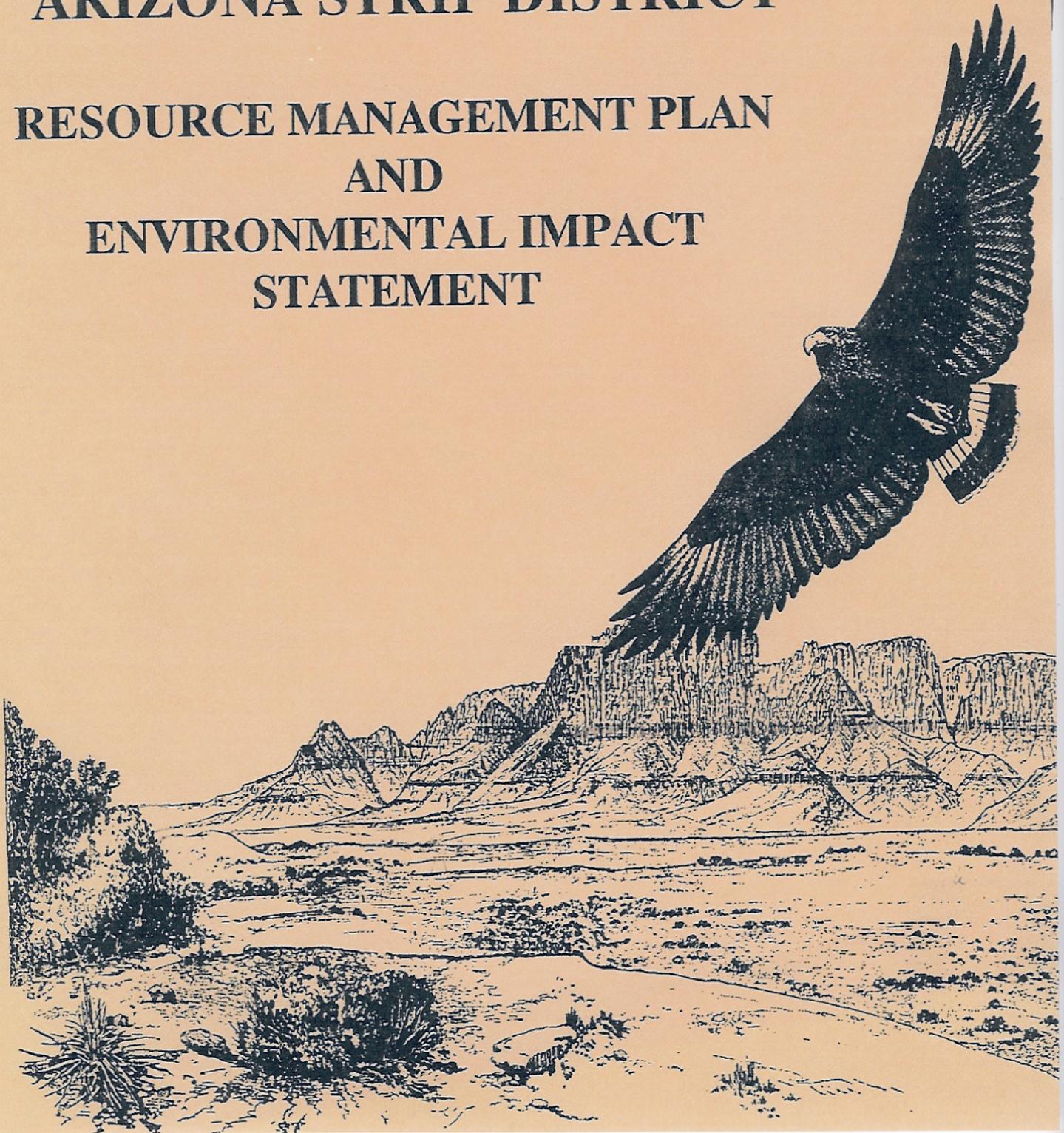


**EXECUTIVE SUMMARY  
REGARDING THE  
ARIZONA STRIP DISTRICT  
RESOURCE MANAGEMENT PLAN  
AND  
ENVIRONMENTAL IMPACT  
STATEMENT**



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## SUMMARY

### INTRODUCTION

This draft Resource Management Plan and Environmental Impact Statement (RMP/EIS) identifies and analyzes options for managing public lands and resources administered by the Bureau of Land Management (BLM) in the Arizona Strip District (District). When completed, the RMP/EIS will provide framework guidance for the management of public lands and the associated resources and diverse multiple uses within both Resource Areas of the District over the next fifteen years.

BLM's land use planning is accomplished under the authority of and in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA). The result of a concentrated step-by-step planning effort over the past two years and substantial public involvement and consultation, this draft was prepared by an interdisciplinary planning team in association with a variety of specialists and the District Management Team. The BLM Arizona State Office also provided technical and review assistance.

### THE PLANNING AREA

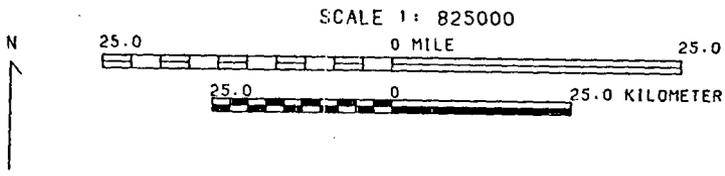
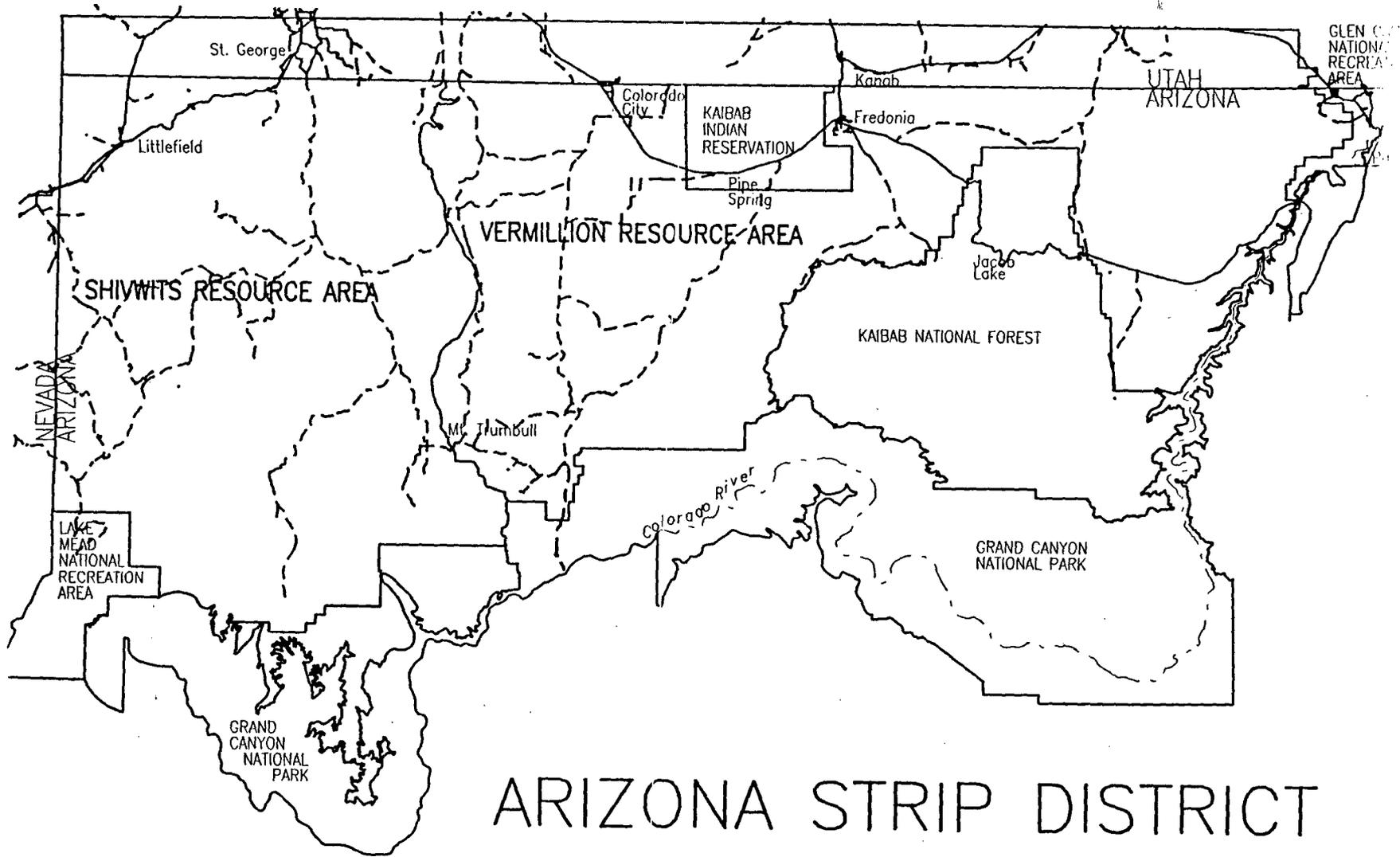
The planning area, hereafter referred to as the District, encompasses about 2.8 million acres of public land located in the northwest corner of Arizona and known as the Arizona Strip (Map 1). Isolated from the rest of Arizona by the deep canyons of the Colorado River, this area is geographically, culturally and economically closely linked with southern Utah.

The District encompasses the northern portion of Mohave and Coconino Counties. The land pattern is mostly large blocks of public lands administered by the BLM (Map 2).

A vast and interesting area, the District is topographically and ecologically diverse and rich in natural and cultural resources. Important forage, wildlife, mineral, archaeological, wilderness, scenic, recreation, watershed, forests, woodlands and other values are present on the public lands.

