		SS-2	42	"
	Ft. Garret	----	--	Program at later date
	Tincanebitts Spring	----	--	" "
	Tincanebitts	----	--	Sufficient treatment nearby
Mt. Dell-enbaugh	Mociac	----	--	" "
	Oak Grove	----	--	" "
	Dellenbaug	----	--	" "
	Twin Point	----	--	" "
	Castle Peak	CP-1	50	Chain were soils
		CP-2	43	permit
	Govt. Well	GW-1	25	Plow and seed
		GW-2	25	" "
		GW-3	25	

The order of accomplishment of the actions will depend upon weather conditions and methods and funding available at particular times. All work will be completed before 1995. Seed mixtures for the treated areas, if required, will be according to those identified by Perry Plummer for specific vegetal types in his publication Restoring Big Game Range in Utah, 1968.

T-3: Adequate grass/forb component will be provided within turkey habitat areas. This will be accomplished by treating selected areas. They are K.D. 1,2,3 (already identified in MD-1) and are high priority turkey habitat improvements.

Insuring that important turkey forage species are included during seed mixture preparation for livestock/wildlife treatment areas within turkey habitat will also increase the grass/forb component. Seed mixtures will include:

1. Sand Dropseed (Sporobolous cryp.) - 1 lbs./acre

2. Blue Gramagrass (B. gracilis) - 1/2 lbs./acre

3. Fescue (Festuca arizonica) - 1 lbs./acre

4. Golden eye (Viguiera multiflora) - 1/2 lbs./acre

5. Ragweed (Ambrosia artem.) - 1 lbs./acre

Close coordination with the range conservationists in developing and implementing grazing systems will ensure that acceptable range conditions are provided for turkey, especially close to turkey roost and watering sites.

3. Habitat Studies and Monitoring

MD-2: A habitat rating system that identifies the forage values provided to mule deer in the HMP area will be developed by 1988. To develop such a system, information will be collected. Data collection will involve the following:

a. Determining mule deer diets at various elevations, cover sites, and seasons. Systematically collecting fecal samples at established collection sites will be continued.

b. Determining the percent crude protein, phosphorous, calcium, acid detergent fiber in vitro digestibility, and other applicable parameters of key mule deer forage species. Sampling seasonally from various soil types and elevations by clipping key forage species.

Once sufficient information exists, the habitat rating system will be completed for the HMP area.

MD-3: Enough information to identify mule deer population trends, use areas, and diets will be provided annually by continuing to monitor the 320 pellet plots already established and by creating and monitoring sufficient plots in existing and proposed key areas. The existing and new plots will continue to be established and monitored as a cooperative effort of AGFD and BLM.

At a minimum pellet plots will be established in

a. Rattlesnake Canyon Key Area #1 and #2.

b. Last Chance Canyon Key Area #3.

c. Dry Canyon Key Area #1 and #2.

MD-8: A source of information to detect changes in mule deer habitat condition, trend, and utilization will be developed by

identifying key areas in all the management units. Key areas will be established in summer and winter range habitats in each management unit. Enough key areas will be established to detect the changes. Key areas will be established by 1988.

BS-3: After establishing bighorn sheep, identify key areas to monitor wildlife habitat condition and trend. Key areas would be lambing areas and concentration areas in which diet information and overall habitat studies would be initiated.

BS-12: Monitor livestock water facilities in Hidden, Pigeon, and Snap Canyons to ensure water exists yearlong for bighorn sheep.

F-1: Information will be gathered on the occurrence, distribution, and relative abundance of furbearers according to the habitat types by 1990. This information will be obtained by:

a. Documenting furbearer sightings.

b. Establishing and monitoring scent post transects as necessary and feasible.

c. Annually gathering and analyzing furbearer harvest data and the FWS predator control information.

The efforts to achieve this planned action will be a cooperative effort of the FWS, AGFD, and BLM.

R-3: Continue to monitor and collect site-specific habitat data for various species of raptors through the following actions:

a. Continue to monitor important existing nest areas, and through periodic aerial and ground surveys, identify additional nesting habitat.

b. Survey ponderosa pine habitat to determine the distribution and habitat requirements of goshawks, coopers hawks, sharp-shinned hawks, and flammulated and spotted owls.

c. Record all sightings of threatened, endangered, and sensitive species of raptors and investigate any potential nesting areas. If peregrine falcons occur in the area, they will be managed in accordance with the peregrine falcon recovery plan.

NG-3: To keep current on nongame species occurrence and specific areas of use, wildlife observations will continue to be used. As a supportive action, BLM will encourage and support species occurrence, distribution, and basic habitat requirements studies. The information obtained can then be

used to aid BLM in managing specific areas. If funding becomes available, site specific nongame data gaps will be filled by funding through the BLM.

Filling data gaps would be most valuable as they relate to the following species:

a. Black-tailed rattlesnake
b. Grand Canyon rattlesnake
c. Gila monster
d. Desert tortoise
e. Southwestern toad
f. Great Plains toad
g. Canyon tree frog
h. Western skink
i. Many-lined skink
j. Desert iguana
k. Chuck walla
l. Sonoran mountain kingsnake
m. Mountain cottontail
n. Round-tailed ground squirrel
o. Northern pocket gopher
p. Bushy-tailed woodrat
q. Montane vole
r. Long-tailed vole
s. Desert shrew
t. Desert kangaroo rat
u. Desert pocket mouse
v. Great Basin pocket mouse

BLM Manual 6602 will serve as a guide in classifying habitats and determining habitat requirements, species occurrence, and distribution of nongame animals.

4. Livestock Grazing Management

MD-4: To accomplish the objective of improving current range conditions, it will be necessary that wildlife input is an integral part of the development and/or implementation of allotment management plans. The following allotments are most critical:

1. Grassie Mountain.
2. Wildcat.

At a minimum the following areas must be improved through intensive grazing management.

1. Pigeon Canyon.
2. Hidden Canyon.
3. Hidden Rim (Grassie Mountain Allotment).

4. Grassie Mountain Area and vicinity.

5. Parashaunt Canyon (breaks on west side and bottom).

6. Andrus Canyon (bottom).

These AMPs will be developed with enough wildlife consideration to allow the improvement of desirable deer forage species and the overall vegetation composition.

BS-4: Encourage the implementation of livestock grazing systems and forage utilization compatible with bighorn sheep habitat needs. Implementing the Grassie Mountain and Wildcat AMPs would improve current habitat conditions.

BS-6: Limit the construction of additional livestock waters in bighorn sheep habitat that would cause moderate to heavy utilization next to good escape cover and sheep concentration areas, including lambing grounds. Construction would be evaluated on a case-by-case basis and primarily refers to proposed projects along the Upper and Lower Grand Wash Cliffs. AGFD recommends that livestock waters not be constructed within 2.25 miles of good escape cover and sheep concentration areas.

BS-7: Ensure that domestic sheep are not authorized in bighorn sheep habitat before coordination with AGFD as outlined in ASO IM No. AZ-79-185, 1/30/80.

R-1: Encourage good range conditions through intensive grazing management systems, and light-to-moderate utilization one mile above and below crucial cliff nesting areas in Pigeon, Hidden, Snap, Andrus, and Parashaunt Canyons, the upper Grand Wash Cliffs, and Snap Point. Light-to-moderate utilization along rim areas would be accomplished by adjusting proposed livestock water facilities.

NG-1: In order to accomplish the objective to improve current range conditions and thus enhance the quality and quantity of nongame habitat, it will be necessary that wildlife habitat is an integral consideration in the development of allotment management plans. Inasmuch as the desert tortoise and the gila monster are sensitive species, the areas inhabited by them will rate as high priority for development of AMPs. Areas suspected to support the desert shrew and the desert kangaroo rat will also be high priority.

Because of the limited size and occurrence of wash bottoms and riparian areas that support the greatest diversity of nongame species, special emphasis must be included in the AMPs to insure livestock utilization is compatible with the habitat requirements of various nongame. If grazing seasons or systems are detrimental to isolated habitats, fencing may be required to remedy the problem as a last resort. Areas of greatest concern are Pigeon (upper and lower), Lower Snap, Hidden,

Foremaster, Parashaunt, and Andrus Canyons, Grassy Mountain and West Breaks. Maintaining utilization of 40-60 percent and deferring grazing until after seed ripening and nesting is one alternative that should be considered. Short duration high-intensity grazing should be discouraged, especially in spring and summer.

SG-1:

a. Herbaceous vegetation (food) and shrub species (cover) in the HMP area, especially in Hidden, Pigeon, Andrus, Parashaunt, and Grassy Mountain Canyons will be improved with the development and implementation of intensive grazing management systems. Restricting utilization of forage species to 50 percent will ensure that adequate food and cover remain to support small game species.

b. Seeding mixtures for rehabilitating land treatment projects will include plants preferred by Gambel's quail and desert cottontail--primarily forbs.

c. At the completion of vegetation manipulation projects adequate cover will be left to support small game. These will be brush piles and/or felled trees evenly distributed over the treatment areas.

5. Waterfowl Habitat Development

WF-1: Develop Kelly Dam as a waterfowl habitat area by 1986.

a. Reconstruct the present dam to include a bentonite core and an adequate drain and overflow system. Bentonite the area from the toe of the dam outward.

b. Plow and seed 15 acres around the dam site with plants that will benefit both waterfowl and big game.

c. Fence seeded areas to aid establishment of seeded species.

