

Arizona Strip Desert Bighorn Sheep Management Plan

September 1997

Prepared by The Bighorn Sheep Core Team

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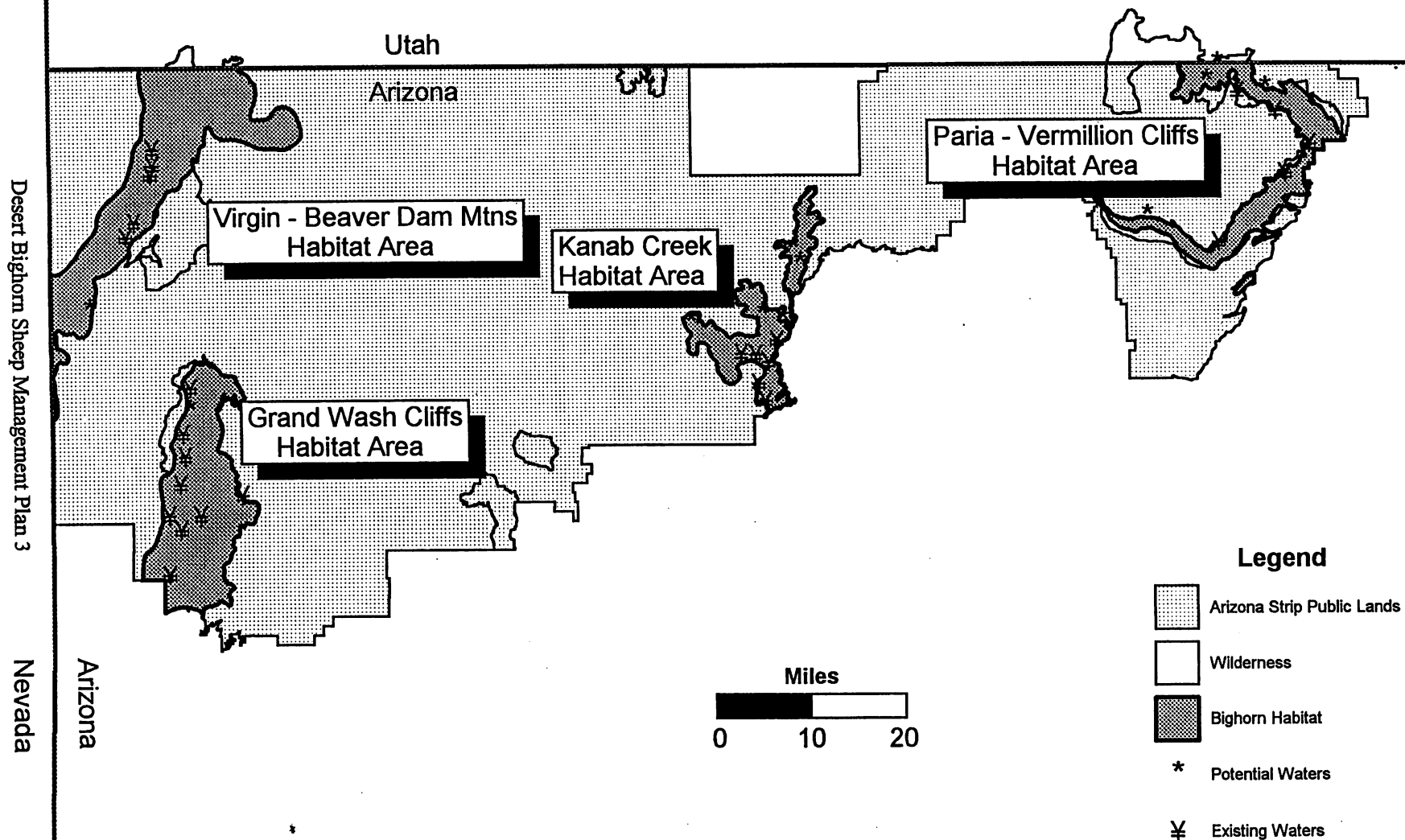
Oct. 17, 1997
Date


Region II Supervisor, Arizona Game and Fish Department

10-17-97
Date

Map 1. Desert Bighorn Sheep Habitat

Public Lands Administered by the Arizona Strip BLM



Public concerns and issues were elicited by mailing out 665 requests for information in February, 1996 about bighorn sheep management on public lands administered by the Arizona Strip BLM. Issues and concerns raised include:

1. Suitable bighorn sheep habitat on the Arizona Strip is unoccupied.
2. Bighorn sheep add to the aesthetics and recreation experience in areas where they are found.
3. Water availability, especially during summer months, may limit bighorn sheep distribution and habitat utilization. Developed waters should be maintained.
4. Bighorn sheep tend to concentrate locally, particularly around water sources, and may cause damage to vegetation, watersheds, cultural and other resources.
5. Bighorn sheep are moderately affected by competition from livestock and burros.
6. Bighorn sheep may compete with livestock for range forage plants and impact grazing allotment management.
7. Sick, injured or otherwise unfit desert bighorn should not be released on the Arizona Strip.
8. Bighorn sheep are susceptible to various diseases transmitted by domestic sheep.
9. Desert bighorn sheep populations should be monitored to assess numbers, distribution, health, and resource impacts.
10. Human activities may disturb lambing and increase mortality in specific areas.
11. Genetic diversity of desert bighorn sheep populations should be maintained.
12. Habitat developments for desert bighorn sheep may impact the scenic quality and natural component of wilderness areas.
13. Habitat developments for bighorn sheep may impact livestock and related uses.

In addition to the issues listed above, concerns were raised that management agencies should cooperate and share information. The question of why bighorn sheep are being introduced and relationship between releases and hunting was raised. Individuals also expressed support or opposition to the plan to expand sheep distributions without specific concerns.

BACKGROUND

The Arizona Strip consists of those lands in Arizona north and west of the Colorado River. Most of these lands are federally administered by either the National Park Service, U.S. Forest Service, or BLM. Other land ownership includes Indian, private, and state. This plan addresses only BLM administered lands. However, bighorn sheep populations also occur on adjacent National Park Service and U.S. Forest Service lands on the Arizona Strip.

Bighorn sheep were historically present in the Virgin and Beaver Dam Mountains, Grand Wash Cliffs, Kanab Creek and the Paria Canyon - Vermillion Cliffs areas. By the early 1900s desert bighorn were believed extirpated from the Virgin and Beaver Dam Mountains and Paria Canyon - Vermillion Cliffs areas. Small remnant populations were still extant in the Grand Wash Cliffs and Kanab Creek through the early 1980s when supplemental transplants began. By 1996, bighorn sheep had been reintroduced into each of the four Habitat Areas.