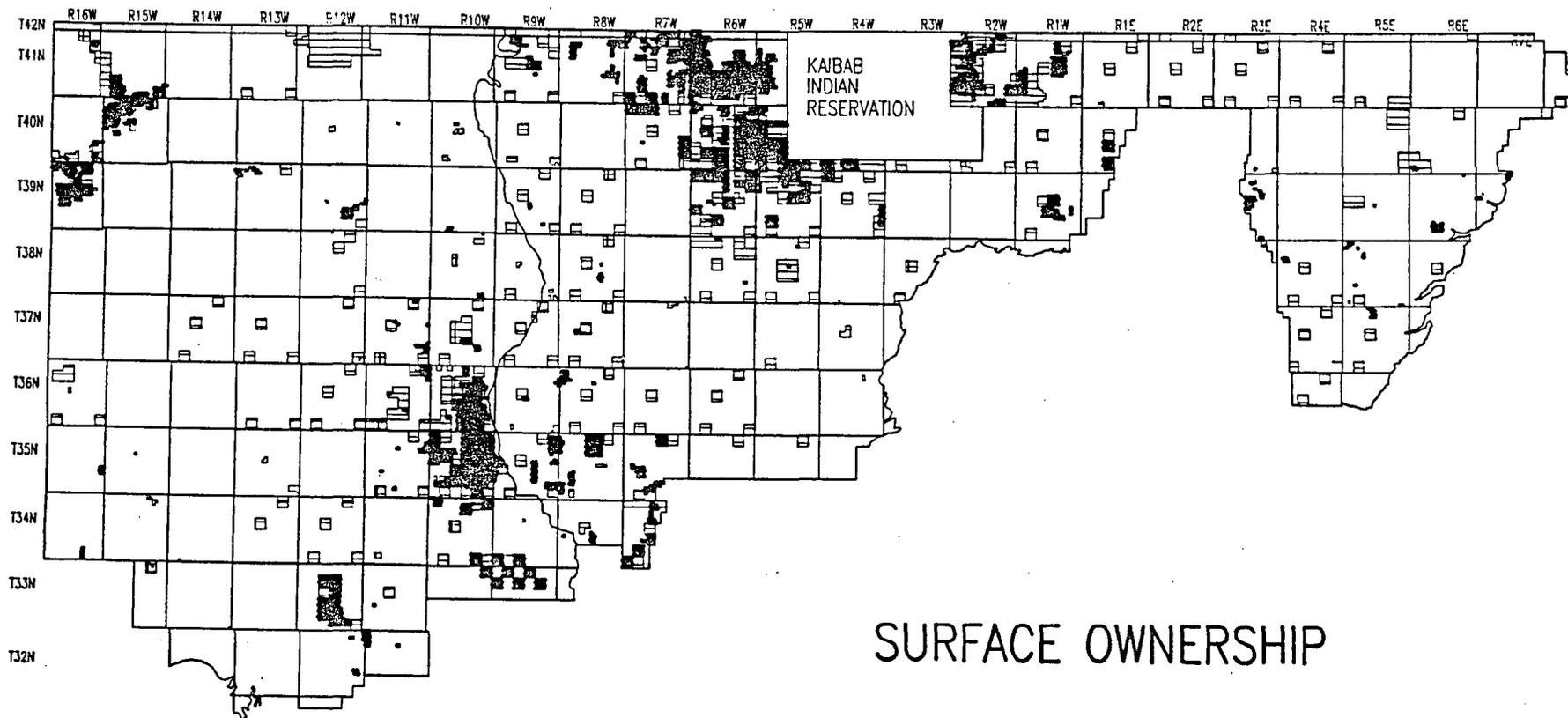
This distinctive part of Arizona has a special appeal to many people and is unique in many ways. The isolated location north of the Grand Canyon limits accessibility and human use and enhances remoteness and the quality of natural back country settings. Spectacular scenic vistas are common. Due to the remoteness, those who wish to can find solitude among scenic, rough canyonous country and in some areas, stands of ponderosa pine.

There are no inhabited communities in the interior of the District and the human population is low. The only permanent residents live in small communities near the Utah and Nevada borders and a few small businesses located along Highway 89a in House Rock Valley.



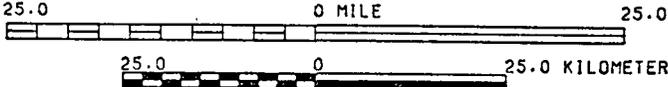
PRIMARY ROADS PAVED ———

PRIMARY ROADS UNPAVED - - - -



# SURFACE OWNERSHIP

SCALE 1: 825000



## SUMMARY

The only highways, three of them, cross the northern tier of the District. No paved roads extend into the interior, but over 4,400 miles of unpaved roads and truck trails criss-cross the area. Very few roads extend into the rugged and isolated southern tier.

Most of the development in the interior of the District is related to ranching operations and includes waters, fences and diverse other types of rangeland improvements. The few ranch houses scattered across the District are not permanent residences but only occasionally used by ranch hands.

Over 265,000 acres of public lands, involving eight areas, are so exceptional in their natural values, remoteness and scenery that they are designated and managed by BLM as part of the National Wilderness Preservation System. Remote areas adjacent to the Grand Canyon National Park and the Lake Mead and Glen Canyon National Recreation Areas offer quality recreation experiences in back country settings.

Four desert bighorn sheep herds thrive in rugged country in and around the wilderness areas. Escarpments and canyons are inhabited by the endangered peregrine falcon. The many vegetative communities provide habitat for mule deer, antelope, wild turkey, desert tortoise and many other wildlife species.

Some areas have features so sensitive, such as archaeological sites, threatened and endangered plants as well as other values, that special management emphasis is required.

Resources with important commercial values are also present. Concentrated deposits of uranium, in geological structures known as breccia pipes, are scattered over much of the area. Large gypsum deposits exist in the Shivwits Resource Area. The public lands are also important to many ranching operations.

A wide variety of multiple uses occur and public uses have increased steadily in recent years. The resources available and the associated uses and industries are important to the public as well as local communities, regional economies and the nation.

The principal industries in the District are ranching and minerals exploration and development. Grazing of livestock has been a major use of the public lands since the 1880's and continues to be to this day. Over 135 ranchers graze 23,000 cattle on the public lands annually.

Active, environmentally sensitive uranium exploration and development operations have occurred over the past decade. Eight mines are involved which are in various phases. Three have been mined out and the sites rehabilitated. Three mines are now producing ore but two of them are winding down in production. One mine is fully developed and ready for production while another is in the initial development stage. Due to the vertical column structure of the breccia pipe, mining is underground and the typical surface disturbance of a mine is 15 to 20 acres. The estimated cumulative area disturbed by uranium operations to date is 590 acres. Mine operations, including development, mining and rehabilitation, involves an average period of 8 to 10 years.

Gypsum mining is taking place in two locations. Another gypsum mine is inactive.

### THE PLANNING PROCESS

This RMP/EIS is being prepared in accordance with the BLM planning regulations. Decisions herein will update or, in many cases, replace land use planning decisions in the Shivwits and Vermillion Resource Area Management Framework Plans (MFP). These MFPs have guided BLM's public land management programs for the past seven and thirteen years respectively. Substantial changes have occurred within the District since they were prepared.

A variety of planning criteria established the legal parameters and management goals that direct the development of the RMP. The basic criteria used came from FLPMA.

Objectives established as an integral part of the planning process guide proposed management programs and development and evaluation of alternatives.

Prominent districtwide objectives are:

- Manage for multiple use
- Maintain remote character
- Manage resources in cooperation with adjacent land agencies
- Protect unique features and special resource values

Recognizing that some public lands are more sensitive to multiple uses than others because of special qualities, concerns or conflicts, two categories of objective areas have been established. These areas have been identified to guide management initiatives. They are categorized as Objective Areas A and B as follows.

Objective A Areas: More ordinary areas which do not require special management. Involves most of the District's public lands and a wide variety of resources and values requiring continued multiple use management. Management would remain similar to current practices. The areas and acreage which would be managed under these guidelines vary from one alternative to another but the management practices remain the same.

Objective B Areas: Involves public lands that are geologically fragile and with special resource concerns, sensitivities or characteristics requiring special management attention. The areas and acreage to be managed under this category vary from one alternative to another but the management guidelines remain the same. Multiple use would continue to be a central management feature.

Thirteen areas with special values are also analyzed herein for designation as Special Management Areas (SMAs). This includes Areas of Critical Environmental Concern (ACECs), Resource Conservation Areas (RCAs) and Special Recreation Management Areas (SRMAs). The number of SMAs and type of designation proposed vary by alternative.

### PLANNING ISSUES

The RMP/EIS is issue-driven. This means that the planning effort is focused on resolving major issues associated with management of public lands within the District.

There is high public interest and concern about how the public lands and the associated resources are managed and will be managed in the future. Scoping meetings held to obtain public input and followup staff work by the planning team identified six major planning issues for resolution in this RMP/EIS. These issues are the focus of this planning effort and they are tracked and addressed throughout this document. The six issues are listed below and explained in more detail in the "Planning Issues" section of Chapter I.

Issue 1: Land Tenure Adjustments

Issue 2: Recreation Management

Issue 3: Mineral Resource Management

Issue 4: Access to Public Lands

Issue 5: Cultural Resource Management

Issue 6: Areas of Critical Environmental Concern and Other Areas Requiring Special Management

Two issues previously resolved within the District--rangeland management and wilderness designation--merit mention in this summary. Districtwide rangeland management programs were comprehensively addressed in the Vermillion Grazing EIS (1979) and the Shivwits Grazing EIS (1980). Decisions following the Shivwits and Vermillion Grazing EISs have been adopted as management direction for grazing administration and associated rangeland management (Appendices III-4). Two draft EISs were prepared on wilderness suitability in 1981 and 1982. In 1984, the Arizona Wilderness Act designated over 265,000 acres of BLM-administered lands within the District as wilderness, completing this effort.

### MANAGEMENT COMMON TO ALL ALTERNATIVES

Management decisions and guidance common to all alternatives are also provided in the RMP/EIS. They are from existing MFPs, activity plans and the laws,

regulations and policies by which the BLM is directed. The common management direction involves facets of the following resource programs: lands, minerals, rangeland/vegetation, wild burros, special status plants and animals, wildlife habitat, riparian habitat, cultural resources, soil, water and air, fire management, hazardous materials, recreation, transportation/access maintenance, forestry/woodland, law enforcement and environmental management.

### ALTERNATIVES CONSIDERED

Four alternative plans were developed by the planning team in cooperation with the District Management Team. The alternatives represent different ways of managing public lands and resources within the multiple use concept and other requirements of FLPMA while addressing the six planning issues and resolving other conflicts. Each alternative represents a complete and feasible plan for managing the public lands over the next fifteen years and addresses the major planning issues.

#### Alternative 1 (No Action)

The no action alternative would continue existing management practices at current levels and intensities using the Shivwits and Vermillion Resource Area MFPs. This was not selected as the preferred alternative because it would not be efficiently responsive to the growing management complexities within the District. A number of new issues and land use conflicts have developed with the accelerated public uses since the MFPs were developed and more focused management attention, as well as special designations, are necessary in some areas. Moreover, the updated public involvement, analysis, decisions and management programs which result through the RMP/EIS process provide a more comprehensive framework for integrated multiple use management and resolution of land use conflicts.

#### Alternative 2 (Preferred Alternative)

This alternative is BLM's preferred plan. In accordance with FLPMA, a diverse combination of balanced uses would be accommodated and managed, while also providing a responsive approach to the planning issues, resolution of conflicts, the need for more focused management in areas with special values and the management objectives of adjacent federal lands.

Multiple uses which now occur and are reflected in the preferred plan's objectives, decisions and management programs include, but are not limited to, diverse kinds of recreation, livestock grazing, mineral exploration and production, wildlife development and utilization, watershed, wild burros, woodland products, designated wilderness, rights-of-ways and community expansion needs.

Thirteen SMAs, including 10 ACECs, 2 RCAs and 1 SRMA are proposed, covering 445,000 acres, along with management prescriptions for each. The SMAs and the special values and acreages involved are categorically listed in Table S-1.