Project feasibility will be conducted prior to any construction work. As a result of the feasibility, changes may have to be made in overall objective.

6. Riparian Area Management

R-2: Continue to monitor riparian and semiriparian habitats and upgrade the habitat condition of areas in which resource deterioration is occurring by 1986. Canyon and spring areas with good overstory components must be monitored to ensure that adequate reproduction and habitat conditions are maintained or actions taken to correct resource conflicts.

7. Turkey Habitat Management

T-5: To perpetuate pine stringer stands and allow turkeys to continue to benefit from them, the following actions will be taken:

a. Pine stringers will be protected by banning timber harvests within isolated pine stringers.

b. The Class VI designation will continue and wildfires will continue to be suppressed immediately.

c. Implementing prescribed burning or hand thinning projects in pine stringer areas, as the need is identified, will ensure that pine stringers are perpetuated.

d. BLM will investigate the possibility of acquiring portions or all of the ponderosa pine habitat in Sections 20 E1/2, 29, 31, and 33, T. 32 N., R. 12 W.

8. Ecosystem Management in Ponderosa Pine Habitat Types

T-4: Ponderosa pine habitat will be managed to ensure that turkey roost tree stands are not jeopardized as a result of timber harvesting. Before any timber harvest authorizations, specific roost sites and nest site recommendations and actions will be subject to the following stipulations:

a. Roost trees with DBH of 25 inches or greater and average height of 80.2 feet will not be removed, especially on sloping ground.

b. Roost tree groups will involve at least 13 trees per group.

c. Roost sites will not be thinned below 80 square feet/acre basal area.

d. Nest sites (brush piles) will be left at distances within 1/2 mile of water.

e. Areas will not be logged between May 1 and June 30 of each year because of nesting activities and the physical condition of the trees.

KS-2: To insure timber harvest proposals are compatible with Kaibab squirrel requirements:

a. Maintain 50 percent of the habitat or 360 acres at greater than 75 Ba/Ac. This will require at least 123 acres (nesting habitat) remain above 100 Ba/Ac, and at least 238 Ac are maintained above 75 Ba/Ac.

b. Maintain a 75-100 foot buffer around squirrel nest trees and retain all trees with interlocking crowns around the nest tree.

c. Detain all feed trees with 10 or more clippings.

R-4: The following planned actions are required to maintain sufficient habitat quality and quantity for accipiters and woodland owls:

a. Maintain existing accipiter nesting densities, especially in relation to goshawks on the Parashaunt-Mt. Dellenbaugh forests (public lands). This would be accomplished by maintaining 246 acres of > 100 square feet Ba/Ac for goshawks and retaining existing stands > 50 square feet Ba/Ac until proposed study plots indicate adequate natural regeneration is assured (PTMP).

b. If a limited timber harvest is found feasible, apply the following:

   (1) Maintain 246 acres of 100 square feet Ba/Ac and maintain 200 more ac of > 75 square feet Ba/Ac at all times to ensure adequate nesting densities.

   (2) Density of trees should not fall below 20 trees/acre within the 15-25 inch DBH class.

   (3) Keep at least 200 foot buffers around nest trees.

c. Maintain adequate snag densities, 3 per acre and an additional 3 per acre with snag potential to ensure adequate nest cavities for pygmy, flammulated and saw-whet owls. See nongame bird section for snag stipulations.

d. Ensure that broad-leaved trees, such as Gambel oak and locust, are not removed during silvicultural operations.

e. Maintain and improve existing ponderosa pine stringers in the HMP area through a prescribed burning program to promote seedling establishment.

9. Protective Fencing

NG-2: Planned actions identified in MD-1, BS-10, and BS-11 provide for the improved management of wildlife waters. Because the vegetation associated with live water sources is an important component of certain nongame habitat, spring environments and certain riparian areas must be protected from livestock grazing. Fencing will be required in areas that have failed to respond to livestock management practices. The availability and safe use of watering facilities by nongame species will be enhanced by implementing planned actions MD-1 and SG-2. Any additional waters identified hazardous to nongame species will be modified.

Because of its unique values to nongame wildlife, Log Spring should be managed under multiple use. This privately-owned area must be acquired by BLM or through the Nature Conservancy to ensure the continued maintenance of optimum habitat conditions.

10. Criteria for Land Use Authorizations

MD-6: Proposed actions for various land use activities will be evaluated on a case-by-case basis. The BLM wildlife biologist and the AGFD will contribute to the analysis of the anticipated impacts and mitigating measures of each project.

MD-9: At least 66 percent of the HMP area will be maintained in acceptable cover condition. The four units and specific cover requirements of each unit are:

Management Unit	Available Cover (Ac)	Minimum Cover Required (Ac)	Available For Treatment (Ac)
Mt. Dellenbaugh	44,773	37,588	7,185
Hidden Hills	56,634	37,378	8,416
Grassy Mountain	37,395	24,680	5,129
Snap Point	48,302	36,611	8,573
TOTALS	187,104	136,257	29,303

In addition to cover requirements for each unit, specific criteria will be considered during the feasibility and design phases of land treatment projects to ensure adequate cover is provided. The following criteria do not consider multiple use objectives but are to be used as guidelines from which final designs will be developed.

1. Pinyon-juniper control projects should be confined to extensive, dense stands more than 1/2 mile wide exhibiting

   - average crown cover exceeding 20 percent;
   - overall densities greater than 75 trees per acre; and
   - widespread scarcity of all forage species, including herbaceous and shrubby.

2. Cleared areas should be no wider than 660 feet.

3. Clearings need not be of equal length and width but should not be excessively long.

4. Clearings should have irregular boundaries.

5. Cleared areas in the aggregate, should cover less than 1/3 of the project area (no more than 213 acres per section should be cleared.)

6. Control strips or patches (leave areas) should be at least 100 feet wide.

7. Leave areas should be at least as wide as control areas.

8. Roadways should be bordered by leave areas.

9. Leave areas should occur within a 1/4 mile radius around recreational developments.

10. Riparian vegetation must remain undisturbed.

11. Ponderosa pine stringers must remain undisturbed.

12. Pushing (bulldozing) is preferrable to chaining where mature cliffrose plants occur.

13. Most of the dead tree debris should be left scattered and intact. Disposal serves little or no useful purpose for most wildlife species and may even be detrimental. As an alternative, debris could also be piled in openings and left in place. To reduce fire hazard, burning may be necessary.

BS-8: Continue to monitor all mineral and oil and gas exploration and production activities. Discourage any significant habitat deterioration and new road construction. The BLM wildlife biologist and the AGFD will analyze specific impacts and propose mitigating measures.

BS-9: Closely monitor and enforce ORV use in bighorn sheep habitat.

NG-4: Certain habitat components are necessary to the life requirements of some nongame species. Caves are essential to bats for rearing their young and as a place for hibernating in winter. Suitable roosting sites, such as caves, crevices, trees, old buildings, and areas of rugged terrain, may also be valuable to meet the physiological requirements of bats. Cavity nesting birds require specific habitats that must be maintained in suitable condition.

This HMP is not intended to construct or provide for additional habitat components as those described but to insure that naturally existing habitats are maintained and protected. As a result of this planned action, such protection and maintenance will require before any land use authorization, sufficient information to determine that nongame wildlife values in the area are protected. Site-specific field investigations will be held to assess the nongame wildlife values. The findings will be included as a component of the environmental analysis. Nongame impacts will be projected and mitigating measures devised from the analysis of site-specific wildlife data.

NG-5: If certain land use activities--especially land treatments--are deemed necessary and allowable, nongame requirements will be included in the design and mitigation of the projects.

In designating areas for either personal use or contract woodcutting, the following guidelines will be followed to insure the habitat in the Parashaunt and Mt. Dellenbaugh forests remains in suitable condition for the primary and secondary cavity nesters.

- Diameter of snag should be greater than 13 inches.
- Total height of snag should be greater than 20 feet.
- Percent bark cover should be greater than 40 percent.
- Snags with broken tops should be used if they fit the above criteria.
- Ponderosa snags in the most frequently used age range of 5-29 years should be saved.
- Largest snags should be saved.
- All oaks (Gambel) and locust trees must be left uncut.
- Secondary cavity nesters such as white-breasted nuthatch utilize the dead strips from lightning strikes. Since such trees are usually poor quality timber trees, they should be saved for immediate use by the birds and as a means of producing future snags.
- Hard snags could be removed in preference to soft snags, if necessary. If possible, however, hard snags should be saved as territory and perching posts.
- Live ponderosa pines with dead tops should be left for nest and roost sites and for future snag replacement.
- Snag density in reference to woodpecker populations should be determined through the use of the identified function, based on District breeding bird data, silvicultural systems and rotations, and actual stand characteristics. The SCN snag rate should be based on Balda's 1975 figure 6.5 snags/Ha or on District breeding bird data.
- The irregular shelterwood (Hawley and Smith 1954) to allow a limited harvest should be the only silvicultural system used in the Parashaunt once it is determined if this area can be properly managed through silvicultural treatments.

Other vegetation manipulation projects besides woodcutting practices will include the spacial and cover design requirements, especially in pinyon-juniper communities. These

requirements are addressed in the MD-9 section of this HMP. Nongame will benefit from vegetation manipulation of forest woodlands if the above guidelines are followed.