Desert Bighorn Sheep Habitat

Desert bighorn sheep habitat was identified from habitat analyses for each of the three HMPs. Habitat was rated by evaluating a combination of slope, topography, aspect, vegetation, proximity to escape cover, and water availability based upon the model described by Charles G. Hansen (1980, Habitat Evaluation in The Desert Bighorn, Its Life History, Ecology and Management. Eds. Gale Monson and Lowell Sumner. pp.320-335). Habitat areas were mapped on and digitized from USGS quads for preparation of the Arizona Strip RMP. Most of the steeper terrain was included. To escape predators bighorn sheep prefer rough, rocky terrain with slopes greater than 20 percent, and are rarely found far from this escape cover.

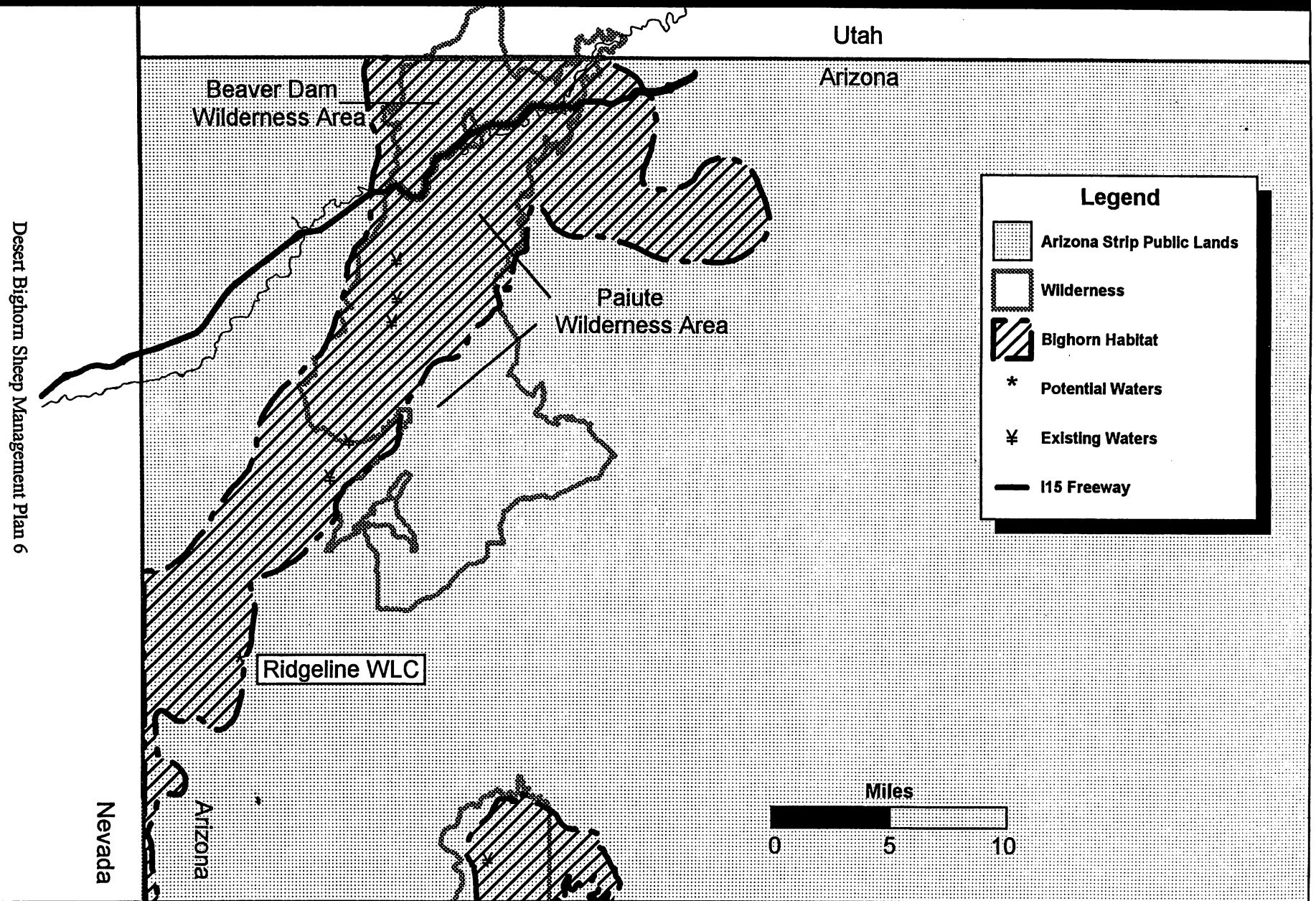
The absence of perennial water did not necessarily exclude an area from consideration as bighorn habitat. Recent literature on water availability in bighorn habitat indicates that desert sheep may be able to obtain some of the moisture they need from succulent vegetation. During the hot summer months, wild sheep stay in shaded areas near water as much as possible and are seldom found more than three miles from dependable water sources. When rain or snowfall occurs, bighorn sheep expand their use of suitable habitat and range out from permanent waters. They also commonly drink from ephemeral pools of water found in rock pockets. Bighorn sheep may be found in woodland habitats on canyon rims throughout the year.

Virgin and Beaver Dam Mountains

The Virgin and Beaver Dam Mountains Habitat Area is located entirely within AGFD Game Management Unit (GMU) 13B (Map 2). The Habitat Area includes over 220 square miles (141,770 acres) of bighorn habitat on BLM lands. The vegetation is primarily Mohave desert shrub community. Dominant species include creosote bush (*Larrea tridentata*) and Joshua tree (*Yucca brevifolia*) in the Virgin River Gorge and Beaver Dam Slope. Higher elevations are dominated by blackbrush (*Coleogyne ramosissima*) merging into pinyon-juniper woodlands (*Pinus monophylla* and *Juniperus osteosperma*).