TABLE S-1  
SPECIAL MANAGEMENT AREAS

ALTERNATIVE 2 (Preferred)

AREAS	RESOURCE	ACRES
<i>ACECs</i>	AREAS OF CRITICAL ENVIRONMENTAL CONCERN (10)	
Beaver Dam Slope	Desert tortoise	20,800
Virgin River Corridor	Scenic, riparian	8,100
Little Black Mountain	Cultural resources	200
Fort Pierce	Endangered cacti, critical watershed	900
Marble Canyon	Endangered cacti	10,700
Johnson Spring	Cultural resources, endangered cacti	2,400
Lost Spring Mountain	Cultural resources, endangered cacti	9,900
Moonshine Ridge	Cultural resources, endangered cacti	5,500
Witch Pool	Cultural resources	347
Arkansas	Cultural resources	500
SUBTOTAL		59,347
<i>RCA's</i>	RESOURCE CONSERVATION AREAS (2)	
Parashant	Wildlife, scenic, recreation, grazing	51,000
Mount Trumbull	Wildlife, scenic, recreation, cultural, ponderosa pine forest, grazing	108,000
SUBTOTAL		159,000
<i>SRMAs</i>	SPECIAL RECREATION MANAGEMENT AREAS (1)	
Paria Plateau	Cultural resources, scenic, recreation, geologic, proximity to wilderness	227,000
GRAND TOTAL		445,347

## Response to Planning Issues

Lands Issue: About 16,000 acres would be available for various public purposes around communities and exchange to meet long-term public needs and an active acquisition program is proposed, focused on 160,000 acres of state land. The City of Page, Arizona, anticipates the need for expanded airport facilities within the next decade. BLM would continue to work with city and county officials, the FAA and other agencies in considering and evaluating possible sites to meet future community needs. (Ferry Swale, identified as a possible airport site, is not included in this alternative because of potentially significant adverse impacts associated with wilderness, rights-of-way, safety and other management considerations.)

Recreation Issue: Diverse kinds of dispersed recreation opportunities would be provided over most of the District. Management on 613,000 acres, mainly remote areas, would focus on preserving the natural back-country characteristics and associated recreation values.

Minerals Issue: Most of the District would continue to be open to mineral activities and no new withdrawals are proposed. On 613,000 acres, mainly remote areas with unique resource values, minerals activities would be subject to special protective stipulations to minimize adverse impacts.

Access Issue: OHV use and road management programs would be as follows:

### OHVs

See Table S-5 in "Major Comparisons Between Alternatives" section.

### Road Management

No new permanent roads would be allowed in areas with special and remoteness values and roads not needed for resource management or to protect resource values would be closed.

Cultural Resources Issue: Six ACECs would be established to strengthen protection of cultural resources. The other cultural sites would be carefully managed under current practices.

Special Designations Issue: Special designations are proposed on 13 areas (see Table S-1).

## Alternative 3

Alternative 3 presents a viable alternative for multiple use management of the public lands with even greater emphasis on environmental protection, more restrictive prescriptions for the SMAs and policies favoring a variety of recreation uses. Multiple uses which would be managed for under this alternative are the same as Alternative 2.

This alternative would enlarge the area administered under Objective Area B guidelines in the Grand Wash Cliffs, Parashant and Kanab Plateau areas. One focus of management would be protecting the natural back country setting, the remoteness and the irretrievable unique resource values. Opportunity for quality recreation experiences in remote back country settings is recognized as an important feature of these areas. Managing for a variety of recreation experience opportunities is a key multiple-use objective.

Fourteen SMAs are proposed, including 11 ACECs and three SRMAs, encompassing 452,510 acres, along with prescriptions on how each one would be managed. The SMAs and the special values and acreages involved are categorically listed in Table S-2. The Mount Trumbull and Parashant would be managed as SRMAs in comparison to Alternative 2 which would designate them as RCAs.

### Response to Planning Issues

Lands Issue: 21,720 acres would be available for exchange and various public purposes around communities. All remaining lands would be retained in public ownership and an active acquisition program is proposed, focused on 160,000 acres of state land and areas with high resource values. New airports would be limited to Objective Area A.

Recreation Issue: The Mount Trumbull, Parashant and Paria Plateau areas would be designated and managed as SRMAs. Management on 895,000 acres, mainly remote areas, would focus on preserving the natural back-country characteristics and associated recreation values.

Minerals Issue: Most of the District would be open to mineral activities, but all ACECs would be withdrawn from mineral location and limited to no surface occupancy for leasing.

Access Issue: OHV use and road management programs would be administered as follows:

#### OHVs

See Table S-5 in "Major Comparisons Between Alternatives" section.

#### Road Management

No new permanent roads in areas with special and remoteness values and roads not needed for resource management or to protect resource values would be closed.

Cultural Resources Issue: Seven ACECs would be established to strengthen protection of cultural resources, including one on the Paria Plateau encompassing 186,000 acres. Moreover, the ACEC prescriptions would have more restrictive management policies than the other alternatives.

Special Designations Issue: Fourteen SRMAs are proposed, encompassing 452,510 acres (see Table S-2).

TABLE S-2  
SPECIAL MANAGEMENT AREAS

## ALTERNATIVE 3

AREAS	RESOURCE	ACRES
AREAS OF CRITICAL ENVIRONMENTAL CONCERN (11)		
Beaver Dam Slope	Desert tortoise	20,800
Virgin River Corridor	Scenic, riparian, endangered fish	8,100
Little Black Mountain	Cultural resources	200
Fort Pierce	Endangered cacti, critical watershed	3,600
Marble Canyon	Endangered cacti	15,500
Johnson Spring	Cultural resources, endangered cacti	2,300
Lost Spring Mountain	Cultural resources, endangered cacti	9,900
Moonshine Ridge	Cultural resources, endangered cacti	5,300
Witch Pool	Cultural resources	260
Arkansas	Cultural resources	550
Paria Plateau	Cultural resources, scenic, recreation, geologic, proximity to wilderness	186,000
SUBTOTAL		253,110
SPECIAL RECREATION MANAGEMENT AREAS (3)		
Paria Plateau	Cultural resources, scenic, recreation, geologic, proximity to wilderness	227,000
Mount Trumbull	Wildlife, scenic, recreation, ponderosa forest, cultural resources, grazing	108,000
Parashant	Wildlife, scenic, recreation, grazing	51,000
SUBTOTAL		<u>386,000</u>
GRAND TOTAL*		452,510

\*Overlapping acreages occur on the Paria Plateau, which is both an ACEC and a SRMA. This grand total is adjusted to correct for that overlap.

Alternative 4

Among the alternatives, this one comes closest to representing the preferences and concerns of local resource consumptive users and individuals and companies involved in the primary industries on the District. It is an alternative for multiple use management emphasizing policies and programs favoring use and development of resources over most of the District with less restrictions and few special management areas.

The same multiple uses explained in Alternative 2 and 3 would be managed on a balanced, integrated basis but with more emphasis on the needs of consumptive users and the use and development of resources. This alternative would have the smallest area administered under Objective Area B guidelines of all of the alternatives.

An ACEC would be established (77,000 acres) on the Paria Plateau to strengthen protection of cultural resources. No RCAs or SRMAs would be proposed.

Response to Planning Issues

Lands Issue: Ownership adjustments would be the same as alternative 2 (16,600 ac) except an area of public land would also be made available for an airport in the Ferry Swale area near Page, Arizona.

Recreation Issue: With the exception of the wilderness areas, the District would be managed for extensive recreation use. Four open OHV areas would be established near communities to provide OHV recreation areas.

Minerals Issue: Only a few small areas with unique resource values would be considered for special protective stipulations.

Access Issue: OHV use and road management programs would be administered as follows:

OHVs

See Table S-5 in "Major Comparisons Between Alternatives" section.

Road Management

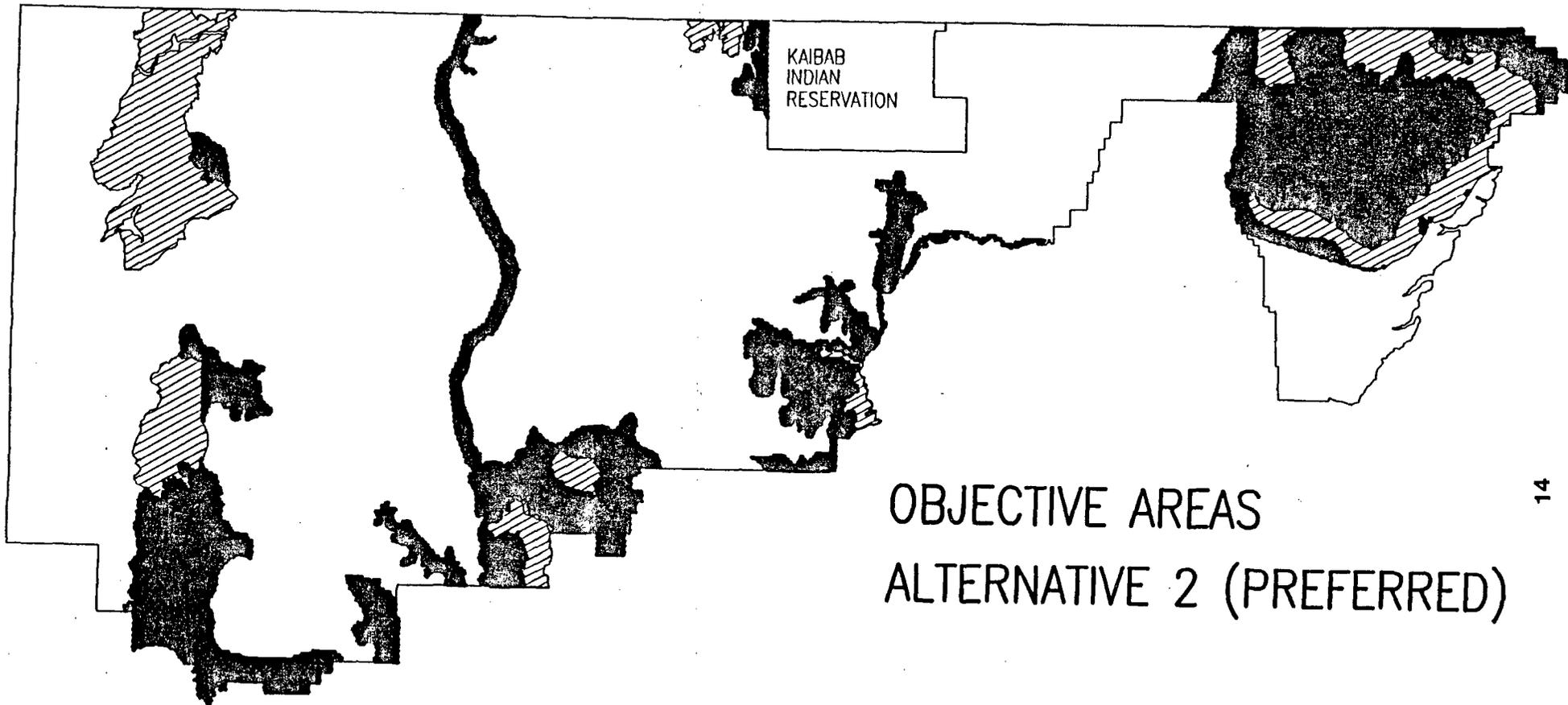
Areas where roads might be closed and access limited would be restricted to a few mountain and canyon areas and portions of the Paria Plateau and Grand Wash Cliffs.