In addition, brush piles must randomly remain throughout the treatment area. The brush piles will serve several purposes for nongame species and provide a protected seed bed for new plant establishment. The abundance of litter following land treatments will enhance the nongame species in the area.

The development of presuppression fire breaks at key points around identified Joshua tree woodlands is required in the fire management plan. The issuance of free-use permits for live plants is not an approved action in the Arizona Strip District. This policy must continue in the HMP area. The Joshua tree woodland must be protected from plant removal to ensure the continuation of this unique plant community and its associated nongame.

11. Species Management

MD-7: AGFD will continue to conduct annual studies to identify trends, sex ratios, and fawn survival. The information will also be used as an indicator of how well deer populations are responding to intensified habitat management. Additional objectives or modification of existing ones may result from these studies. BLM will cooperate in the studies as requested.

BS-1: Reintroduce desert bighorn sheep by 1985 into the Grand Wash Cliffs area and ultimately establish a viable population. Tentative release sites are discussed in the habitat analysis. This action will be based on the availability of sheep and funding and would be conducted by AGFD in cooperation with BLM.

BS-13: AGFD will conduct sheep population monitoring as needed to determine numbers, health, movement and important use areas on a yearly basis. BLM specialists will assist as requested. Data from these monitoring programs will be available to monitor HMP progress. BLM will document incidental sightings of bighorn sheep for support of the sheep monitoring.

T-2: Reintroduce turkey in the Mt. Dellenbaugh unit following construction of the Kelly and Mociac catchments at any or all of the following sites: Oak Grove, Kelly Dam, Lake Flat. Additional transplants will be made as needed to establish a viable flock by 1990. The transplants will be done by the AGFD in cooperation with BLM as funding and manpower priorities allow.

F-2: Information will be obtained on the size and economic value of furbearers in the area by 1990 by continuing to gather and analyze predator harvest data from the FWS and from the AGFD sport harvest reports. This information will provide fur harvest trend and the economic value of furbearers to the sporting community.

KS-1: Introduce Kaibab squirrels into the Parashaunt forest and establish a viable population level that will provide recreational opportunities as funding and manpower priorities allow.

BB-1: Before 1995 identify the area used by black bear.

a. Record all sightings and signs of bear.

b. Conduct a habitat suitability inventory for bears. AGFD will conduct the inventory as funding and manpower priorities allow and explore the possibility of black bear reintroduction into the area.

ML-1: By 1990 AGFD will conduct a mountain lion population density and distribution assessment within the HMP area if funding and manpower priorities allow.

If mountain lions are found to be restricting the ability of mule deer and bighorn sheep to reach management goals, AGFD will try to remedy the problem.

C-1: Introduce chukars into the Lower Grand Wash Cliffs as funding and manpower priorities allow. More chukars will be transplanted as needed to establish a viable population.

MD-1b: Mule deer access will be provided at the following livestock water facilities. At least 50 percent of the water facility will be negotiable by deer in compliance with BLM Manual 1737. If solutions are not achieved as a result of fence modification then additional measures or modifications may be needed. Gates for access should only be installed as a last resort and should not be used in high density areas. Spring sources will be modified before 1988 to provide ground level wildlife troughs to permit year-round deer use.

Priority	Water Facility	Location	Remarks	
			Fence	Trough
Year 1:				
1	Gordon Springs Protection Fence	T36N, R13W, Sec. 35	X	X
2	Lower, Lower Last Chance Spring & Upper, Lower Last Chance Spring	T36N, R13W, Sec. 33	X	X
3	Rattlesnake Spring Corral	T35N, R13W, Sec. 3	X	X
4	Tincanebitts Tank	T32N, R13W, Sec. 32	X	

Priority	Water Facility		Location	Remarks Fence	Trough
5	Fence Pond		T33N, R13W, Sec. 33	X	
6	Snap Spring		T32N, R14W, Sec. 13	X	X
7	Upper Hidden Spring		T36N, R12W, Sec. 31	X	X
Year 2:					
8	Snap Tank		T32N, R13W, Sec. 12	X	
9	Hidden Lake		T34N, R13W, Sec. 11	X	
10	Grassy Point	(LMNRA)	T33N, R10W, Sec. 21	X	
11	North Tank		T34N, R13W, Sec. 3	X	
12	Gardner Tank		T33N, R13W, Sec. 27		
13	Upper Hidden Spring Corral		----------	X	
14	Grassy Spring Corral		----------	X	
Year 3:					
15	Pymn Canyon Pond		T33N, R11W, Sec. 11	X	
16	Link Spring		----------	X	X
17	Lower North Tank	(state)	T34N, R13W, Sec. 2	X	
18	Lower Hidden Spr. Corral	(state)	T36N, R13W, Sec. 36	X	
19	Coin Spring	(state)	----------	X	X
20	Salt House Tank (Middle)		----------	X	
21	Tungsten Spring Corral		----------	X	

Priority	Water Facility		Location	Remarks Fence	Remarks Trough
Year 4:					
22	Andrus Spring, Trough, Pond		T33N, R11W, Sec. 17	X	
23	Head of Hidden Pond		T35N, R12W, Sec. 28	X	
24	Overnight Pond		T34N, R12W, Sec. 18	X	
25	Cedar Pocket Reservoir		T34N, R11W, Sec. 35	X	
26	Pine Pond		T33N, R11W, Sec. 12	X	
27	Pigeon Tank		T33N, R12W, Sec. 6	X	
Year 5:					
28	Lower Link Ferguson Pipeline and Storage Trough		T36N, R13W, Sec. 18	X	
29	Lower Pigeon Spring Corral		T34N, R13W, Sec. 33	X	
30	Broken Pond		T34N, R11W, Sec. 28	X	
31	Red Pond		T34N, R12W, Sec. 25	X	
32	Esplin Tank	(state)	T34N, R12W, Sec. 16	X	
33	Salt Spring Corral		----------	X	X

SG-2

a. Spring habitats will be protected, and especially at Snap, Link, Pigeon (lower), and Hidden (lower) Springs by implementing planned action MD-1.

b. Ground level troughs at all watering facilities will provide water for small game. All troughs in the HMP area will have incorporated into them (as a result of Manual requirement) an escape mechanism (bird ladder) to allow the exit of small game species. Existing troughs will be modified before 1990, and all new projects will include bird ladders.

MD-1c: In addition to the modification of existing spring and water areas, information needs to be obtained about the condition, availability, and accessibility of the following spring sources. A spring card will be filled out on each of the springs and used for identifying future development potential.

Spring Source	Location
Coyote	T. 34 N., R. 13 W., Section 33
Yellowstone	T. 36 N., R. 13 W., Section 29
Maverick Seep	T. 36 N., R. 13 W., Section 35
Cupe Seep (LMNRA)	T. 33 N., R. 10 W., Section 26
Seep	T. 32 N., R. 11 W., Section 14
Mud	T. 32 N., R. 11 W., Section 2
Oak	T. 32 N., R. 11 W., Section 15
Joe (LMNRA)	T. 31 N., R. 13 W., Section 7
Nipple (LMNRA)	T. 32 N., R. 10 W., Section 31
Upper Pigeon	T. 33 N., R. 13 W., Section 2
Lower Pigeon	T. 34 N., R. 13 W., Section 33
Amos	T. 29 N., R. 12 W., Section 1
Lower	T. 31 N., R. 12 W., Section 16
Twin	T. 31 N., R. 12 W., Section 8
Tincanebitts	T. 31 N., R. 13 W., Section 5

All spring sources need to be periodically monitored as to habitat condition, availability and accessibility. The following springs should receive special attention. If habitat conditions or water availability of the springs become unacceptable, actions will be taken to remedy the situation.

Spring Source	Location
Schultz	T. 34 N., R. 10 W., Section 31
Mathis	T. 31 N., R. 12 W., Section 20
Log	T. 33 N., R. 12 W., Section 35
Green	T. 31 N., R. 11 W., Section 16
Burnt Canyon	T. 31 N., R. 13 W., Section 22
Upper Pigeon	T. 33 N., R. 13 W., Section 2
Log Well (upper, lower)	T. 33 N., R. 12 W., Section 35
Twin	T. 31 N., R. 12 W., Section 8

BS-10: Ensure all livestock water facilities are modified to provide adequate access for bighorn sheep by 1985. Most facilities requiring modification were identified in the mule deer or the spring habitat section of the habitat analysis. Future water developments in sheep habitat will be designed to allow bighorn sheep access.

BS-11: Provide ground level water at spring sources within bighorn sheep habitat by 1985. Springs needing modification were documented under mule deer section of the HMP and the spring habitat section of the habitat analysis.

F-3: To ensure proper and safe furbearer access to water developments on a year round basis, escape ramps will be placed in all watering facilities as they are identified.

13. Wild Burro Management

BS-5: Ensure that wild burro distribution and density within the HMP area remain at the 1971 level (100 animals) and remove burros as needed to prevent habitat degradation. Areas of range overlap are lower Pigeon and Snap Canyons.

The planned actions described in the preceding pages will be conducted over a period of several years. Each year certain projects will be proposed. Before implementing the proposed actions, site-specific analysis will be conducted to verify the exact location of the project, its need and justification based on past completed projects, and the availability of funds. Coordination with other resource disciplines to consolidate projects in common areas would reduce the total number of range improvement projects, making them more cost effective and multiple use oriented.

All actions would be conducted according to current policy and require standard mitigating measures and clearances before project completion. All actions that would alter or disturb the soil surface will comply with visual resource management guidelines. Each of these actions will require a visual contrast rating which includes an effort to minimize visual impacts.