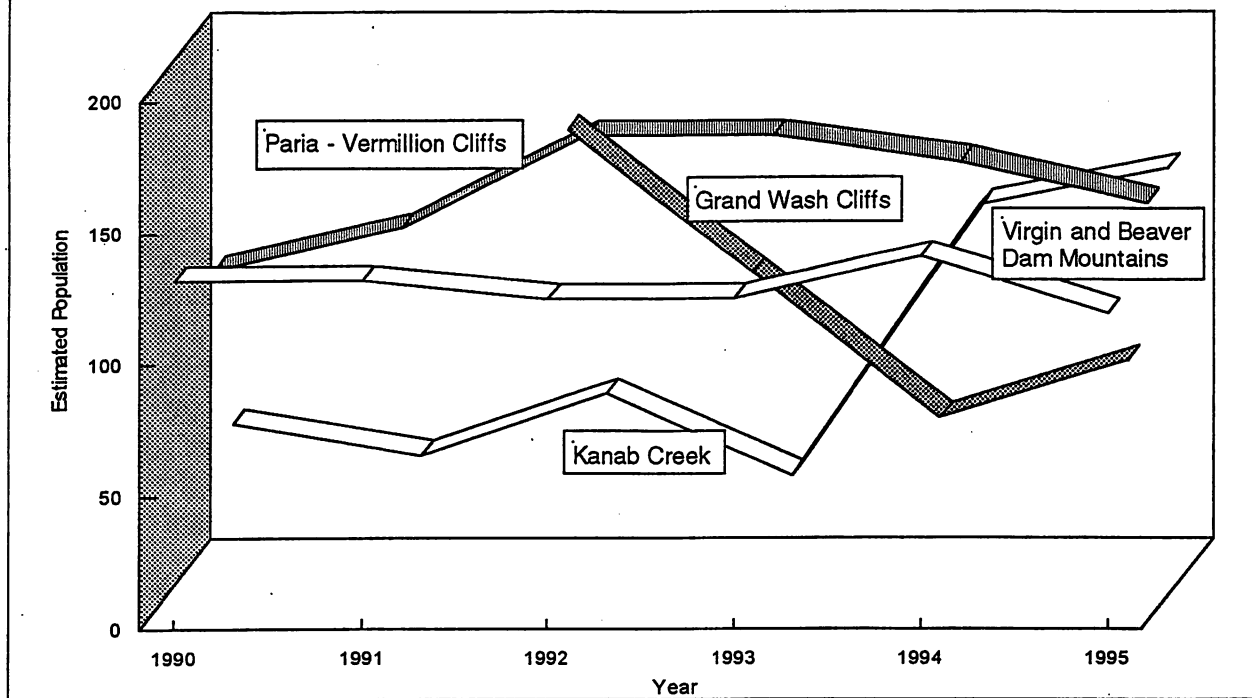
Map 2. Virgin and Beaver Dam Mountains Bighorn Sheep Habitat Area

Public Lands Administered by the Arizona Strip BLM



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Figure 1. Arizona Strip Bighorn Sheep Population Estimates



Reliable permanent waters include the Virgin River, a number of perennial springs in Hedricks, Frehner, Hancock, and Elbow Canyons, and two wildlife catchments at Figure 4 Canyon and above Hatchet Valley. This habitat area borders a block of suitable bighorn habitat administered by the BLM in Nevada and Utah. However, this plan does not address those lands.

Sixty-two desert bighorn were released into the Virgin and Beaver Dam Mountains from 1979 to 1982 in three locations. Transplants at Buck and Hedricks Springs failed to establish sustainable populations. Key habitat use areas for bighorn sheep include concentration areas along the Virgin River and at reliable waters in the Virgin and Beaver Dam Mountains. More than 86% of the suitable bighorn sheep habitat is unoccupied, though the reasons for this are not fully understood. Bighorn sheep hunts were initiated in the area in 1989. Nine bighorn rams were legally taken from 1989 through 1996. In 1996, the area supported an estimated population of 120 desert bighorn. The population was stable from 1990 through 1996 (Figure 1).

Strategies for improving bighorn sheep distributions in the Virgin and Beaver Dam Mountains Habitat Area include the following:

- Repair and maintain existing catchments and spring developments.
- Extend bighorn sheep distributions along the Virgin River from the northern most I15 Bridge to the Utah State Line and in the Virgin Mountains from Figure 4 Canyon to Lime Kiln Canyon by conducting supplemental transplants at new or existing waters.

Grand Wash Cliffs

The Grand Wash Cliffs Habitat Area is located within AGFD GMU 13B (Map 3). The area includes over 175 square miles (113,360 acres) of bighorn habitat on BLM lands. Mohave desert shrub communities are found along the lower Grand Wash Cliffs. Middle and higher elevations are dominated by blackbrush communities merging into pinyon-juniper woodlands. Reliable permanent waters are limited to a few pot holes and developed wildlife and livestock waters. This Habitat Area borders a block of suitable bighorn habitat administered by the Lake Mead National Recreation Area. However, this plan does not address those lands.

Eighty-three bighorn sheep were released into the Grand Wash Cliffs from 1983 to 1996. Key use areas for bighorn include concentration areas around the Squaw Canyon and Olaf Knolls wildlife water catchments, and in the Pigeon and Snap Canyon areas. More than 87% of the suitable bighorn sheep habitat is unoccupied, though the reasons for this are not fully understood. Four desert bighorn rams were legally taken in the area between 1989 and 1996. In 1996, the Grand Wash Cliffs Habitat Area supported an estimated population of 90 bighorn sheep. The population generally declined from 1993 through 1995 (Figure 1). While predation, lack of water and emigration have been implicated, the cause(s) for the decline are not fully understood.

Strategies for improving bighorn sheep distributions in the Grand Wash Cliffs Habitat Area include the following:

- Repair and maintain existing catchments and spring developments.
- Fill gaps in bighorn sheep distributions from Hidden Canyon to Cave Canyon and from Squaw Canyon to Pigeon Canyon by conducting supplemental transplants at new or existing waters.