Cultural Resources Issue: To provide special management and protection of cultural resources, one ACEC would be established on the Paria Plateau.

Special Designation Issue: One ACEC is proposed, encompassing 77,000 acres on the Paria Plateau.

MAJOR COMPARISONS BETWEEN  
ALTERNATIVES

Objective Areas-  
See maps next page

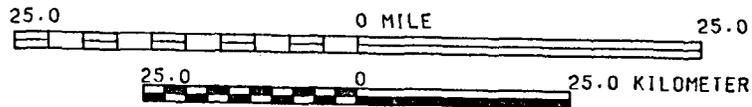


OBJECTIVE AREAS  
ALTERNATIVE 2 (PREFERRED)

14

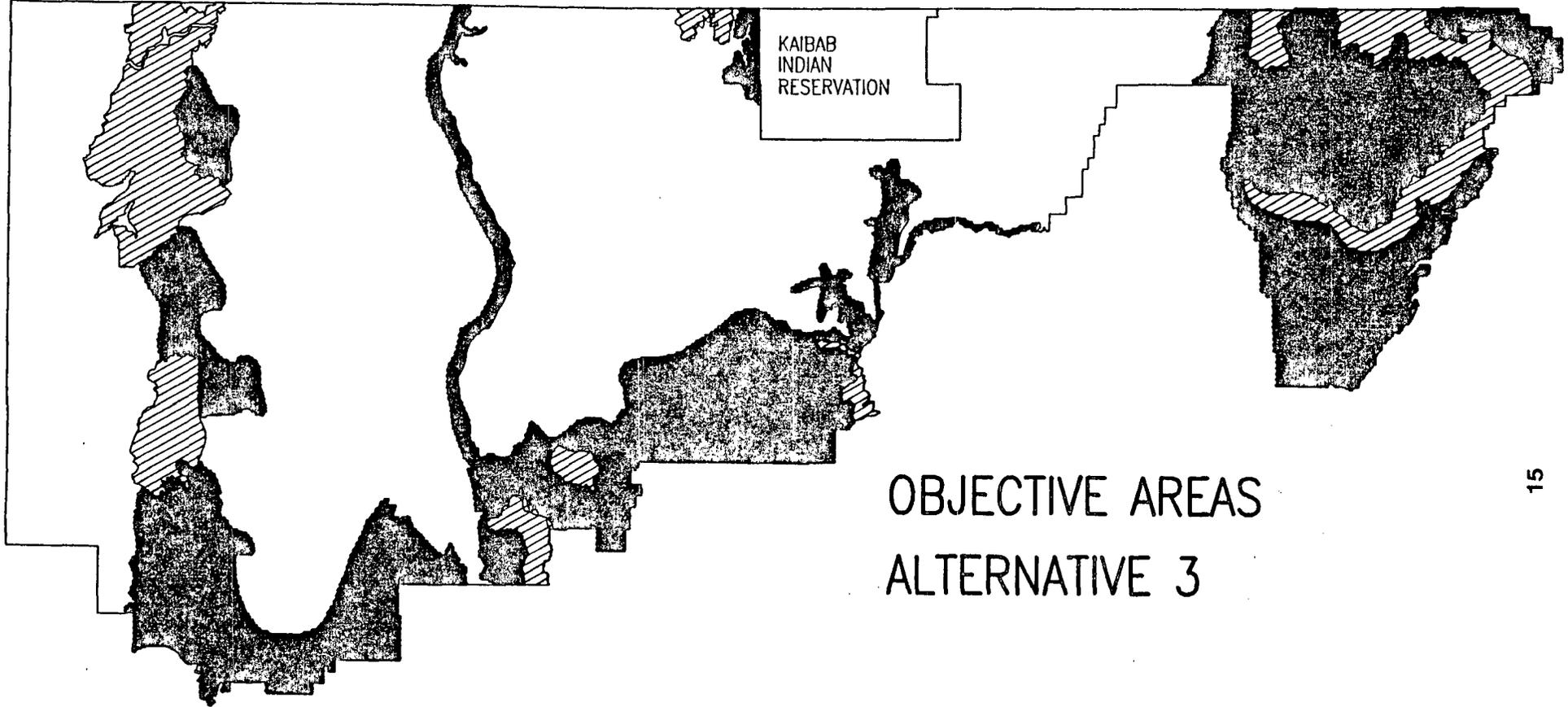


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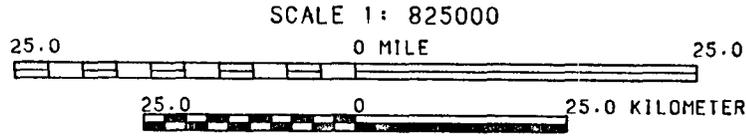
OBJECTIVE A AREAS  
OBJECTIVE B AREAS  
WILDERNESS AREAS