Unless otherwise described, no actions would impair wilderness suitability, destroy identified cultural resources, permanently degrade visual resources or jeopardize threatened or endangered plant and animal species.

B. Alternative

The alternative to HMP implementation is to not implement the plan, either entirely or in part and to continue with the existing management situation.

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. Location

The Parashaunt Wildlife Habitat Area--Terrestrial Number Three (WHA-T3)--lies within the Bureau of Land Management's (BLM) Arizona Strip District in Arizona. The "Strip" is separated from the rest of Arizona by the Colorado and politically separated from Utah and Nevada by state lines. The area is bordered on the south by the Lake Mead National Recreation Area and the Grand Canyon National Park, on the west by the Grand Wash Cliffs, on the north by Hidden Canyon, and on the east by a line running from Parashaunt Canyon to Hidden Canyon.

B. Acreage

The area encompasses approximately five townships and five ranges of the Gila-Salt River Base Meridian. It is centered in T. 33 N., R. 12 W., and totals 376,760 acres, including state and private land.

The public lands of WHA-T3 are administered by the BLM. Species management is the responsibility of the Arizona Game and Fish Commission and is administered by the Arizona Game and Fish Department (AGFD) Region III in Kingman, Arizona. The area is in game management unit 13B.

C. Topography

The habitat area varies from steep cliffs of the Upper and Lower Grand Wash Cliffs and Parashaunt Canyon to flat-topped mesas of the Shivwits Plateau and benches of the Lower Grand Wash Cliffs. The formation of diversified topographic features in the HMP area has resulted from uplifting in fault areas which has also created a wide variety of habitats within a small geographic area.

Other prominent features in the HMP area include Mt. Dellenbaugh, Snap Point, Grassy Mountain, Yellow John Mountain, and Pigeon, Snap, Parashaunt, and Andrus Canyons.

D. Soils

Soils of the Shivwits Plateau are formed mainly from basalt. Five soil associations occur within the HMP area. See the habitat analysis for a complete discussion of the soils.

E. Climate

Three major air masses, the tropical, Pacific, and the northern jet stream, create a biseasonal climatic pattern. Two major storm periods occur in the winter (December to March) and summer (July and August). Precipitation during these periods provides most of the annual precipitation which varies from 6-15 inches, depending on the elevation and year. Refer to the habitat analysis for a detailed discussion.

F. Flora

A vegetative inventory conducted during the 1980/81 field season identified nine vegetative communities within WSA-T3. They are:

1. Ponderosa Pine
2. Pinyon-Juniper Woodland
3. Sagebrush
4. Mountain Brush/Desert Shrub
5. Blackbrush

6. Creosotebush/Bursage

7. Joshuatree Woodland

8. Wet Meadow

9. Seedings

The wide range in elevation, precipitation, soil, and land use accounts for the diversity of plant species.

The Federal Registers of July 1, 1975 and June 16, 1976 list names of plants proposed for classification as endangered or threatened. Eighteen plants within the Grand Wash area were proposed as endangered. Thirty-four plants were proposed as threatened. (See Grand Wash URA Step II).

The total acreage, health, and composition of the vegetation communities is discussed in great detail in the Parashaunt Habitat Analysis.

G. Fauna

Animal species that inhabit WHA-T3 are as diverse as the plant communities in which they live. Two of the big game species in the area are the mule deer (Odocoileus hemionus) and the bighorn sheep (Ovis canadensis nelsoni), neither of which is numerous. Mountain lions (Felis concolor) are believed to be common and may be responsible in combination with other factors for suppressing the other big game species. Potential exists for obtaining desirable balances of all big game species in WHA-T3.

Bird species are abundant, constituting the majority of the wildlife species in the area. Reptiles and amphibians are also abundant. The sensitive species desert tortoise (Gopherus agassizii) (State-listed T and E) and Gila monster (Heloderma suspectum) inhabit the area at the lower elevations.

Potential exists for increasing numbers and diversity of animal species through transplants.

Information is lacking on the occurrence of wildlife species by specific habitats and needs to be obtained. The most reliable listing of the animal species, their abundance and the vegetative type in which they occur is found in the Grand Wash URA Step II.

No known federally-listed threatened or endangered animal species exist within WHA-T3. The bald eagle, Haliaeetus leucocephalus, and the peregrine falcon, Falco peregrinus, may inhabit the area during seasonal migrations, but their occurrence is rare.

H. Livestock

Cattle graze within WHA-T3 on all, or portions of 10 grazing allotments. No domestic sheep are currently authorized.

Competition with wildlife for food and water is a recognized problem within the HMP area. Multiple use management concepts support the continuation of livestock grazing. The Grand Wash MFP identifies the guidance and decisions permitting this continuation.

Areas surrounding water sources and drainage bottoms are most heavily grazed. Steep rocky ridges receive little or no grazing. Areas more than 2 miles from waters also are lightly grazed.

Two allotments in the area, Parashaunt and Grassie Mountain, have approved allotment management plans (AMPs) identifying management goals and methods to be applied. The AMPs restrict grazing intensity to no more than 50 percent utilization of the key forage species. Livestock will be removed or relocated once BLM determines proper utilization has been achieved.

The eight remaining allotments are also scheduled for AMP implementation. AMPs will be written and approved before 1985.

The following table identifies the current livestock grazing operations in WHA-T3.

Livestock Grazing Operations in WHA-T3

Allotment	AMP Written	Permittee	AUMs	Class of Livestock	Season-of-Use
Grassie Mountain	Yes	Roland Esplin	10,174 (5,519 Suspended)	Cattle	3/1-2/28
Parashaunt	Yes	G & F Ranches	3,178	Cattle	3/1-2/28
Wildcat	1983	J. D. Waring	4,593 (2,090 Suspended)	Cattle	3/1-2/28
Pakoon	No	Roland Esplin G & F Ranches	989 534	Cattle	2/1-6/15
Tassi	1982	Dennis Whitmore	1,188	Cattle	3/1-2/28
Last Chance	1983	LeGrand Brinkerhoff	609 (346 Suspended)	Cattle	3/1-2/28
Link Springs	No	Annabelle Brinkerhoff	1,094 (685 Suspended)	Cattle	3/1-2/28
Hidden Springs	1985	Kay Bundy	1,256 (631 Suspended)	Cattle	3/1-2/28
Penns Well	1982	Afton Snyder	144	Cattle	6/1-11/30
Dripping Spring	1982	Afton Snyder	448 (525 Suspended)	Cattle Horses	12/1-5/31

I. Burros

Burros inhabit the lower benches of the HMP area, especially where the low desert rises from Lake Mead into the Lower Grand Wash Cliffs. Total numbers of burros are not known, but the HMP area possibly supports 20 burros at any given time.

The general health of the population is good. Thirteen foals per 100 adults translate to approximately 26 young/100 adult female burros.

Management of the burros as proposed in the draft Tassi-Gold Butte Herd Management Plan will:

1. Maintain a healthy population of wild free-roaming burros in ecological balance with rangeland resources;

2. Remove excess burros;

3. Plan range improvements and future grazing AMPs in the area to enhance the burro program; and

4. Implement studies and perform annual evaluations to monitor attainment of the plan's objectives.

The plan is expected to be implemented in fiscal year 1983.

J. Water

The HMP area has about 40 springs and seeps and no perennial streams, lakes, or rivers. Additional water sources are provided by precipitation that accumulates in rock depressions and stock ponds.

The spring environments are characterized by wet surface areas and the establishment of hydrophilic plants. Spring conditions vary according to their accessibility by cattle and burros.

Some of the springs have been developed and fenced to provide water storage and reduce the deterioration of the natural spring environment. The water situation is described in detail in the habitat analysis.

K. Fences

Fences were not constructed until the early 1900s when homesteading began. During that time fences were constructed to control livestock. Allotment and pasture boundary fences are still used and maintained to control livestock. Fences constructed in more recent times have been assigned project numbers, which can be found in the project files located in the district office. None of these fences have been identified as being hazardous to the free-roaming nature of mule deer and other wildlife species.

A common livestock practice in the area is for the ranchers to fence springs and water troughs so that these areas can be used as catch pens for cattle. This often precludes the safe access by deer into these waters. The HMP area has 25 of these fenced spring areas.

L. Human Population and Use of the Area

The HMP area has no year-round residents, homesteads, communities, or towns. There are no electrical or telephone systems. Seven old range cabins provide living quarters for cowboys and recreationists. Two of the cabins are used regularly about 9 months out of the year.

The main use of the HMP area is for livestock grazing on the public lands. The area provides the basis for supporting the year-round ranching operations that support a dozen families in Southern Utah.

Recent uranium exploration has resulted in a large influx of approximately 50 people at the southern tip of the Parashaunt. Money generated from these operations support families throughout the country.

M. Wilderness and Unique Characteristics

The Parashaunt HMP area encompasses all or part of 13 wilderness study areas (WSAs). Three of these areas, 1-111, 1-109, and 1-105A, were recommended as suitable for wilderness designation in Step 1 MFP but were dropped from the MFP Step 2 recommendation.

The HMP area provides unconfined opportunities for primitive recreation and has splendid scenic views. Man's activity has been slight in the past, leaving few scars on the landscape.