Kanab Creek

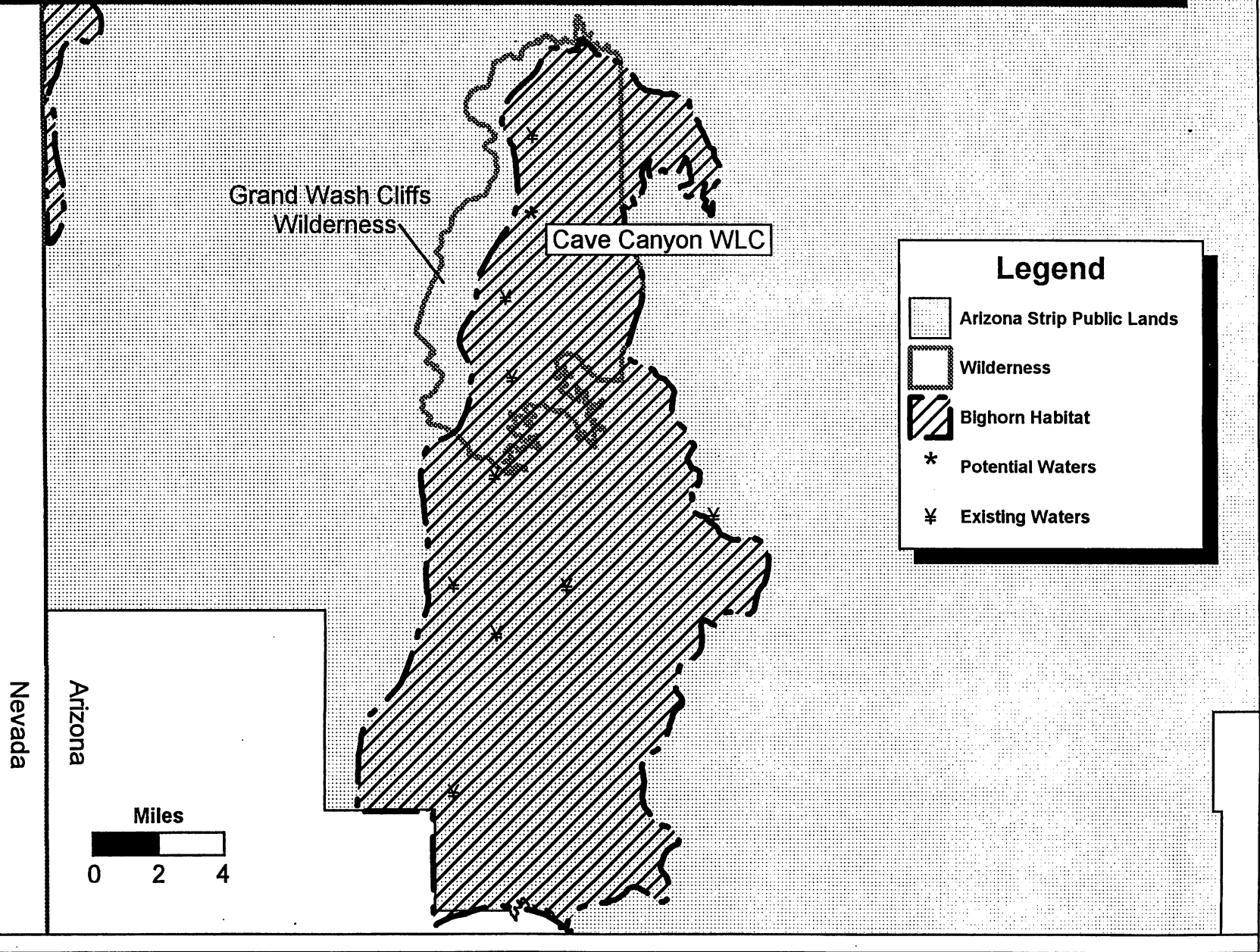
The Kanab Creek Habitat Area is located within AGFD GMU 12B and 13A (Map 4). The area includes over 85 square miles (54,495 acres) of bighorn habitat on BLM lands. Kanab Creek flows south from Kanab, Utah, across the Kaibab Indian Reservation, through BLM land, crosses the Kaibab National Forest, and empties into the Colorado River within Grand Canyon National Park. Permanent water flows south from Clearwater Spring for at least five miles. The major side canyons on BLM lands are arid. Important springs in the area include Grama, Willow and Water Canyon. These springs are also impacted by cattle. Suitable bighorn habitat extends onto adjacent lands administered by the Kaibab National Forest and by Grand Canyon National Park.

Sixty-three bighorn sheep were released at two locations in the Kanab Creek drainage from 1985 through 1996. These transplants were successful in expanding bighorn sheep distribution in the area. Approximately 20% of the suitable bighorn sheep habitat is unoccupied, though the reasons for this are not fully understood. Bighorn sheep were hunted in the Kanab Creek drainage until the Grand Canyon National Park was expanded in 1975. Nine desert bighorn rams were legally taken in the Habitat Area, north of the new park boundary, from the re-initiation of hunting in 1991 through 1996. In 1996, the Habitat Area supported an estimated population of 200 bighorn sheep on BLM lands (Figure 1).

Map 3. Grand Wash Cliffs Desert Bighorn Habitat Area

Arizona Strip BLM

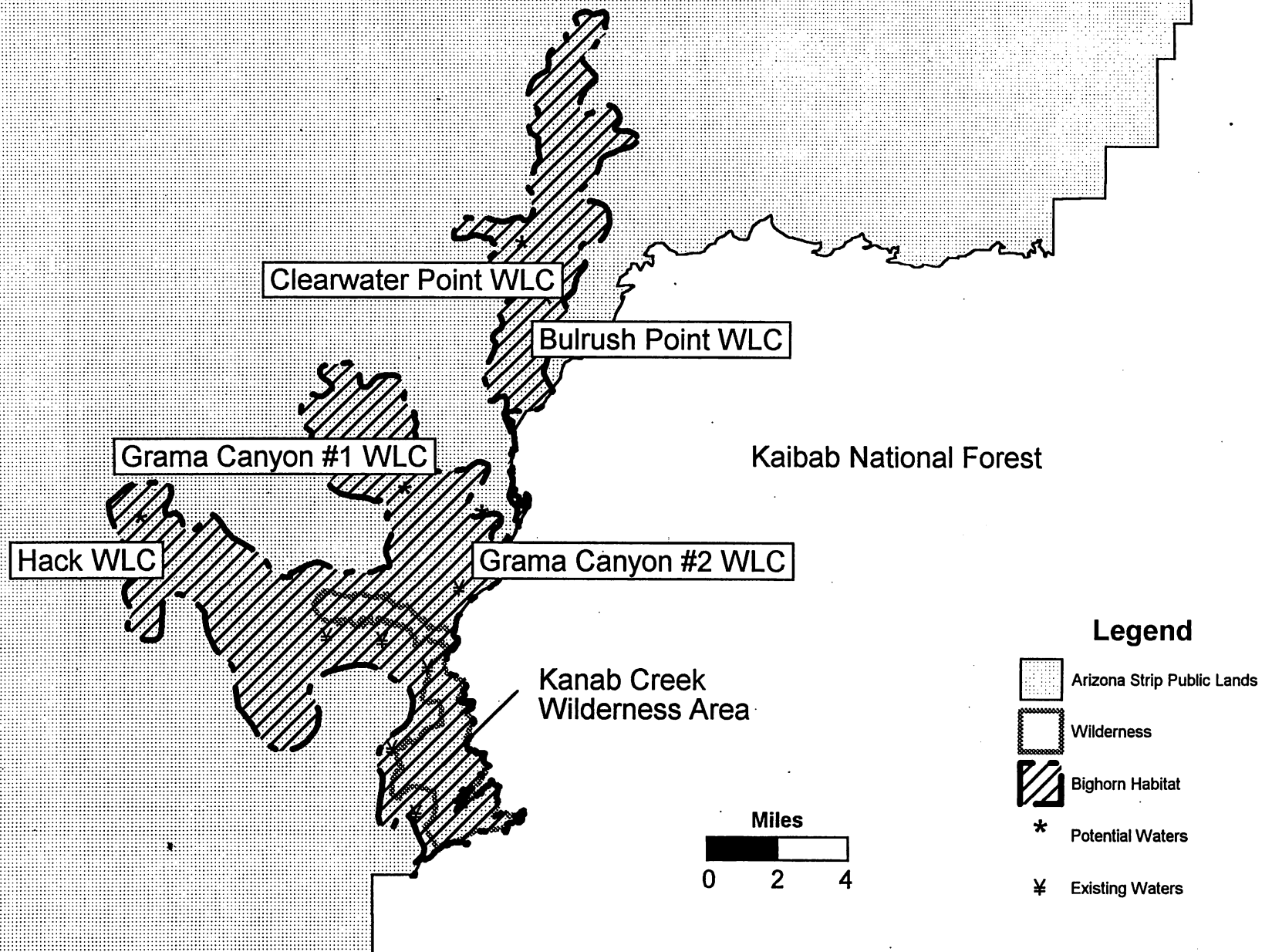
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Map 4. Kanab Creek Desert Bighorn Sheep Habitat Area