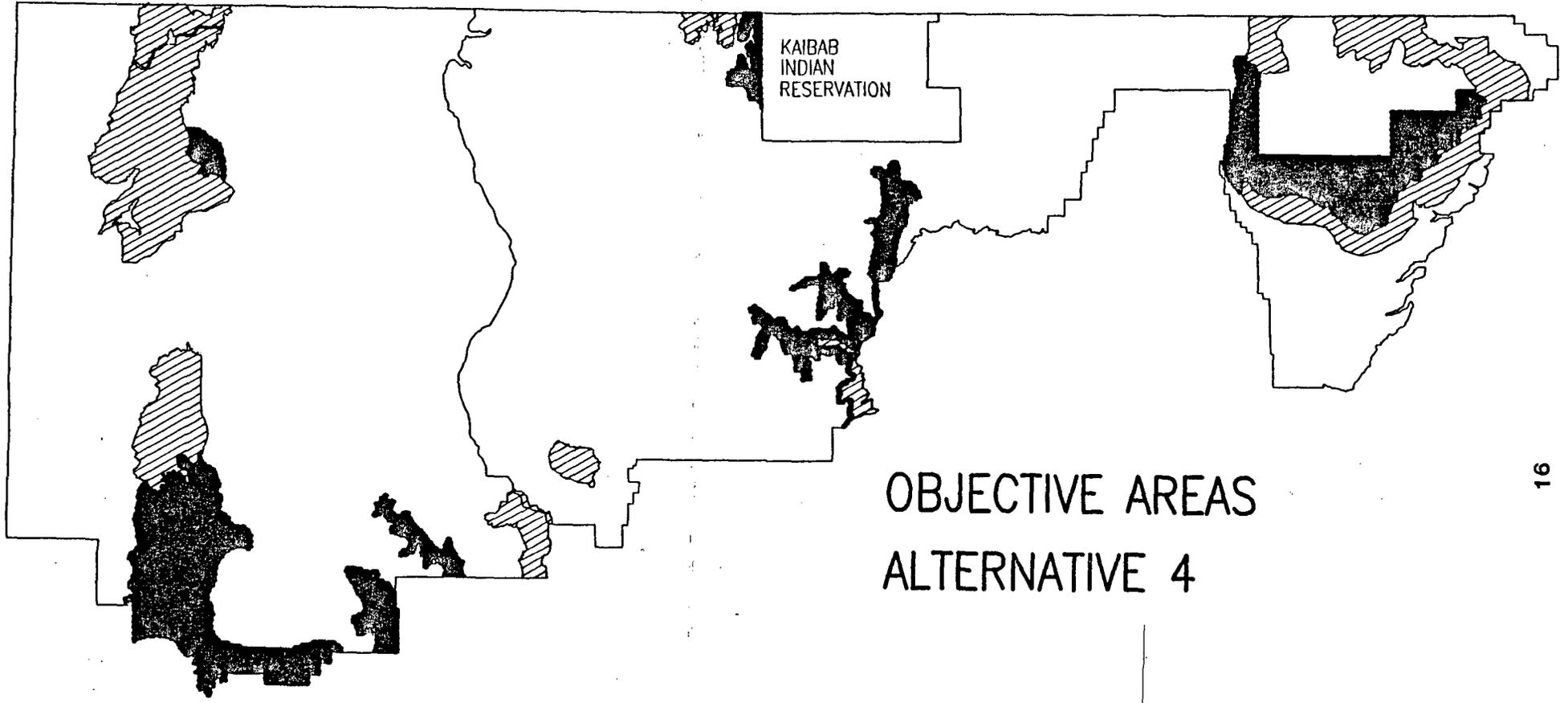


KAIBAB  
INDIAN  
RESERVATION

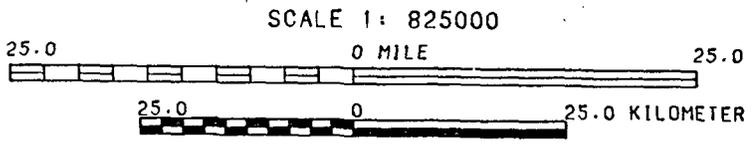
# OBJECTIVE AREAS ALTERNATIVE 3



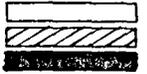
OBJECTIVE A AREAS  
OBJECTIVE B AREAS  
WILDERNESS AREAS



# OBJECTIVE AREAS ALTERNATIVE 4



OBJECTIVE A AREAS  
WILDERNESS AREAS  
OBJECTIVE B AREAS



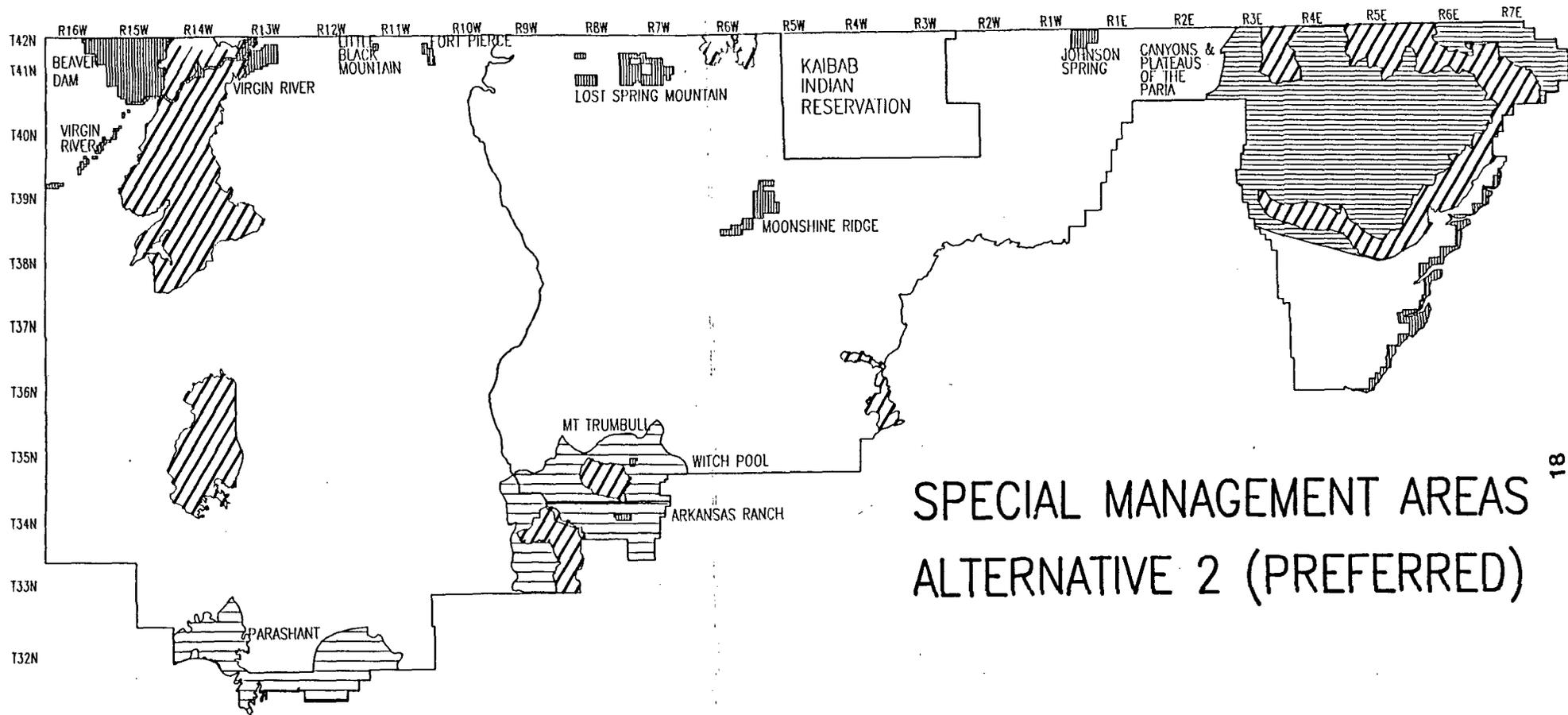
SPECIAL DESIGNATIONS ISSUE

TABLE S-3  
SPECIAL DESIGNATIONS COMPARISON

DESIGNATION	ALTERNATIVES			
	1	2	3	4
ACECs (# and acres)	---	(10) 59,347	(11) 253,110	(1) 77,000
RCAs (# and acres)	---	(2) 159,000	---	---
SRMAs (# and acres)	---	(1) 227,000	(3) 386,000	---
Totals	---	(13) 445,347	(14) 452,510*	(1) 77,000
% of District	---	15.9	16.1	---

\*Note: This is an adjusted figure to compensate for the overlapping acreage which occurs because in alternative 3 the Paria Plateau is both an ACEC and a SRMA

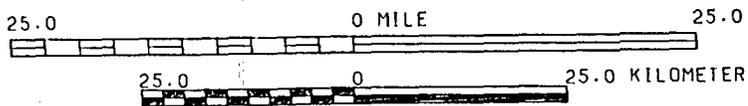
Alternative 2 would designate and manage the Mount Trumbull and Parashant areas as RCAs, while alternative 3 would designate them and the Paria Plateau area as SRMAs. Alternative 3 would also designate the Paria Plateau as an overlapping ACEC, but alternative 2 would not.



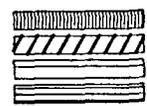
# SPECIAL MANAGEMENT AREAS ALTERNATIVE 2 (PREFERRED)