Though all of the WSAs have been recommended in the MFP Step 2 as unsuitable for wilderness designation, all 13 WSAs will be managed under the Interim Management Policy and Guidelines of December 1979 until Congress makes a final wilderness determination.

III. ANALYSIS OF THE PROPOSED ACTION AND ALTERNATIVES

A. Environmental Impacts

1. Anticipated Impacts

a. Proposed Action

(1) Water Developments

Construction of 44 wildlife water catchments with troughs and fencing would result in the emission of particulate matter into the air during construction. Wildlife passable fencing would be required around the apron area and the trough. Approximately 40 acres of rangeland would be excluded from livestock grazing. Approximately .5 acres would be destroyed for the catchment aprons, causing site-specific irregularities on the landscape.

Increased water distribution would enhance wildlife distribution, health, and abundance. Travel on existing roads would not increase disturbance to vegetation and landscape. Soil erosion and displacement would increase during the construction phase. The water collection devices would effectively eliminate erosion once completed.

Forage conditions around the water sources would deteriorate. The loss of AUMs to livestock by construction of the catchment would be offset by drawing wildlife away from the more heavily used ranges. Water sources would open wildlife areas not currently being used.

Livestock operators may be opposed to the construction of catchments; however, the expected increases in wildlife populations would be approved by most land users.

Anticipated impacts of catchment construction have been analyzed under the Wilderness EIS. The district manager determined that wildlife catchments are permissible in WSAs and that they don't detract from wilderness values.

(2) Vegetative Treatments

(a) Chaining

Chaining as proposed would be conducted on approximately 1,000 acres within 15 treatment areas. Removal of the pinyon-juniper canopy would eliminate competition with the more desirable forage plants for space, food, light, and water. A reduction of the pinyon-juniper canopy would enhance the area as deer summer and winter range, when desirable forage species are established. It is hoped that deer numbers and health would increase. Certain raptor nesting trees may be removed. Threatened and endangered wildlife species do not inhabit the chaining area. Winter migrations of bald eagles and/or peregrine falcons may occur, but is expected to be minimal. Trees necessary for cavity nesting birds and mammals may also be removed. A reduction in the extent of the pinyon-juniper community would result in reducing dependent wildlife species now inhabiting the area. Mule deer would increase as would hunting pressure and demand by the public. Increased hunting would result in economic gain for the local economy. Chaining would cause severe surface disturbance. Watershed values of the area would be reduced initially, however, the more dense

annual and perennial forage species would establish and enhance the watershed values. Livestock forage values on the area would be greatly enhanced. Existing mining claim markers, if undetected, would be removed. Chaining impacts would be visible for approximately 30 miles. Chaining in or near a WSA is not always aesthetically complimentary, but would become less visible with plant reestablishment and the effect of irregular edges.

(b) Prescribed burning

Prescribed burning of approximately 1,000 acres of habitat within 32 separate areas would open the dense stands of pinyon-juniper, blackbrush, and sagebrush and create diversified habitats, different from the monotypic type that has been allowed to develop over the years. Animal species requiring the dense shrub cover would decline.

Mule deer could concentrate on the burns, using areas that they have not been seen in for years prior to the burn. Nongame wildlife species would increase in total numbers following the burns, however, the diversity would decrease from that which currently exists. Increased mule deer habitat would increase hunting opportunities, thus enhancing the local economy.

Heavy smoke and particulate matter would darken the sky during the burn. Watershed values of the burned areas would be reduced temporarily but should increase with the establishment of vegetation. Desirable forage species such as globemallow, penstemon, buckwheat, Indian ricegrass, blue bunch wheatgrass, oakbrush, cliffrose, and bitterbrush, would replace the existing vegetation. A relatively cool spring fire would have less impact on the existing vegetation than a hotter summer fire. Grass species are generally less affected than shrubs, however, some browse species would resprout. Cheatgrass may invade the burned area. Burning small sections of 25 acres, leaving sufficient patches of unburnt islands, would provide desirable ratios of cover and food.

(c) Herbicide Application

As an alternative or supplement to chaining, herbicide would be applied to selected areas.

Approximately 300 acres of pinyon-juniper habitat on remote areas would be treated with a herbicide to remove the overstory vegetative growth. Treated sagebrush areas would be enhanced by removing dead growth and scarifying the soil surface by plowing if possible.

Aerial application of the herbicide Graslan (active ingredients tebuthiuron, thiadiazol, dimethylurea) would eradicate most all vegetative species except grasses. Rate of extinction is based upon food reserves in the individual plants. The chemical stops plant food production and the plant then relies upon reserves which are soon depleted. The process may require up to 24 months for pinyon-juniper.

Herbicide application would result in introducing an unnatural chemical component to the environment. Persistance of the chemical is moderate in low rainfall areas as it has a half life of approximately 2 years.

Graslan would have little or no direct affect on wildlife species. Indirect effects would be a reduction in forage species and vegetation needed for cover. Animal species that require the dense cover of shrubs would be reduced. Reducing the pinyon-juniper canopy would enhance the areas as deer winter and summer range. As a result of the vegetative treatment, deer health and numbers would increase. Raptor nesting trees may be killed. Watershed values in the area would be reduced initially but should increase as more desirable plants re-establish.

Interim wilderness management guidelines allow chemical treatments of vegetation in WSAs if they enhance wilderness values. The wilderness inventory handbook identifies wilderness values as being size, naturalness, and outstanding opportunities for solitude or recreation. Increased wildlife and vegetation diversity would enhance supplemental wilderness values.

(3) Habitat Studies and Monitoring

Habitat studies and monitoring would have little or no impact to the existing environment. No surface disturbance, visual impacts, or modification of the natural conditions would occur. Data would be used to improve areas identified as needing more intensive management.

Habitat studies would establish key areas which are no more than a designation. Pellet plots would be established in the key areas and include a 24 inch x 1/4 inch iron peg pounded 18 inches into the ground. The plots are read twice yearly and deer droppings are counted and removed.

A second phase of habitat studies would involve the gathering and analysis of fecal samples, with no disturbance to the environment.

Monitoring would involve conducting work within the key areas such as plant utilization studies and changes in vegetative composition. Population dynamics would be monitored by the Arizona Game and Fish Department.

(4) Livestock Grazing Management

As a planned action of the HMP, livestock grazing management would involve no surface disturbing activities but merely the encouragement of proper grazing practices. As grazing systems are implemented, the overall range conditions, cattle distribution, and utilization would improve. Forage conditions for wildlife are expected to improve under intensified management. Watershed values would also improve. Further environmental assessment would be conducted as individual management systems are proposed.

(5) Waterfowl Habitat Development

Surface runoff across the Kelly Dam area would be reduced, thus reducing soil erosion and displacement of soil. Impounding water would provide habitat for waterfowl and shorebirds on a yearlong basis except during short winter freeze up periods. Emergent vegetation would establish and provide feeding and nesting cover for wildlife. Fencing would create an eyesore in an area where currently none exists. Forage available to cattle would be decreased initially. A water source may also be made available to livestock should sufficient quantities become available. Overall health and condition of wildlife and livestock would be improved as the project is completed.

Using bentonite clay would result in concentrating a natural compound into a small spot and should pose no problems.

Since the dam is already in existence the project should present no visual problem. In fact, the provision of a large body of water with the associated waterfowl species would enhance the esthetics of the present environment. Waterfowl may provide a prey base for the endangered peregrine falcon and bald eagle during seasonal migrations.

Plowing and seeding 15 acres around the dam site would improve the vegetation component. Soil disturbance associated with the seeding would be severe as the area is plowed to prepare a seedbed. Forage availability and value to wildlife and livestock would be increased. After establishment of the seeding, visual aspects of the project area would be improved.

Increases in waterfowl would provide increased recreational opportunities and benefits. Wetlands habitat is decreasing annually and this action would help compensate for the natural reduction of wetlands.

(6) Riparian Area Management

The intent of this planned action is to improve riparian habitat and enhance its value to all land users. Encouraging proper livestock utilization levels would improve watershed values, forage composition, condition and water quality. If utilization is not kept to acceptable levels, fencing may be required in selected areas. Such fencing would provide an eyesore in esthetic riparian areas and livestock could become trapped inside the fence.

(7) Ecosystem Management to Enhance Turkey Habitat

The planned action would improve habitat conditions needed to support wild turkeys.

The presence of wild turkeys would provide recreational opportunities and enhance the esthetic values of the area.

The planned action also includes banning timber harvests within isolated pine stringers. This action would result in adverse economic impacts to the lumber industry; however, more and better timber exists within the same geographic region than what exists in the HMP area.

Watershed qualities should continue to improve as the pine stringers are perpetuated.

This action would have no negative impacts on threatened or endangered species.

(8) Ecosystem Management in Ponderosa Pine Habitat Types

Anticipated impacts as a result of this action would center around forestry management activities. From a wildlife perspective, this planned action would enhance timber harvest proposals.

Watershed values would be maintained by proposing that large ponderosa greater than 25 inches DBH would not be removed, especially on sloping ground. Thirteen trees per tree group would enhance watershed values and provide sufficient seed source for regeneration. A ban on logging activities between May and July of each year would eliminate severe soil displacement and erosion.

Improved ponderosa pine habitat would increase the potential for Kaibab squirrels and turkey and recreational opportunities would increase as these animals are established.

Habitat for raptors and tree nesting bird species would be enhanced. Snag densities would be maintained and thus provide habitat for the existing raptor populations and insure suitable habitat for future populations.