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Strategies for improving bighorn sheep distributions in the Kanab Creek Habitat Area include:

- Repair and maintain existing catchments and spring developments.
- Extend bighorn sheep distributions north from Sunshine Point to Grama Canyon at Bulrush Point by conducting supplemental transplants at new or existing waters.

Paria Canyon - Vermillion Cliffs

The Paria Canyon - Vermillion Cliffs Habitat Area is located within AGFD GMU 12B (Map 5). The area includes over 105 square miles (62,030 acres) of desert bighorn habitat on public lands in Arizona administered by the BLM. The Paria River flows yearlong through Paria Canyon from the Utah - Arizona state line to Lee's Ferry, where it empties into the Colorado River. The Vermillion Cliffs, a 3,000 foot escarpment forms the southern edge of the Paria Plateau and dominates the landscape. The rough and convoluted terrain provides excellent bighorn habitat. A number of springs and seeps emanate from the base of the cliffs and side canyons. However, the cliffs are more arid than Paria Canyon. All of Paria Canyon and the Vermillion Cliffs were designated wilderness in 1984 and are almost entirely administered by BLM. The Habitat Area borders other suitable bighorn habitat administered by the Glen Canyon National Recreation Area, Grand Canyon National Park, the Navajo Nation, and the Utah BLM. These areas are not addressed in this Plan.

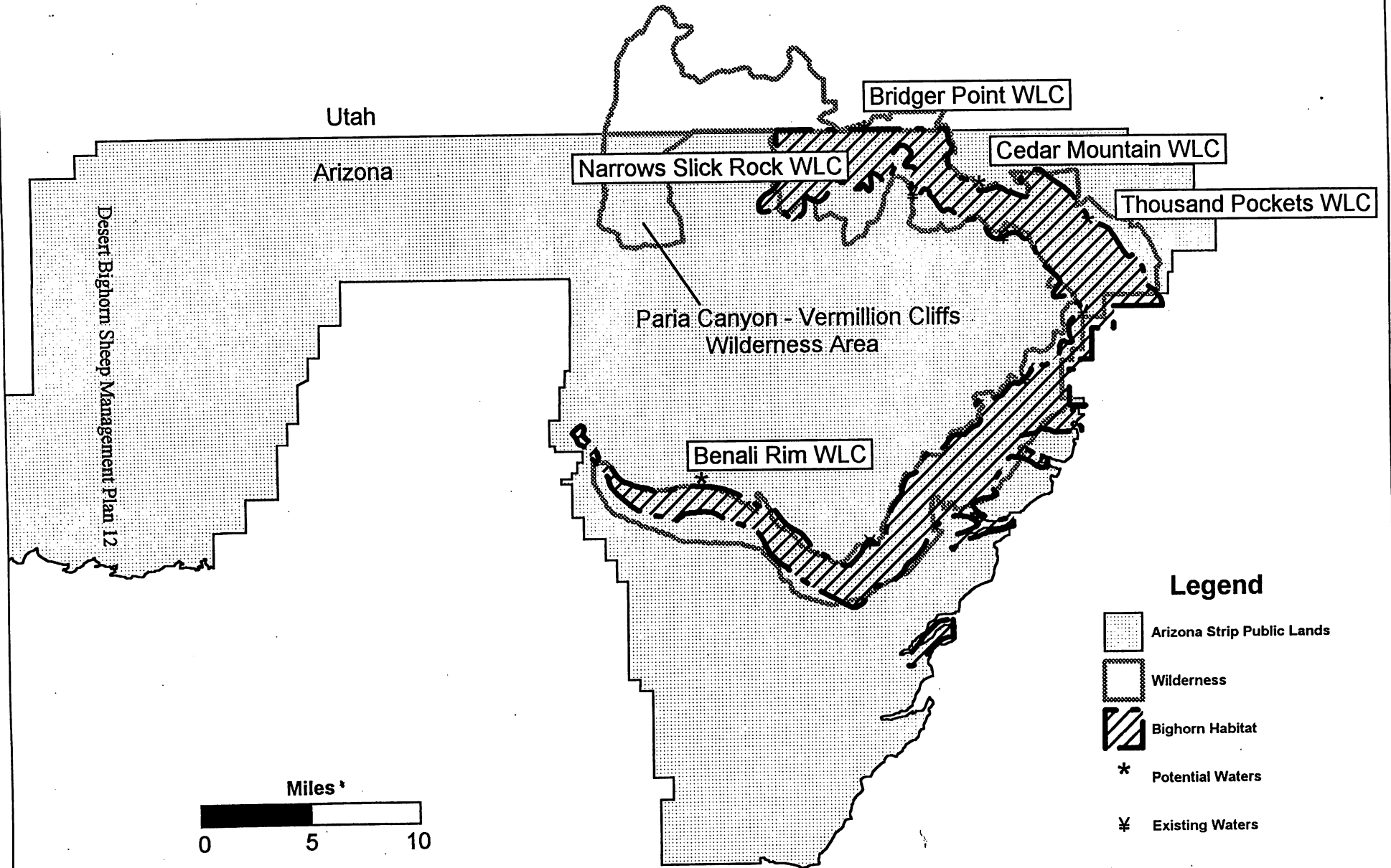
Fifty-two bighorn sheep were released in the Paria Canyon - Vermillion Cliffs Habitat Area from 1984 through 1985. These transplants were successful in reestablishing bighorn sheep in Paria Canyon and along portions of the Vermillion Cliffs. Approximately 65% of the suitable bighorn habitat is unoccupied, primarily along the western rim of the Vermillion Cliffs. A total of 14 desert bighorn rams were taken in the habitat area from the initiation of hunting in 1991 through 1996. In 1996, the Paria Canyon - Vermillion Cliffs Habitat Area supported an estimated population of 140 bighorn sheep. AGFD surveys indicate populations were stable to slightly declining from 1990 through 1996 (Figure 1).