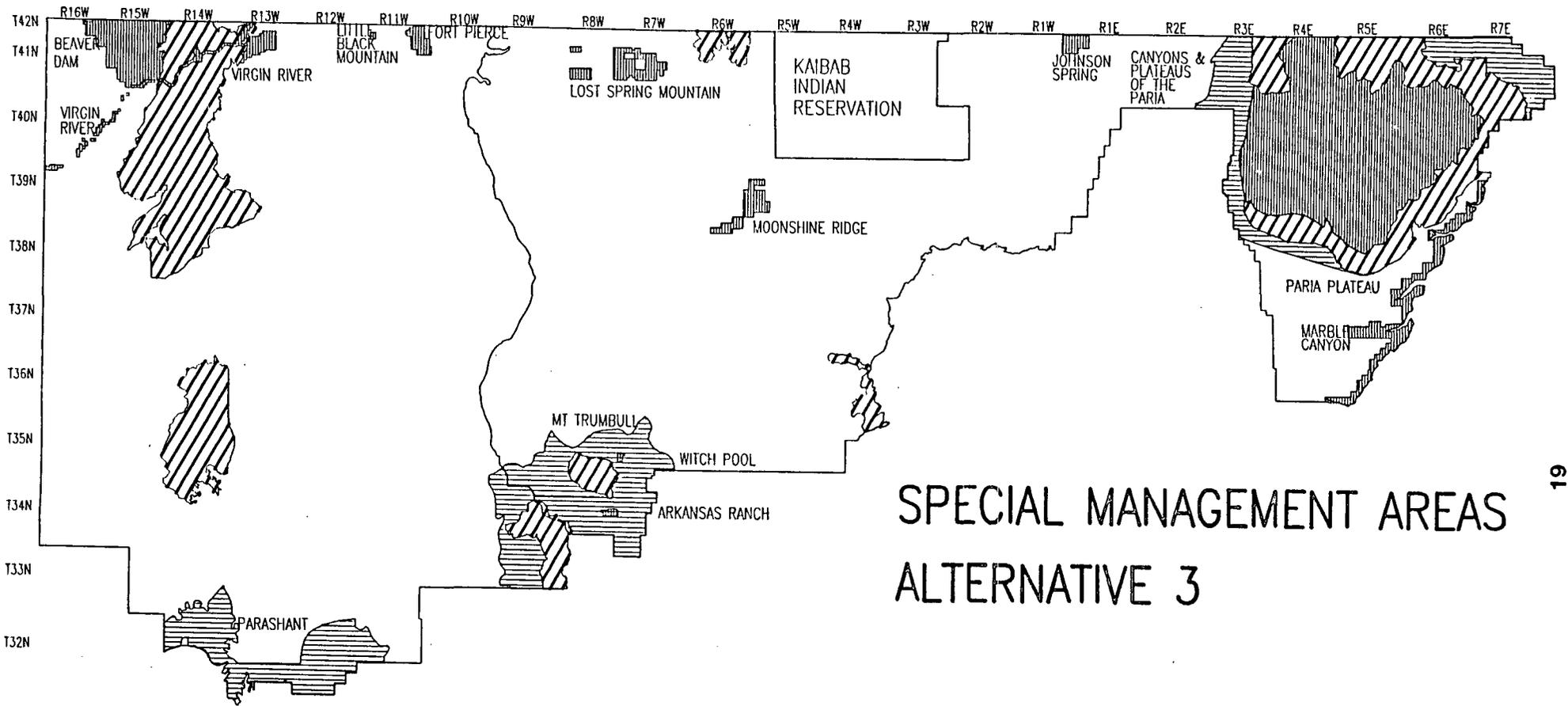
18

SCALE 1: 825000

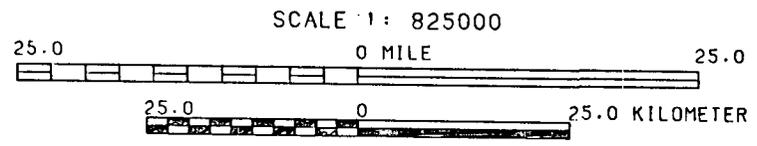


ACEC  
WILDERNESS  
RCA  
SRMA

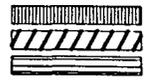


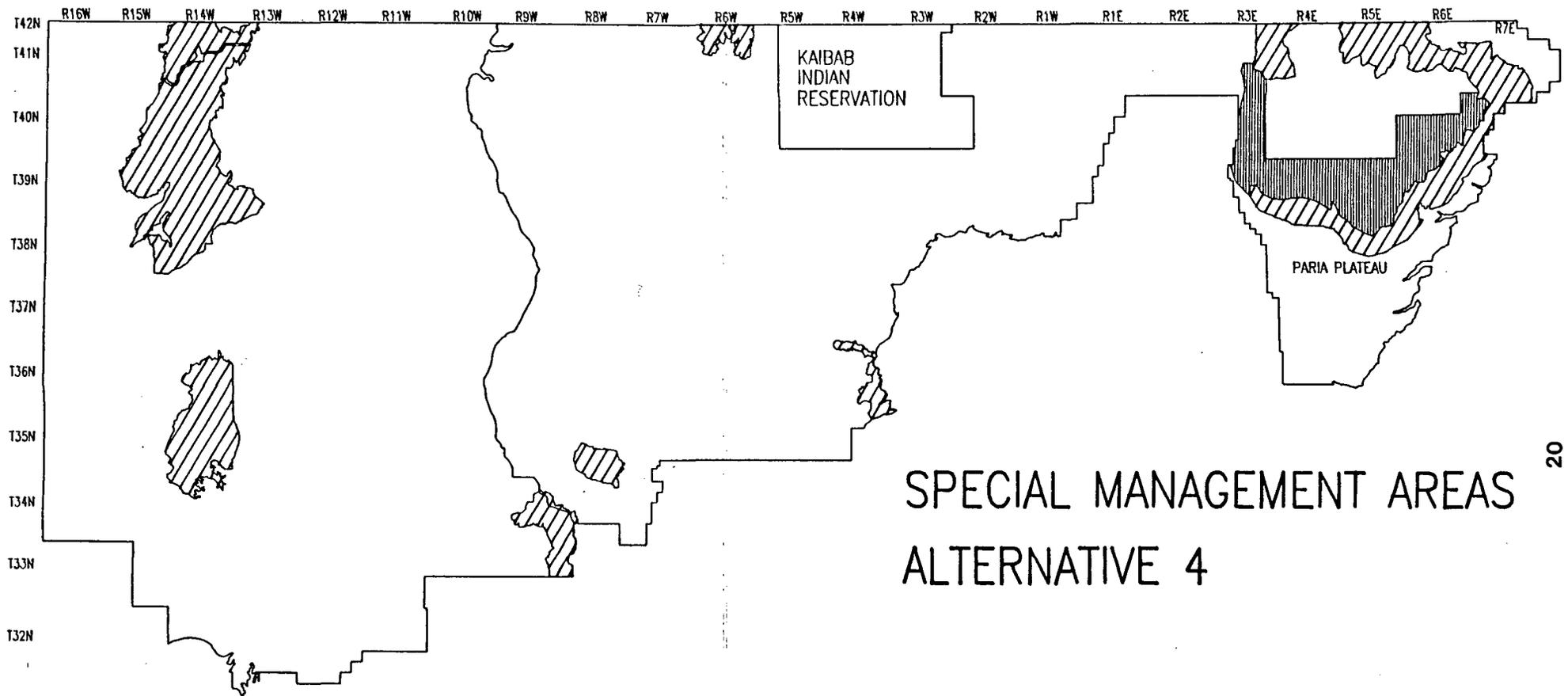


# SPECIAL MANAGEMENT AREAS ALTERNATIVE 3



ACEC  
WILDERNESS  
SRMA





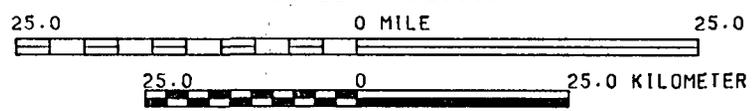
KAIBAB  
INDIAN  
RESERVATION

PARIA PLATEAU

# SPECIAL MANAGEMENT AREAS ALTERNATIVE 4

20

SCALE 1: 825000



WILDERNESS  
ACEC



## LANDS ISSUE

TABLE S-4  
EXCHANGES, R&PPs, ACQUISITIONS, AIRPORTS

ACTION	ALTERNATIVES			
	1	2	3	4
Exchanges, R&PPs (acres)	2,800	16,300	21,720	16,300+ Ferry Swale Airport Site
State Land Acquisitions (acres)	129,000	160,000	160,000	129,000
Private Land Acquisitions (acres)	*	9,000	9,000	*
Airports	Process requests as received.	Limit new airports to Objective Area A.  Make lands available to expand Colorado City Airport. (Ferry Swale, identified as a possible airport site is not included in this alternative because of potentially significant adverse impacts associated with wilderness, rights-of-way, safety and other management considerations.	Limit new airports to Objective Area A.  Close Poverty Airport.	Make land available to expand Colorado City Airport.  Designate up to 1,900 acres of land in Ferry Swale area for an airport.

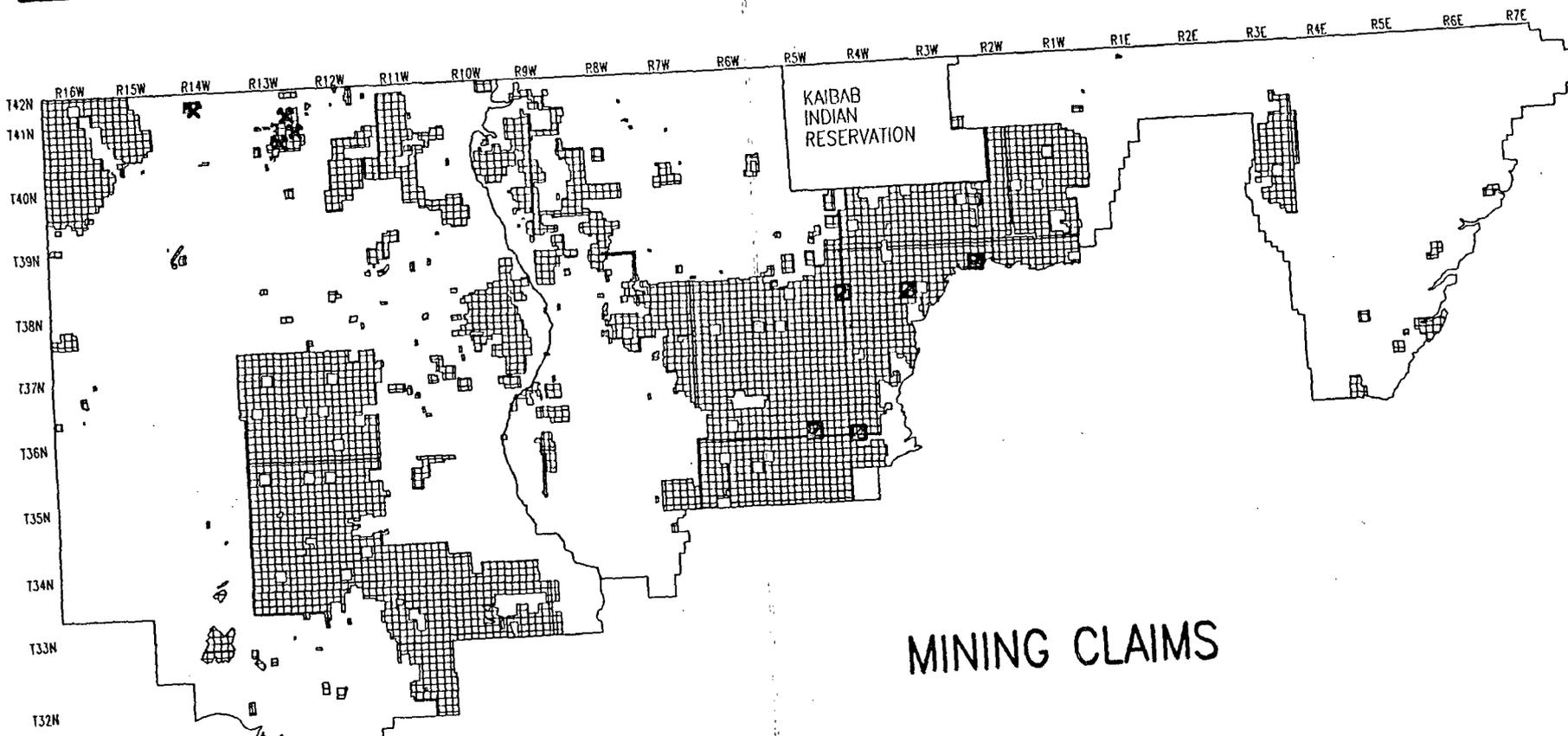
\*Acquire private inholdings where shown to be in public interest.

## RECREATION ISSUE

The most comprehensive recreation-benefitting proposals are in Alternative 3 which would designate and manage the Mount Trumbull, Parashant and Paria Plateaus as SRMAs and would manage 895,000 acres, the most of any of the alternatives, to protect remoteness and back-country settings. Alternative 4 would manage for extensive recreation use over the District but would not establish special management areas for recreation or RCAs. Alternative 2 would designate the Paria Plateau an SRMA and manage 613,000 acres, mostly remote areas, with a focus on preserving the natural back-country characteristics and associated recreation values. Recreation is also recognized as a priority use and management feature for the proposed Mount Trumbull and Parashant RCAs in Alternative 2.

## MINERALS ISSUE

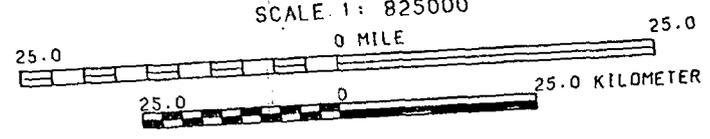
The most restrictive guidelines regarding minerals would occur under Alternative 3 which would withdraw proposed ACECs, 11 of them, from mineral location and require special stipulations on 895,000 acres in Objective Area B, the most of any alternative, to minimize adverse effects of minerals operations. Alternative 4 is the least restrictive. Alternative 1 would not propose any new withdrawals but would require special stipulations on minerals operations on 613,000 acres recognized as having special natural values in remote settings.