Prescribed burning in selected areas would stimulate pine regeneration and eliminate competition with the understory brush.

The creation of a dis-climax community in the small burn areas would improve the habitat for those species that depend on lower successional levels.

Livestock forage production would not be maximized in ponderosa areas as competition between trees and grasses would not be reduced.

(9) Protective Fencing

Fencing to protect fragile riparian areas would improve nesting and feeding habitat for wildlife species. Increased vegetative vigor and abundance would improve watershed values and reduce the yearly erosion and displacement of soils. Headcutting would be reduced.

Water quality would be improved by reducing the amount of suspended load and contaminants.

Wildlife habitat values would improve. Feeding and nesting opportunities would improve, resulting in increased numbers and health of wildlife that depend upon riparian zone habitat.

(10) Criteria for Land Use Authorizations

The planned action to insure all land use activities are conducted according to certain criteria would enhance wildlife values in the Parashaunt area.

The proposed criteria in the HMP represent guidelines, suggestions, and mitigating measures to be included in all land use proposals.

The anticipated impacts cannot be identified as this action represents only suggestions and not planned actions to be conducted on the ground.

If all future land use activities consider the criteria of this planned action, wildlife habitat conditions would improve. Several other resource values may be enhanced.

(11) Species Management

Species management is the responsibility of the AGFD. Conflicts between wildlife species management, the multiple use concept, and private landowners are only speculative at this time.

Management for native wildlife species will continue under the existing situation and no environmental analysis will be required.

The master cooperative agreement between AGFD and the BLM states that the AGFD has the cooperation of BLM to own, control, and manage wildlife within the State. Impacts resulting from management of wildlife species are the sole responsibility of the AGFD and may be subject to analysis on a case-by-case basis. Analysis would be conducted by the AGFD.

Species management would enhance public lands by increasing the recreational and esthetic values. A healthy and diverse population of wildlife species would also enhance the economic and biological value of the Parashaunt area.

Bighorn sheep introductions may present conflicts with livestock for water, forage, and use areas. Introducing chukars, turkeys, and Kaibab squirrels would fill a vacant niche, and provide recreational opportunities. Introducing large predatory species would result in some concern for protection of livestock.

(12) Modification of Existing Water Developments

This planned action would have little impact on resource values. Modification would result in maintenance of existing range improvements, which is not subject to environmental analysis.

Actions involving the placement of wildlife troughs into new areas are categorically excluded from environmental analysis.

Site-by-site analysis would be conducted on each modification project to insure the original water developments are in compliance with wildlife stipulations on Section 4 permits.

Increased health and vigor of wildlife populations is the objective of this proposed action and all efforts would be directed to this accomplishment.

(13) Wild Burro Management

Burro management impacts are addressed in the Tassi-Gold Butte herd management area plan.

Improving vegetative vigor by reducing the percent utilization of forage plants would enhance wildlife species. Reducing burro use around fragile riparian areas would improve wildlife habitat conditions.

b. Alternative Action

Do not implement the HMP. Visual resources, wilderness values, cultural resources and threatened and endangered plant and animal species would not be impacted as a result of the alternative action.

(1) Water Developments

Failure to improve water distribution would result in a failure to maximize wildlife populations. Ranges currently lacking water would continue to be dry. Increased forage utilization around existing water sources would increase livestock/wildlife competition. Recreational opportunities would not be enhanced. Particulate matter in the air would remain negligible. Forty acres of rangeland would not be fenced. One-half acre would not be destroyed by apron construction. Soil erosion and watershed values would continue to improve. Soil disturbance would not take place. No loss of AUMs for forage would be recognized.

(2) Vegetative Treatments

(a) Chaining

Without chaining the natural trend of pinyon-juniper communities to drift toward climax would continue. Animal species dependant upon the earlier successional levels would decrease. Climax forms of wildlife would increase. Total wildlife productivity and biomass would decline. Particulate matter in the air would remain low. Watershed values would increase. Severe soil disturbance and displacement would not occur. Monotypic stands of vegetation would produce a monotonous appearance. Raptor nesting trees would not be destroyed. Recreational values of wildlife would not increase.

(b) Prescribed Burning

Heavy smoke and particulate matter would not be created. Vegetation would remain less than optimum as forage for wildlife and livestock. Watershed values would improve over the long term. Ratios of open space and cover would increase, favoring closed canopy. Succulent vegetation and increases in livestock and wildlife forage would not be achieved. Hunting opportunities would continue to be minimal. The chance of wildfire would increase as fuel reserves continue to build.

(c) Herbicide Application

The environment in selected areas of the HMP area would remain in a natural state. Increases in forage for wildlife and livestock would not be realized. The provision of a foreign substance into the environment would not be realized. Opportunities for increased wildlife values would not be realized. Recreational values would continue to decline.

(3) Habitat Studies and Monitoring

Habitat studies and monitoring of the HMP area would continue if the HMP were not implemented. Current monitoring and intense studies are actions required to meet land management responsibilities. No new key areas would be established.

(4) Livestock Grazing Management

Allotment management plans as proposed in the URA-MFP will be developed for the area and regardless of an approved HMP, grazing management will continue with utilization levels not exceeding 50 percent. Enhanced rangelands as a result of AMP implementation would also enhance wildlife habitat in the area.

(5) Waterfowl Habitat Development

The alternative action would result in failure to maximize habitat development for waterfowl. Potential exists to impound and develop water and water-related plant species but these species would not be produced and waterfowl populations would remain strictly migratory. No additional feeding, nesting, or resting opportunities would be provided. Forage for wildlife and livestock would not be enhanced. Sport hunting of waterfowl would not be improved.

(6) Riparian Area Management

The alternative action to improve riparian areas that do not respond to livestock management would result in the continual degradation of riparian areas. Livestock access into riparian areas would not be impaired. Forage plants along riparian zones would continue to sustain heavy utilization. Increases in grass and forb abundance and succulence would not be achieved.

Nongame wildlife habitat would not be enhanced. Watershed values would continue to decline.

(7) Ecosystem Management to Enhance Turkey Habitat

Failure to manage habitat for turkey would preclude the possibility of the future establishment of the bird within the area. Recreational opportunities would not be maximized.

Conflicts between other land use activities and turkey habitat management would not be realized. Other resource values would not be impacted as a result of this alternative.

(8) Ecosystem Management in Ponderosa Pine Habitat Type

The alternative action would result in the management of the area under the Parashaunt timber management plan and various AMPs.

Kaibab squirrel introductions would not be realistic without specific wildlife objectives. Raptor nesting habitat would be reduced as the larger mature trees are removed for lumber. Snag densities would decrease.

Management of the area for ponderosa pine would continue as outlined in the URA-MFP planning decisions.

(9) Protective Fencing

Fencing would not be provided to protect fragile riparian areas. Feeding and nesting opportunities for nongame species would remain at present low levels. Headcutting and soil displacement would continue, and result in deteriorated conditions. Water would be available intermittently in the riparian areas.

(10) Criteria for Land Use Authorizations

Land use activities under the alternative action would continue to be conducted under the regulations and stipulations provided in existing acts, laws, and policies.

Wildlife considerations would continue to be provided into land use proposals under the environmental analysis procedure.

(11) Species Management

Species management would continue as it has been and is presently conducted. Since species management is AGFD's responsibility, the continuation of management has little bearing on whether the proposed action is accepted. The alternative action would create an unscheduled and uncoordinated approach to joint BLM and AGFD wildlife management. BLM and AGFD common objectives would neither compliment nor coincide with one another.

Lack of species management would result in potential for significant losses of certain wildlife species, overpopulations of some species and conflicts between wildlife species and other land uses. Some species could be permanently lost from the area. Adverse or beneficial revenues, recreational opportunities, and livelihood could be drastically affected over the short or long term.

(12) Modification of Existing Water Developments

Existing water developments would continue to be modified under the alternative action. Bureau policy and cooperative agreements identify the need and type of facilities allowed around water developments on public lands. The alternative action would result in an unscheduled, non-prioritized, and unfunded approach to ensuring existing water developments meet wildlife specifications.

(13) Wild Burro Management

Burros would continue to be managed under the alternative action according to the Tassi-Gold Butte Herd Management Area Plan.

2. Possible Mitigating or Enhancing Measures

a. Proposed Action

(1) Water Developments

- Constructing catchments during the moist winter months would reduce the emission of particulate matter into the air.
- Painting fence posts a drab green would reduce their visibility.
- Limiting fenced areas to minimal acreage would reduce the amount of forage removed from livestock use.
- The catchments could be located in selected areas where natural landforms and vegetation would conceal their presence and shape.
- Excavation for the storage tank should be limited to the exact size of the tank.
- Reseeding disturbed areas would help reduce future soil erosion.
- Limiting vehicles to existing roads during the construction phase would reduce soil disturbance.
- Helicopters could be used to shuttle catchment materials into fragile or less accessible areas.
- Informing livestock permittees of the intended construction would enhance cooperative efforts.
- Insuring that all materials could be removed from the site would guarantee the catchments are temporary components of the environment.

(2) Vegetative Treatments

(a) Chaining

- Islands and irregular shapes of the exterior boundaries should be created on the area.
- Reseeding with a selected seed mixture would improve forage.
- Chaining two directions would improve the success of the chaining.
- Signing and protecting possible nesting trees would reduce the loss of nesting habitat.
- Protecting archaeological sites by conducting surveys and flagging leave areas would reduce the destruction of these areas. Avoiding claim markers would mitigate the loss of established claims.