Strategies for improving bighorn sheep distributions in the Paria Canyon - Vermillion Cliffs Habitat Area include the following:

- Repair and maintain existing catchments and spring developments.
- Extend bighorn sheep distributions along the northern side of the Paria River in the vicinity Cedar Mountain and westerly along the Vermillion Cliffs from Paria Point by conducting supplemental transplants at new or existing waters.

Map 5. Paria Canyon - Vermillion Cliffs Desert Bighorn Sheep Habitat Area

Public Lands Administered by the Arizona Strip BLM



MANAGEMENT GUIDELINES

Maintenance and restoration of desert bighorn sheep habitat requires appropriate land-use management in addition to project work, such as water developments. The following guidelines represent the best available knowledge on managing habitat to sustain viable populations of desert bighorn sheep. A viable population is one that is self sustaining with minimal long-term demographic or genetic intervention. These management guidelines are consistent with the *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration* developed by the BLM and signed in 1997.

1. Transplant bighorn sheep to improve their distribution throughout suitable habitat. Conduct transplants at new or existing water sources to encourage site fidelity, rather than at dry sites in an attempt to draw bighorn into unoccupied habitat. The Core Team should prioritize proposed transplants based upon the immediacy of need and habitat areas with higher percentages of unoccupied habitat. Transplants to support existing populations should be given higher priority than those which fill gaps in distribution or extend their range.
2. Maximum bighorn sheep densities on the Arizona Strip should average no more than four sheep per square mile within each Habitat Area.
3. Water sources in bighorn habitat should be no more than four miles apart to provide reliability, encourage fidelity to release sites, and expand distributions into unoccupied areas. Although it is recognized that bighorn sheep may not be totally dependant upon the availability of free water, bighorn released at perennial water sources typically develop a high affinity for the area and tend to concentrate within one mile of the water during the dry summer months.
4. Maintenance of existing bighorn sheep populations, habitat, and related projects will be given higher priority than the development of new populations and projects.
5. Each new wildlife catchment developed within a designated wilderness area requires preparation of a site specific environmental assessment. For non-wilderness area wildlife catchments proposed in this plan, the environmental assessment and accompanying record of decision provide sufficient evaluation of impacts. No additional site specific environmental analysis would be conducted for non-wilderness catchments.
6. Bighorn sheep should only be introduced into areas where domestic sheep are not permitted. This will be a significant consideration when introductions are proposed along the Arizona-Utah and Arizona-Nevada state lines, near the Navajo Nation, and close to private property where domestic sheep are raised.
7. No domestic sheep grazing will be allowed within nine miles of bighorn habitat areas on the Arizona Strip. Domestic sheep grazing will not be authorized in areas on the Strip that are adjacent to bighorn habitat in accordance with the Arizona Strip RMP.

8. Key use areas, such as lambing grounds, migration routes, and areas within one mile of reliable waters, should be identified and monitored. Seasonal use restrictions may be imposed upon activities that could impact these areas, such as commercial recreation activities and mineral development. Bighorn sheep will likely concentrate in key use areas rather than distribute evenly across their habitat. Conflicts between bighorn use and other activities in key areas will be resolved on a case by case basis.
9. Vegetation impacts due to desert bighorn sheep will be assessed when use in key areas exceeds 50% of the current years' growth. Other types of resource impacts will be evaluated on a case by case basis. In the event that resource damage is attributed to or related to desert bighorn sheep, actions will be taken to mitigate the problem. Such actions include, but are not limited to, fencing, removal, relocation, regulated hunting, vegetative treatments, or water developments. These guidelines recognize that favored watering areas often receive heavy animal impacts and that some sacrifice zones are to be expected.
10. Fencing will be avoided around bighorn waters, except where necessary to reserve water for wildlife. Fencing may be necessary to exclude livestock while allowing bighorn sheep to pass or to exclude bighorn from sensitive resource areas. Bighorn sheep-passable fences will be in accordance with BLM standards (Fencing Handbook 1741-1, USDI, BLM 1989). Rationale for departures from the standards described in the Fencing Handbook must be documented.
11. Public land uses such as livestock (cattle) grazing, recreation, mineral development, off-road vehicle activities, road construction, etc., within desert bighorn habitat will be managed in accordance with the Arizona Strip RMP to ensure objectives for desert bighorn are being achieved and that adequate coordination with other users occurs.
12. Unpermitted exotic animals which may appear within bighorn Habitat Areas will be eradicated consistent with state and federal laws.
13. Wild burros will be managed in accordance with the Arizona Strip RMP.
14. Management actions for desert bighorn sheep within designated wilderness areas will be implemented in a manner consistent with conservation of wilderness values as defined in the applicable wilderness management plans.
15. The Core Team will meet at least annually to review and prioritize desert bighorn sheep management projects with assistance from an interdisciplinary team to balance bighorn sheep management on the Arizona Strip with other public land uses. Projects will be prioritized in accordance with Management Guidelines 1 and 4.
16. The Core Team should coordinate with adjacent land owners and managers to ensure the uniformity of goals and objectives for managing bighorn sheep across geo-political boundaries.

INFORMATION NEEDS AND STANDARDS

Monitoring of bighorn sheep populations and habitats is essential to determine if management objectives are being achieved. Monitoring is necessary to obtain specific information such as the success of population transplants, mortality levels, the extent of movements, or competition with other ungulates. Studies will be conducted as information is needed for management and as funding is available. Studies may include, but are not limited to, vegetation condition, movement/distribution, population trends, health/disease monitoring, and genetic studies.

FUTURE ACTIVITIES, PLAN REVISIONS, AND EVALUATIONS

Long-range plans incorporating vast areas must be adaptive if they are to continue to be useful as management guidelines. Therefore, the stated goal, objectives, and guidelines described in this plan will be revised as necessary. Management practices and information needs will be modified or amended as new information becomes available. The Core Team will evaluate the success of bighorn sheep management actions on the Arizona Strip and will amend or revise this plan as necessary with appropriate public involvement. The Core Team will meet at least annually to evaluate information from inventory, monitoring, and research to assess progress towards meeting the stated objectives, schedule proposed transplants or removals, plan water development maintenance and construction actions, and address information needs. Results and recommendations of the team will be summarized and presented at annual AGFD - BLM coordination meetings

GOAL

Achieve healthy, well distributed bighorn sheep populations throughout suitable habitat on public lands administered by the Arizona Strip BLM.

Objectives

BS1 - Enhance and maintain forage, water, and cover conditions on 585 square miles of bighorn sheep habitat so that watersheds are in proper functioning condition, ecological processes are maintained, water quality standards are met, and T/E species habitat is conserved. Manage this habitat to support an average density of no more than four sheep per square mile within each habitat area by the year 2010 (Table 1).