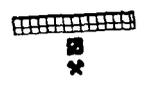
KAIBAB  
INDIAN  
RESERVATION

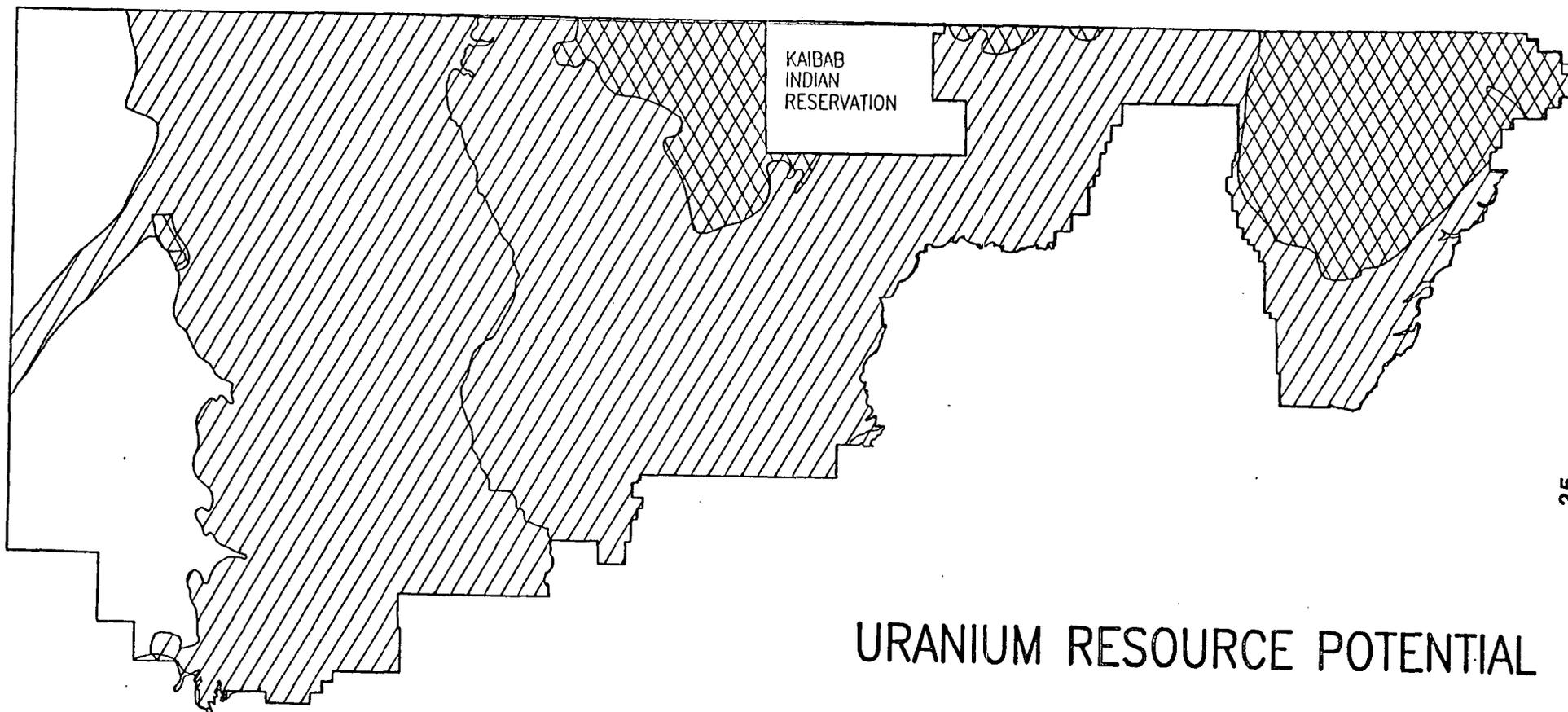
# MINING CLAIMS

SCALE 1: 825000



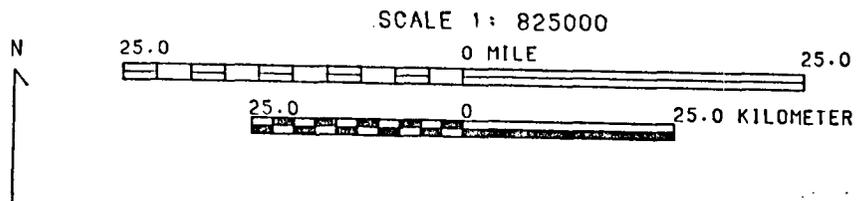
CLAIM  
URANIUM MINE  
GYPSUM MINE





25

# URANIUM RESOURCE POTENTIAL



BRECCIA URANIUM PIPE H-D  
SANDSTONE URANIUM H-D



ACCESS ISSUE

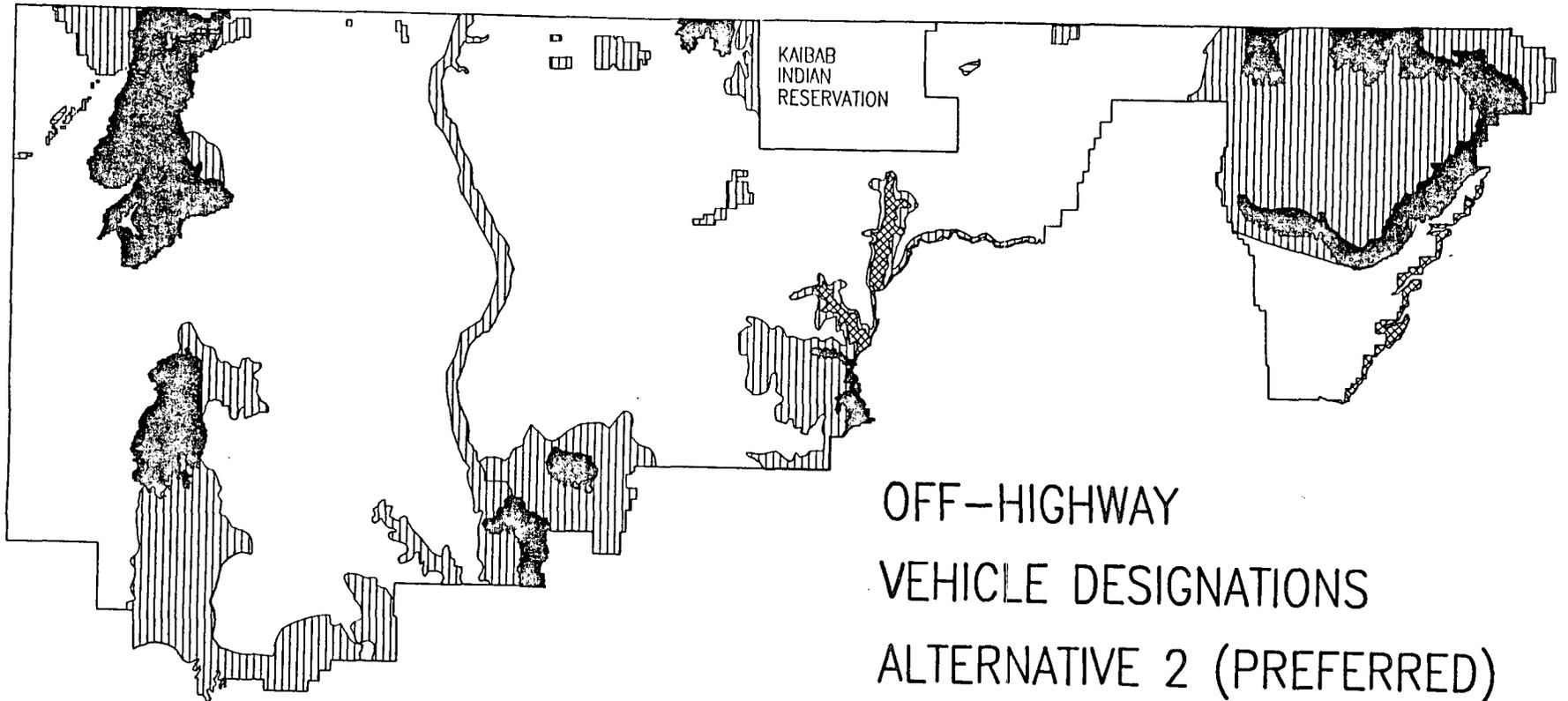
Alternative 4 would have the least restrictive guidelines regarding access. Alternative 3 would have the most restrictive because of the larger area over which the guidelines calling for no new permanent roads and possible closures of existing roads would apply and the proposed OHV management

TABLE S-5

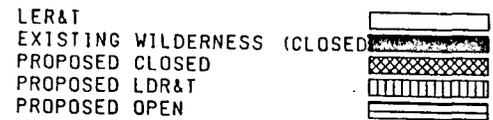
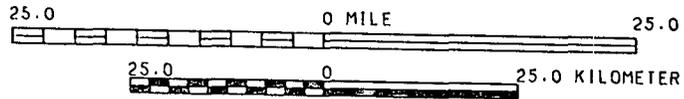
COMPARISON OF OHV MANAGEMENT  
GUIDELINES BY ALTERNATIVE\*

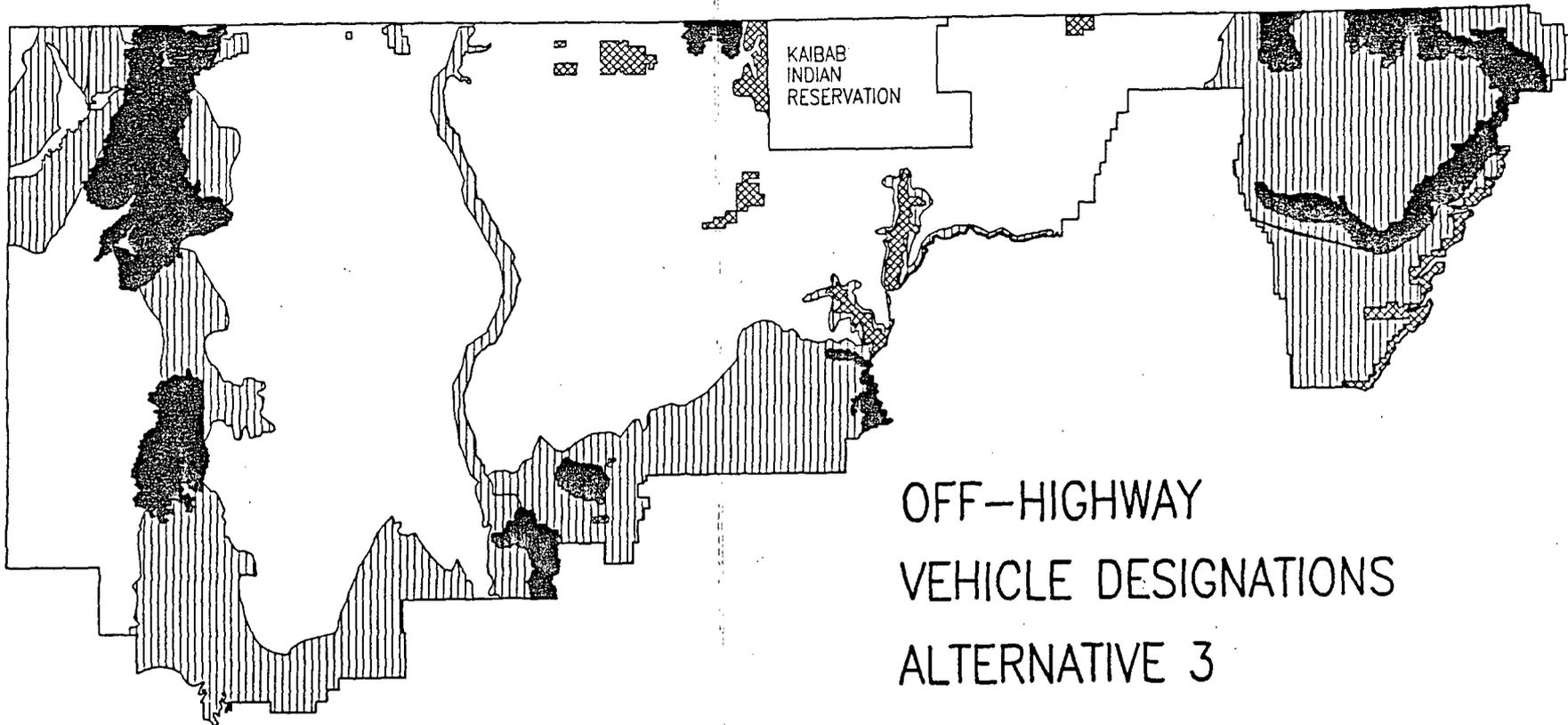
	ALTERNATIVE (ACRES)			
	1	2*	3*	4*
Limited to <u>existing</u> roads % of District	1,238,500 44	1,913,000 68	1,522,000 54	2,374,500 85
Limited to <u>designated</u> roads % of District	20,400 1	610,000 22	955,000 34	169,000 6
<u>Closed</u> to OHV use % of District	365,000 13	24,500 1	48,300 2	24,500 1
<u>Open</u> to unrestricted OHV use	---	1,400	---	4,500
Acres not designated % of District	1,000,000 35	---	---	---