(b) Prescribed Burning

- Burned openings could be blended with adjacent natural cover and openings.
- Buffer strips would lessen visual impacts left by extensive openings.
- Construction of firelines prior to the burns would prevent uncontrolled situations.
- Mining claim markers could be protected by temporary removal and replacement with iron markers.
- Reseeding burned areas would enhance their value.
- Conducting wildlife burns during the early spring months would create a mosaic pattern.
- Restricting livestock use for 2 years would improve success of the burned areas.

(c) Herbicide Application

- Flying herbicide over treatment areas would ensure complete coverage.
- Flying would eliminate surface disturbance.
- Irregular shapes and contours of treated areas would enhance the visual impact and value to wildlife.

- Resting treated areas from livestock use for two growing seasons would improve establishment of desirable plant species.

- Plowing of treated areas may improve overall success.

(3) Habitat Studies and Monitoring

Establishing habitat studies and monitoring vegetative conditions would require no mitigation measures.

(4) Livestock Grazing Management

Mitigation of livestock grazing on the area would involve developing and implementing intensive grazing systems for effective grazing management.

(5) Waterfowl Habitat Development

- Eliminating livestock use from the waterfowl area until after peak nesting periods would enhance nesting attempts and success.

- Grazing the waterfowl area every third year would further mitigate grazing impacts.

- Reseeding dikes and planting emergent vegetation and trees would improve the vegetative component of the waterfowl area.

- Avoiding archaeological sites would reduce the destruction of identified sites.

- Painting fence posts a drab green would reduce their visibility.

(6) Riparian Area Management

- Painting fence posts a drab green would reduce their visibility.

- Fencing only those areas needing protection would reduce the need for more fences.

- Allowing livestock use inside the fenced areas every third year would maintain the productivity of the riparian areas.

(7) Ecosystem Management to Enhance Turkey Habitat

Since no specific land disturbing actions are proposed, no mitigation is required under this action.

Allowing limited timber harvests in certain areas of ponderosa pine under an acceptable timber management plan would mitigate the economic impacts of the planned action.

(8) Ecosystem Management in Ponderosa Pine Habitat Types

No mitigating measures would be required under the planned action.

(9) Protective Fencing

- Painting fence posts a drab green would reduce their visibility.
- Allowing grazing every third year would mitigate the loss of riparian forage.
- Constructing fence only in areas where absolutely necessary would reduce the continual increase of fenced areas.
- Formulating intensive grazing plans with special emphasis on fragile riparian zones would minimize protective fencing.

(10) Criteria for Land Use Authorizations

The surface protection specialist should be certain all authorized land uses are conducted according to the permits and in compliance with all acts, laws, and bureau policy.

(11) Species Management

Species management is the responsibility of the AGFD. Mitigating measures for this planned action will insure that species management is conducted according to the AGFD-BLM master cooperative agreement.

(12) Modification of Existing Water Developments

Site-by-site analysis before any modification would establish mitigation measures. The following measures could be considered as guidelines.

- Fence modification would be made to facilitate wildlife and still have value for which it was originally constructed.
- Wildlife troughs would be placed in tree areas.

- Fencing would be reduced to small areas around the trough.
- Fence posts would be painted a drab green color.
- Disturbed areas would be reseeded.
- All vehicles would be restricted to existing roads.
- Heavy equipment would be used only where absolutely necessary.
- Cooperative agreements with the primary water user would be obtained prior to modification measures.

(13) Wild Burro Management

Implementing the Tassi-Gold Butte herd management area plan would mitigate wild burro conflicts.

b. Alternative Action

Do not implement the HMP.

Mitigation measures needed to rectify impacts of the alternative action are identified in the objectives and planned actions of the proposed action. Implementing the proposed action would mitigate the impacts of the alternative action.

3. Residual Impacts

Negative impacts that remain after implementation of the proposed action and mitigating measures are expected to be minimal. All materials used in project development are temporary and removable. During the time that projects are in use or during initial construction, the temporary residual impacts are:

a. The temporary loss of mature pinyon-juniper stands.

b. The partial loss of those wildlife species associated with mature vegetative stands.

c. The loss of unidentified mining claim markers.

d. The increase in the desirability of the area for mule deer.

e. Improving watershed ratings on selected sites.

f. The presence of fencing materials in natural environments.

g. The presence of plastic pipe in an area where none currently exists.

h. The presence of metal aprons in natural areas.

B. Relationship Between Short-term Use and Long-term Productivity

1. Water Developments

Short-term use would not change significantly from that which currently exists. Long-term productivity would increase as additional animals are propogated.

2. Vegetative Treatments

Short-term use would result in an immediate increase in the forage value of the area. Increased wildlife values would be proportional to the increased forage values. Long-term productivity would result in increased recreational values in the area. Mule deer populations would fluctuate with plant removal and reestablishment.

3. Habitat Studies and Monitoring

Short-term use would be of no consequence, however, data obtained through the studies would be used to improve long-term productivity.

4. Livestock Grazing Management

Implementing intensive grazing management plans would direct short-term use into long range improvement of range conditions.

5. Waterfowl Habitat Development

Short-term use would result in some destruction of the natural environment. Long-term productivity would improve forage values for wildlife and livestock. Waterfowl, a wildlife specie most responsive to habitat management, would improve short-term use of the area resulting in substantial long-term productivity.

6. Riparian Area Management

Short-term use would improve long-term productivity.

7. Ecosystem Management to Enhance Turkey Habitat

Short-term management would enhance the possibility of providing habitat to support turkeys over the long term.

8. Ecosystem Management in Ponderosa Pine Habitat Type

Short-term use would preclude any economic potential for timber sales. Long-term productivity would result in habitat for Kaibab squirrels and potential for limited timber harvests.

9. Protective Fencing

Short-term use would not change significantly, however, long-term productivity would result in increased watershed values, wildlife habitat, and overall forage conditions.

10. Criteria for Land Use Authorizations

To implement the planned action would encourage immediate enforcement of acts and laws regulating land use activities. Long-term productivity would be realized as land use activities are closely monitored and regulated.

11. Species Management

Short-term use would have little change from the present situation, however, it is hoped that intensive habitat management and intensive species management would improve long-term productivity. This would increase the biological, recreational, and economic parameters of the area.

12. Modification of Existing Water Developments

Short-term use would result in some surface disturbance and the provision of more available water sources. Long-term productivity would result as water sources are made available and established as regular watering areas.

13. Burro Management

Short-term use would result in the removal of burros thus enhancing long-term productivity of the forage component.

C. Irreversible and Irretrievable Commitments of Resources

The proposed actions would not result in a permanent commitment of resource values, especially to the point they become irreversible or irretrievable.

Although resource values such as forage, woodland products, recreation values and watershed ratings may be disturbed, similar or better values would replace them in time.

IV. PERSONS, GROUPS, AND GOVERNMENT AGENCIES CONSULTED

A. Arizona Game and Fish Department - State Office
- Kingman Regional Office

B. Bureau of Land Management - State Office
- Arizona Strip District Office

V. INTENSITY OF PUBLIC INTEREST

Public interest in implementation of the HMP is low. Specific planned actions may meet with opposition from certain individuals and yet be acceptable to others. Public interest in efforts to enhance wildlife populations and their habitat is high. Public opinion may show opposition to some of the methods proposed to achieve results, however, alternative methods would also meet with similar disagreement.

VI. SUMMARY CONCLUSIONS

The proposed action to implement the HMP would have an expected beneficial impact to improve and/or maintain wildlife habitat within WHA-T3.

The planned actions are diverse and cover a wide range of habitat improvements. Implemention of the HMP would enhance wildlife habitat and the associated species.

The planned actions define management needs of other resource disciplines as well as specific wildlife project developments.

Adverse environmental impacts are expected to be minimal while numerous beneficial impacts are expected.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ENVIRONMENTAL ANALYSIS WORKSHEET

1. Action
Parashaunt Habitat Management Plan

2. Stages of implementation
Project design - Construction - Use and Maintenance

3. DISCRETE OPERATIONS: Construction Phase / Maintenance Phase

4. COMPONENTS, SUBCOMPONENTS, AND ELEMENTS IMPACTED	5. ANTICIPATED IMPACTS		6. REMARKS
I NONLIVING COMPONENTS			
A. AIR			
Particulate matter	-L	-L	Dust-smoke
Vehicle emmission	-L	0	
B LAND			
Soil Erosion	-L	+L	Chainings and other surface dis-
Soil Structure	-M	X	turbing activities under construc-
Land Use Compatibility	-L	+L	tion phase. Improved forage com-
Land Use Suitability	X	+L	ponent after establishment in
Soil Compaction	-L	+L	maintenance phase.
C. WATER			
Sediment Load	-L	+L	
Quality	X	X	
II LIVING COMPONENTS			
A. PLANTS (*Aquatic*)			
Rooted	0	+L	After Kelly Dam project is completed.
Floating	0	+L	