Planned Actions

BS1a - BLM and AGFD will identify and map key use areas for bighorn sheep on the Arizona Strip. Additional key areas will be identified and mapped as bighorn populations expand into suitable habitat.

BS1b - BLM and AGFD will incorporate key forage species and cover components for bighorn into desired plant community prescriptions within applicable planning documents for the Arizona Strip.

BS1c - AGFD will conduct habitat assessments in each Habitat Area to refine bighorn sheep population density objectives. Conduct other habitat studies as necessary.

BS1d - BLM and AGFD will identify annually developments in bighorn habitat which do not provide reliable water or which pose hazards to safe access by bighorn sheep. BLM and/or AGFD will modify, repair or reconstruct existing developments to increase reliability and provide safe access for wildlife (Table 2).

BS1e - AGFD and/or BLM will construct new water developments for bighorn sheep (Table 3) where necessary to provide water where none is available to make otherwise suitable, but unoccupied, habitat available.

Evaluation & Monitoring

BS1a - BLM and AGFD will monitor bighorn key use areas as opportunities arise and evaluate their importance to local populations. Evaluate resource damage on a case by case basis.

BS1b - BLM and AGFD will establish forage utilization transects in bighorn habitat to be read every 3 years as population densities approach their maxima. Vegetation impacts will be assessed when use exceeds 50% of current years' growth.

BS1c - The Core Team will refine bighorn population density objectives upon completion of the habitat assessments and make appropriate adjustments.

BS1d - BLM and/or AGFD will monitor the operating condition of bighorn sheep waters using project inspection / maintenance report forms. The Core Team will prioritize repair and reconstruction of projects at annual meetings and summarize in annual HMP evaluations.

BS1e - The Core Team will evaluate the need for and prioritize new habitat developments for bighorn at annual meetings and summarize in annual HMP evaluations.

Objectives	Planned Actions	Evaluation & Monitoring
BS2 - Increase populations of desert bighorn sheep to fully occupy 585 square miles of suitable habitat on the Arizona Strip at an average density of no more than four bighorn per square mile by the year 2010. Maximum populations for the four desert bighorn habitat areas would be 886 for the Virgin and Beaver Dam Mountains, 700 for the Grand Wash Cliffs, 340 for Kanab Creek, and 432 for the Paria - Vermillion Cliffs area. The maximum population for the Arizona Strip would be 2352 desert bighorn.	BS2a - AGFD, in coordination with BLM, will conduct supplemental releases of desert bighorn sheep at sites identified by the Core Team (Table 4). Additional sites may be added to the list at the discretion of the team if necessary to meet bighorn sheep management objectives. BS2b - In the event that either populations exceed herd management upper limits or resource damage is attributed to bighorn sheep, AGFD, in coordination with BLM, will take action(s) to mitigate the problem. Such actions include, but are not limited to, fencing, removal, relocation, regulated hunting, vegetative treatments, or water developments.	BS2 - AGFD will monitor bighorn population trends by conducting biennial aerial surveys and population estimates. New releases will be prioritized by the Core Team. AGFD will radio-collar a significant percentage of released desert bighorn sheep and monitor to determine distribution, mortality, and key use areas.

TABLE 1. DESERT BIGHORN SHEEP HABITAT AREAS ON THE ARIZONA STRIP WITH 1996 AND POTENTIAL MAXIMUM POPULATIONS BASED UPON FOUR SHEEP PER SQUARE MILE

Habitat Area	Area		Population	
	Square Miles	Acres	1996	Potential Maximum
Virgin and Beaver Dam Mountains	220	141,770	120	880
Grand Wash Cliffs	175	113,360	90	700
Kanab Creek	85	54,495	200	340
Paria - Vermillion Cliffs	105	62,030	140	420
TOTAL for Arizona Strip	585	371,655	550	2340

TABLE 2. DESERT BIGHORN SHEEP DEVELOPMENTS REQUIRING MAINTENANCE OR RECONSTRUCTION ON THE ARIZONA STRIP

Project Name	Location	Project Description	Date Reported	Date Completed
Virgin and Beaver Dam Mountains Habitat Area				
Hedricks Spring SPD	T.40N., R.14W., S.19 NWSW	Repair float box, replace drinker	June 1995	
Virgin Mountain WLC	T.40N., R.14W., S.7 NENE	Repair float box & holding tank	June 1995	
Willow Springs Fence Modification	T.39N., R.15W., S.22 SWSE	Modify fence	March 1996	July 1996
Buck Springs Re-development	T.38N., R.16W., S.12 NESW	Redevelop spring source	April 1993	
Grand Wash Cliffs Habitat Area				
Squaw Canyon WLC	T.35N., R.14W., S.28 SWSE	Repair torn liner	June 1994	October 1996
Kanab Creek Habitat Area				
Paria Canyon - Vermillion Cliffs Habitat Area				

WLC = Wildlife Catchment

SPD = Spring Development

Blank spaces left for future maintenance needs

**TABLE 3. POTENTIAL DESERT BIGHORN SHEEP WATER DEVELOPMENTS
ON THE ARIZONA STRIP IN PRIORITY ORDER**

Project Name	Approximate Location	Located In Wilderness	AGFD Game Unit
Virgin and Beaver Dam Mountains Habitat Area			
Ridgeline WLC	T.40N., R.14W., S.29	No	13B
Grand Wash Cliffs Habitat Area			
Cave Canyon WLC	T.36N., R.14W., S.34	Yes	13B
Kanab Creek Habitat Area			
Grama Canyon #1 WLC	T.37N., R.4W., S.14	No	13A
Grama Canyon #2 WLC	T.37N., R.3W., S.19	No	13A
Bulrush Point WLC	T.38N., R.3W., S.32	No	13A
Clearwater Point WLC	T.38N., R.3W., S.8	No	13A
Hack WLC	T.37N., R.5W., S.23	No	13A
Paria Canyon - Vermillion Cliffs Habitat Area			
Benali Rim WLC	T.39N., R.4E., S.22	No	12B
Narrows Slick Rock WLC	T.41N., R.5E., S.10	Yes	12B
Thousand Pockets Rim WLC	T.41N., R.7E., S.21	Yes	12B
Cedar Mountain WLC	T.41N., R.6E., S.11	No	12B
Bridger Point WLC	T.42N., R.5E., S.35	Yes	12B