DISCRETE OPERATIONS: Construction Phase / Maintenance Phase

COMPONENTS, SUBCOMPONENTS, AND ELEMENTS IMPACTED	ANTICIPATED IMPACTS		REMARKS
II LIVING COMPONENTS (cont.)			
B. PLANTS (*Terrestrial*)			
Grass	-L	+M	Some plants affected negatively
Forbs	+L	+M	after vegetative treatments,
Shrubs	-M	+M	others are enhanced.
Trees	-M	-L	
T & E	X	X	
C. ANIMALS (*Aquatic*)			
Birds	-L	+H	After Kelly Dam is completed.
Mammals	X	+L	
Macro-invertebrates	0	+M	
D. ANIMALS (*Terrestrial*)			
Birds	-L	+H	As forage component improves the
Reptiles	-L	+L	animal forms respond.
Mammals - domestic	-L	+L	
Mammals - Wild	-L	+M	
T & E			
III INTERRELATIONSHIPS			
A. ECOLOGICAL PROCESSES			
Succession	-M	+H	As projects are completed, range
Food relationships	X	+H	components and relationships
			should improve.
IV HUMAN VALUES			
A LANDSCAPE CHARACTER			
Visual resources	-L	X	With mitigating stipulations
			impacts would be negli ible.
B. SOCIOCULTURAL INTERESTS			
Archaeologic	X	X	3802 and 3809 mining regulations
Wilderness	X	X	and IMP revent negative impacts.
Recreation	X	+M	

INSTRUCTIONS

1. *Action* – Enter action being taken, analytic step for which worksheet is being used environmental viewpoint of impact, and any assumptions relating to impact.
   a. Worksheet is normally used to analyze "*Anticipated Impacts*" of action, *however*, it may be used to analyze "*Residual Impacts.*" Worksheets may also be used to compare impacts before and after mitigating measures are applied.
   b. State viewpoint that best describes environmental impact. For example, a fence viewed down the fence line has greater impact than the same fence viewed over an entire allotment. Generally, narrow viewpoints better illustrate specific impacts than will broad viewpoints.
   c. Assumptions may be made to establish a base for analysis (*e.g. estimated time periods, season of year, etc.*).

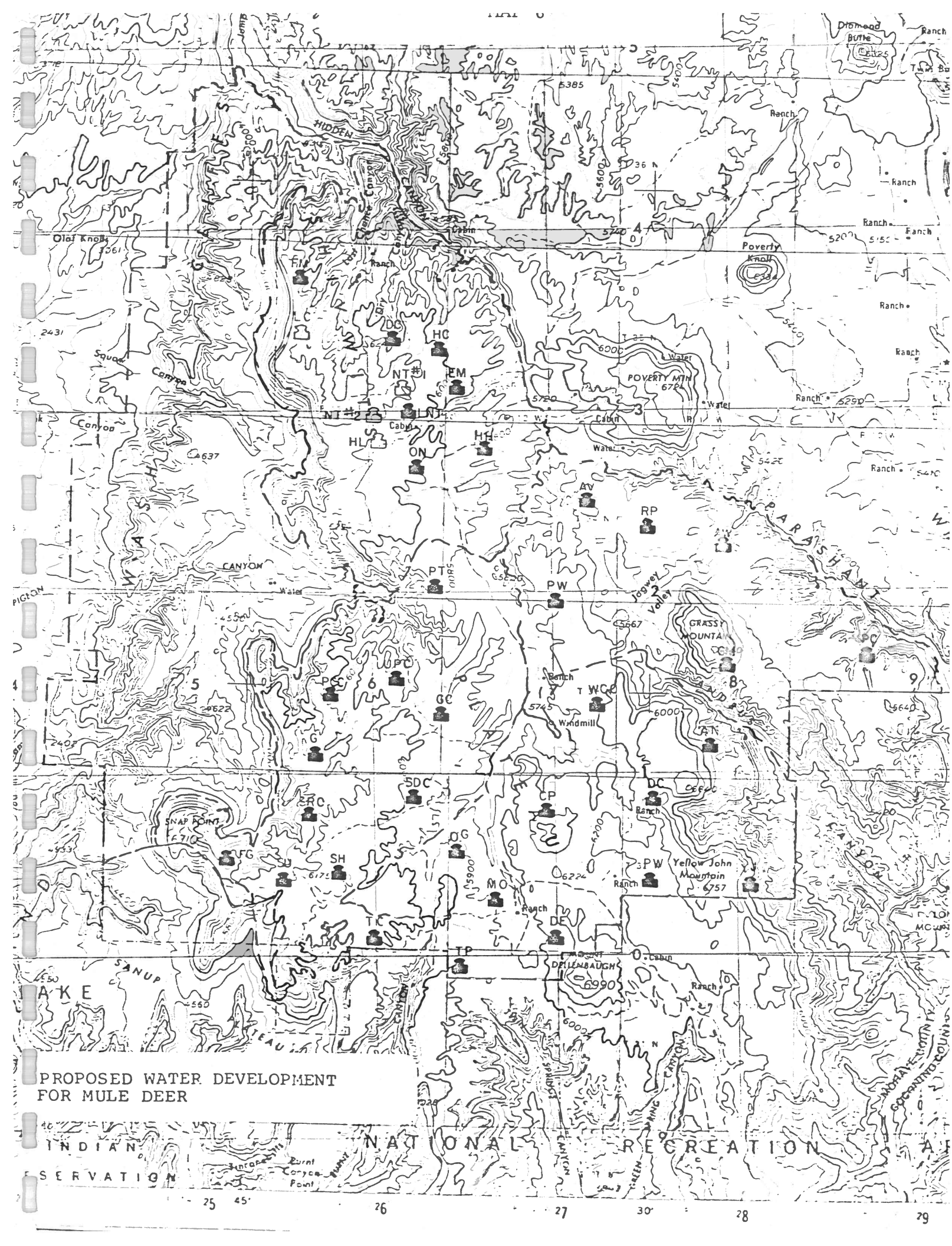
2. *Stages of Implementation* – Identify different phases of proposed project (*e.g. a road project consists of survey, construction, use, and maintenance stages*).

3. *Discrete Operations* – Identify separate actions comprising a particular stage of implementation (*e.g. the construction stage of the road project has the discrete operations of clearing, grading, and surfacing*).

4. *Elements Impacted* – Enter under appropriate heading all environmental elements susceptible to impact from action and alternatives. Relevant elements not contained in the digest should also be entered. See BLM Manual 1791, Appendix 2, Environmental Digest.

5. *Anticipated Impact* – Evaluate anticipated impact on each element and place an entry in the appropriate square indicating degree of impact as low (L), medium (M), high (H), no impact (O), or unknown or negligable (X). Precede each entry by a plus (+) or minus (-) sign indicating a beneficial or adverse type of impact. If type of impact reflects a matter of opinion or is not known, *do not* proceed with a sign. For example, construction of a wind mill on open range has a definite visual impact; *however*, to some people the effect is detrimental while to others it is an improvement. By not entering a plus (+) or minus (-) sign the worksheet is kept factual and unbiased. If both degree and type of impact are unknown, place an (x) in the appropriate square.
   a. The measures of impact (*e.g. low, medium, and high*) are relative and their meaning may very slightly from action to action. The term "*low*" should not be applied to impacts of a negligible nature. For example, we know that a pickup truck driving down a proposed fence line laying wire has some impact on air quality. However, the significance of this impact is not normally great enough to warrant even a "*low*" rating. In cases like this, the impact will usually be marked "O" or the element left off the worksheet.
   b. It is recognized that some environmental elements may defy accurate measurement or in-depth analysis within current Bureau capabilities or expertise. The nature of the action as well as type and degree of impact should guide in the decision to seek outside expertise or assistance.

6. *Remarks* – Enter clarifying information.


PROPOSED WATER DEVELOPMENT
FOR MULE DEER
Olaf Knoll
Poverty Knoll
POVERTY MTN
Yellow John Mountain
Windmill
Water
Cabin
Ranch
CANYON
Jogwey Valley
GRASSY MOUNTAIN
Burnt Canyon Point
INDIAN
NATIONAL RECREATION


PROPOSED LAND TREATMENT
Olot Knoll
Poverty Knoll
POVERTY MTN
Jagwey Valley
GRASSY MOUNTAIN
Yellow John Mountain
MOUNT DILLENBAUGH
SNAP POINT
Windmill
Ranch
Cabin
Water
CANYON
HIDDEN
Squaw Canyon
Canyon Point
NT-1
NT-2
LC-1
LC-2
LC-3
RS-1
RS-2
RS-3
DC-1
DC-2
SR-1
SR-2
SR-3
SR-4
SR-5
SD-1
SD-2
SH-1
SH-2
SH-3
SS-1
SS-2
CP-1
CP-2
GW-1
GW-2
GW-3
GC-1
GC-2
GC-3
THL-1
THL-2
INDIAN
NATIONAL RECREATION
ESERVATION

MAP 10


PROPOSED WATER DEVELOPMENT FOR
BIGHORN SHEEP
Diamond Butte
Twin Butte
Ranch
Poverty Knoll
6384
POVERTY MTN
6724
GRASSY MOUNTAIN
6640
Yellow John Mountain
6717
MOUNT DELLENBAUGH
6990
Lumber Mill
Windmill
Water
Cabin
Clay Knoll
Squaw Canyon
Hidden Canyon
Jagway Valley
Purdy Spring
Twin Springs
Canyon
Grand Canyon
Mohave County
Coconino County
INDIAN RESERVATION
NATIONAL RECREATION
T 36 N
T 35 N
T 34 N
T 33 N
T 32 N
T 31 N
R 14 W
R 13 W
R 12 W
R 11 W
R 10 W