WLC = Wildlife Catchment

**TABLE 4. PROPOSED DESERT BIGHORN SHEEP SUPPLEMENTAL RELEASES
ON THE ARIZONA STRIP IN PRIORITY ORDER**

Proposed Release Site	Proposed Related Action	Habitat Area	Approximate Location	Located In Wilderness	AGFD GMU
Hedricks Spring	Repair spring development	Virgin and Beaver Dam	T.40N., R.14W. S19	Yes	13B
Willow Springs	Repair and re-align fence	Virgin and Beaver Dam	T.37N., R.04W. S14	Yes	13B
N/A	Repair Virgin Mtns. WLC	Virgin and Beaver Dam	T.40N., R.14W. S07	Yes	13B
N/A	Repair Buck Springs development	Virgin and Beaver Dam	T.38N., R.16W. S12	Yes	13B
Squaw Canyon WLC	Repair WLC	Grand Wash Cliffs	T.35N., R.14W. S28	Yes	13B
Ferguson Pockets N WLC	none	Grand Wash Cliffs	T.36N., R.14W. S22	Yes	13B
Hancock Springs	none	Paria - Vermillion Cliffs	T.39N., R.05E. S31	Yes	12B
Benali Rim	Build Benali Rim WLC	Paria - Vermillion Cliffs	T.39N., R.04E. S22	Yes	12B
Ridgeline WLC	Build Ridgeline WLC	Virgin and Beaver Dam	T.38N., R.16W. S13	No	13B
Cave Canyon WLC	Build Cave Canyon WLC	Grand Wash Cliffs	T.36N., R.14E. S34	Yes	13B
Grama Canyon	Build Grama #1 & #2 WLC	Kanab Creek	T.37N., R.03W. S19	No	13A
Paria Narrows	Build Narrows Slick Rock WLC	Paria - Vermillion Cliffs	T.41N., R.05E. S10	Yes	12B
Thousand Pockets	Build Thousand Pockets WLC	Paria - Vermillion Cliffs	T.41N., R.07E. S21	Yes	12B
Bridger Point WLC	Build Bridger Point WLC	Paria - Vermillion Cliffs	T.42N., R.05E. S35	Yes	12B
Bulrush Point	Build Bulrush Point WLC	Kanab Creek	T.38N., R.03W. S32	No	13A
Cedar Pockets	none	Virgin and Beaver Dam	T.41N., R.14W. S10	Yes	13B
N/A	Build Cedar Mountain WLC	Paria - Vermillion Cliffs	T.41N., R.06E. S11	No	12B
N/A	Build Clearwater Point WLC	Kanab Creek	T.38N., R.03W. S08	No	13A
N/A	Build Hack WLC	Kanab Creek	T.37N., R.05W. S23	No	13A

N/A = Not Applicable: No release planned

WLC = Wildlife Catchment

Decision Record

ARIZONA STRIP DESERT BIGHORN SHEEP MANAGEMENT PLAN

DECISION

The decision is to implement the proposed action as described in the Environmental Assessment (EA-AZ-010-96-018), to implement the Arizona Strip Desert Bighorn Sheep Management Plan (Plan). The Plan addresses desert bighorn sheep management goals and objectives to achieve healthy, well distributed bighorn sheep populations throughout suitable habitat on public lands administered by the Arizona Strip. The Plan would revise objectives and actions for managing bighorn sheep in the Black Rock, Parashant, and Paria - Kanab Creek Habitat Management Plans (HMPs). The proposed action is in conformance with the Arizona Strip Resource Management Plan and Environmental Impact Statement. The actions and prescriptions in the proposed action are consistent with balanced multiple use and ecosystem management.

The proposed action includes repair and modification of existing developments to permit safe access by wildlife, minimize the potential for predator ambush, and increase the reliability of watering facilities. Existing developments requiring maintenance are indicated in Table 2 of the Plan. Additions and deletions to the list are expected as developments are repaired or fail. The proposed action identifies 12 new waters proposed for construction. Eight of these would be located outside of designated wilderness areas and the remaining four would be within wilderness (Table 3 of the Plan). All of these actions are contingent upon biological need, compatibility with wilderness objectives, and feasibility. Prior to construction, on-site clearances will be conducted for threatened or endangered species and cultural resources. Construction of water developments within wilderness will be preceded by a separate site-specific environmental assessment for each project to evaluate the significance of anticipated impacts and determine the need for an environmental impact statement. The proposed action identifies 14 locations for supplemental desert bighorn sheep releases on the Arizona Strip (Table 4 of the Plan) and a variety of research studies, inventories and monitoring.

ALTERNATIVES CONSIDERED

In addition to the proposed action, the BLM considered the no action alternative. The no action alternative would be to continue to manage desert bighorn sheep on the Arizona Strip according to the objectives established in the HMPs. Objectives, actions, and monitoring described in the Plan would not be implemented. The BLM policy of modifying fences and water developments for safe wildlife access would still be implemented. Five additional wildlife water developments described in the existing HMPs would be constructed if feasible and necessary. Supplemental bighorn sheep releases would not occur. Key area monitoring would not occur.

MITIGATING MEASURES

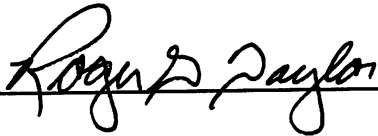
- A. Clearances for threatened or endangered (T/E) plant and animals, cultural resources, and wilderness values will be analyzed on a site by site basis for each surface disturbing project prior to construction. If necessary, projects will be modified, relocated, or as a last resort, eliminated to mitigate or resolve impacts to these resources.
- B. Disturbances to soil and vegetation will be limited to the degree necessary to accomplish the project.
- C. Access to project sites will be by vehicle on existing roads and trails, on foot or by helicopter. In some instances the access route and future maintenance will be analyzed in the project environmental assessment before approval.
- D. Fence lines will not be bladed.
- E. Complete clean up of each project site and campsite will occur after maintenance or construction is completed.
- F. There will be close coordination with the grazing permittee prior to construction of new wildlife waters and/or supplemental desert bighorn sheep releases on BLM lands.
- G. No cultural resources will be collected or disturbed at project sites, campsites, or elsewhere in the area. Disturbance will be kept within levels determined in the project description and environmental assessment.

RATIONALE FOR DECISION

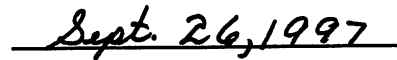
The no action alternative assumes that management of desert bighorn sheep on the Arizona Strip would continue according to the objectives established in the HMPs. Herd management objectives for desert bighorn as described in the HMPs have been met or exceeded in three of the four bighorn habitat areas, thereby necessitating amendments to each of the habitat management plans. Action was required to provide realistic management prescriptions for desert bighorn sheep on the Arizona Strip.

The proposed action provides a balanced approach to managing desert bighorn sheep and their habitat, developed by biologists and land managers from the BLM and Arizona Game and Fish Department. As such, the Plan includes a set of reasonable guidelines for monitoring bighorn population and habitat conditions that is flexible and responsive to changing resources needs and multiple-use values.

It is my decision to implement this action, subject to the mitigating measures terms designed to prevent unnecessary and undue degradation of the public lands as listed below.



Arizona Strip Field Manager



Date