\* The acreage and percentages do not include the Wilderness Areas



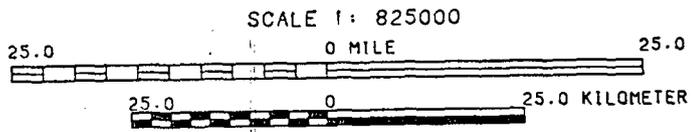
SCALE 1: 825000



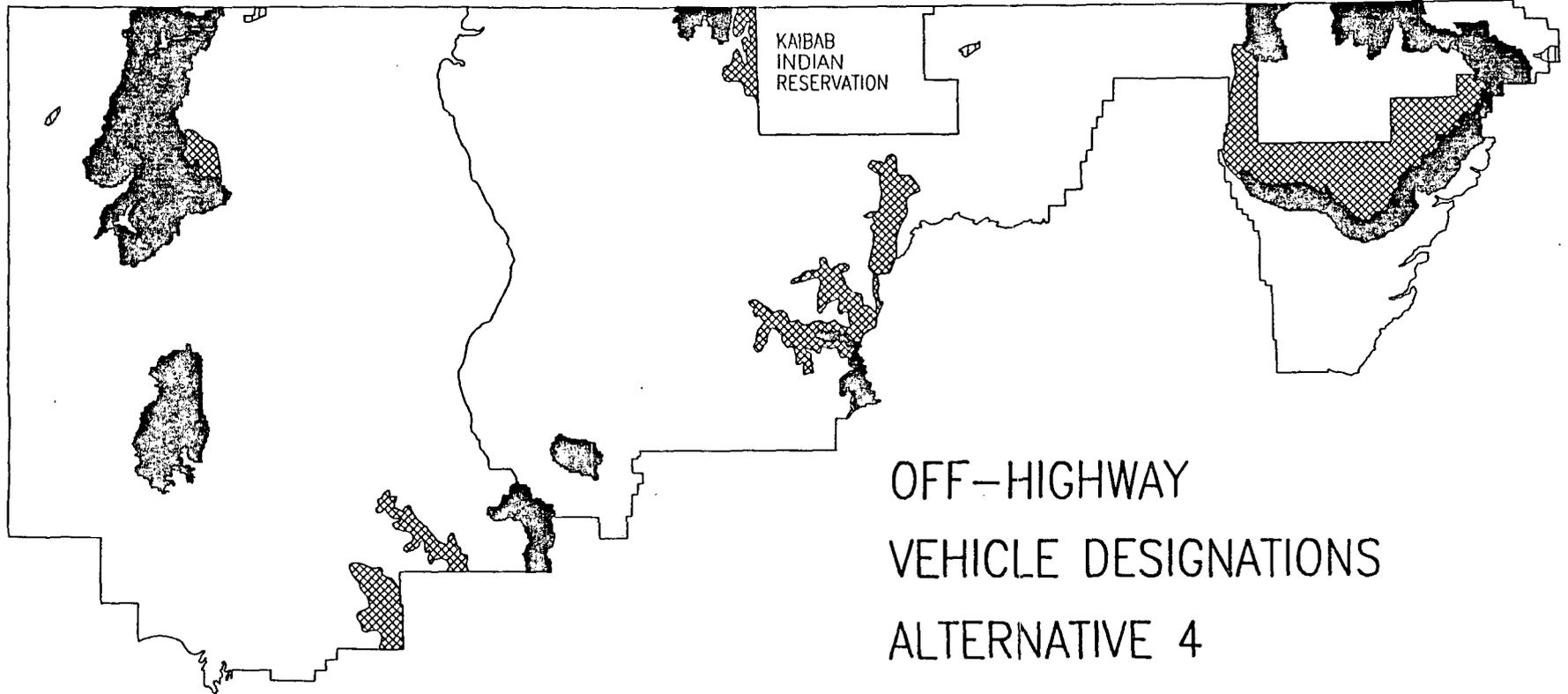


KAIBAB  
INDIAN  
RESERVATION

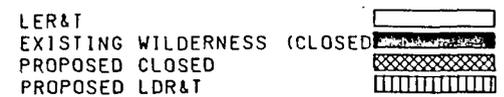
OFF-HIGHWAY  
VEHICLE DESIGNATIONS  
ALTERNATIVE 3



- LER&T
- EXISTING WILDERNESS (CLOSED)
- PROPOSED CLOSED
- PROPOSED LDR&T



SCALE 1: 825000



CULTURAL RESOURCES ISSUE

This section compares ACECs proposed by alternative to strengthen special management and protection of cultural resources

TABLE S-6  
CULTURAL RESOURCE ACEC COMPARISON

ACEC	ALTERNATIVES (ACRES)			
	1	2	3	4
Little Black Mountain	---	200	200	---
Johnson Spring	---	2,400	2,300	---
Lost Spring Mountain	---	9,900	9,900	---
Moonshine Ridge	---	5,500	5,300	---
Witch Pool	---	347	260	---
Arkansas	---	500	550	---
Paria Plateau	---	---	<u>186,000</u>	<u>77,000</u>
TOTAL ACRES	---	18,847	205,110	77,000

## ENVIRONMENTAL IMPACTS

The environmental impacts of the four alternatives have been comprehensively analyzed. They are described in Chapter IV of the RMP/EIS. The impacts depict the projected change that would occur in the environment by the year 2005 if the alternative plan being analyzed was implemented. Cumulative impacts are also described for each alternative. This is broken down by past changes under the MFP's and reasonably foreseeable changes under the RMP/EIS guidelines. A draft sample "Cumulative and Reasonably Foreseeable Impacts" for Alternative 2 is in this section.

## CUMULATIVE CHANGES IN THE EXISTING ENVIRONMENT

For the purpose of this RMP, cumulative changes are those changes to the environment which have resulted from the implementation of the existing Management Framework Plans (MFPs) for the Vermillion and Shivwits Resource Areas between 1976 and 1989.

Cumulative change establishes a baseline for projecting or estimating the reasonably foreseeable impacts of alternative plans in chapter IV. These changes represent a small part of the total change that has occurred on the Arizona Strip since settlers first began to utilize the resources of the area. Much of the change that occurred prior to the MFPs has become unnoticeable to the casual observer due to natural processes of rehabilitation, unless topsoil was removed or unless an area or road has been continuously maintained by mechanical equipment.

To facilitate this analysis, all environmental parameters are grouped into four categories; Non-living (surface change), Living (biological), Remoteness (recreation settings and experience opportunities), and Socio/Economic.

### CUMULATIVE CHANGES (1976-1989)

#### Non-living Components

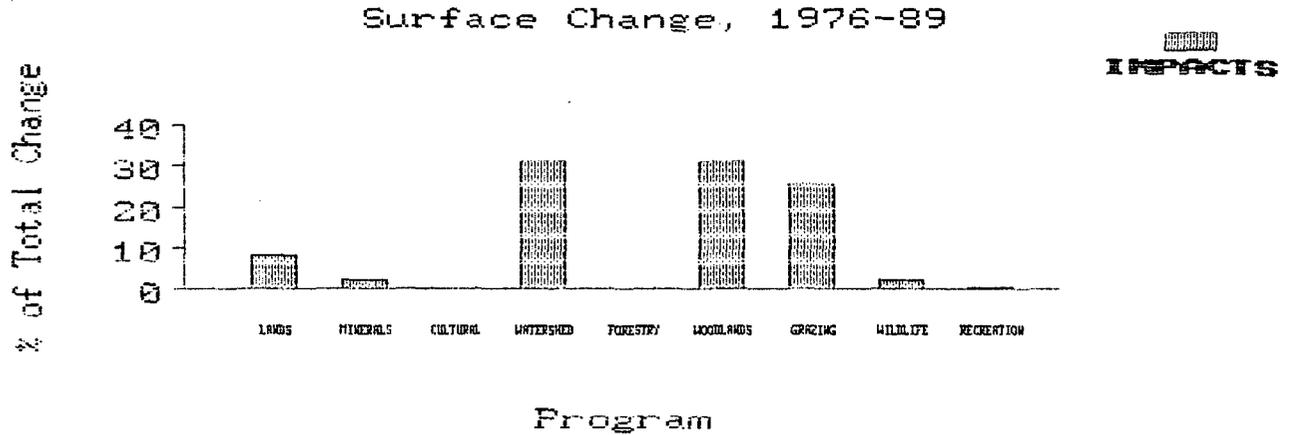
Table III-\_\_\_\_\_ depicts the estimated accumulation of surface change to non-living components of the environment since 1976. The table does not make value judgements on whether the changes are desirable nor account for mitigating measures that would have been applied to the various actions and practices. (Mitigation typically reduces but does not totally eliminate adverse impacts to the surface of the land. In the long-term, natural processes combined with appropriate mitigation can virtually eliminate most surface disturbances.)

TABLE III-  
 CUMULATIVE CHANGES TO NON-LIVING COMPONENTS  
 (Surface Change, 1976 to 1989)

PROGRAM	SOURCE OF IMPACT	ACRES	REMARKS
Lands	- Development associated w/ land use authorizations & ownership adjust.	5460	Generally, represents a long-term commitment of resources to development
Minerals	- Exploration and development of locateable and leaseable minerals	1230	Generally represents a long-term, temporary commitment of resources
Cultural	- Excavation, interpretation, fencing	3	Assumes surface disturbance from excavations as well as fencing and access
Watershed	- Treatments and associated roads	21000	Assumes 49% completion of planned, MFP treatments; 54% of completed treatments are watershed-related; short-term surface impact
Forestry	- Timber salvage	30	Assumes temporary impacts; includes access
Woodlands	- Fuelwood, posts, poles, Christmas trees	21953	Generally represents short-term impacts from vehicle access
Grazing	- Rangeland developments, land treatments, roads	18000	Assumes 48% completion of planned, MFP treatments; 46% of completed treatments are watershed-related; short-term surface impact
Wildlife	- Wildlife developments, land treatments, roads	1400	Assumes short-term impacts for treatments, pipelines, spring developments; long-term for roads, reservoirs, catchments, tanks
Recreation	- Facilities, SRPs, camping	80	Facilities permanent; SRPs and camping generally long-term temporary
Total		68556	

Generally, those programs that are development and commodity oriented have changed the greatest percentage of surface acres on the district since 1976 (Graph III-1).

GRAPH III-1



Management of the watershed, grazing, and woodland products programs has resulted in an estimated 60,306 acres of surface change since 1976. Most of the surface change results from vegetative type conversion to improve watershed condition, wildlife habitat and livestock forage. However, the changes have been of short duration involving initial disturbance from vehicles, chains, plows etc. used in accomplishing land treatments or acquiring fuelwood. Of the 60,306 acres of surface change from these programs, only 251 acres of roads and structural developments are considered permanent changes.

Management of the lands, minerals, and wildlife programs has resulted in an estimated 8,116 acres of surface change since 1976. Of this, 2,150 acres were short-term involving fence construction, habitat treatments, underground developments, and locateable and leaseable mineral exploration. Locateable mineral development activities have disturbed 320 acres of the surface since 1976 resulting in long-term but temporary changes. Approximately 5,646 acres are considered long-term and permanent changes resulting primarily from lands actions and, to a small degree, wildlife structural developments and access roads.

Management of the cultural, forestry, and recreation programs has resulted in an estimated 114 acres of surface change in the last 14 years. This estimate does not include off-road disturbance related to use of ATVs, motorcycles, etc. solely for enjoyment as little is known about the amount of this type OHV use on the district as a whole. It is assumed that a great deal of off-road activity is a function of other uses such as grazing, mineral exploration, administrative field work, camping and hunting and they are included within the acreage figures for the various actions listed in Table IV-\_\_\_\_\_.

Of the 114 acres disturbed, 54 acres were short-term surface changes involving archaeological excavations, fuelwood salvage of timber, campsites associated with Special Recreation Permits (SRP) and staging areas associated with the Rhino Rally Motorcycle Race.

Dispersed camping on undeveloped sites throughout the district has resulted in long-term but temporary changes to an estimated 50 acres of the surface resource. Finally, 10 acres of the 114 acres disturbed by these programs are considered long-term, permanent changes involving various visitor facilities on the district.

### Living Components

The cumulative change of 14 years of management under the MFPs has resulted in both positive and negative change to wildlife and vegetation. Table IV- \_\_\_\_\_ summarizes the approximate amount of change that has occurred to the surface of the land during that period. As the surface is changed, typically, living components of the environment are changed to some degree as well.

For the purposes of analyzing changes on biological diversity, multiple uses taking place under current management have been categorized into administrative, consumptive, and nonconsumptive uses. Each category of use has resulted in changes (short-term temporary, long-term temporary and permanent) to the natural environment. Of the changes resulting from these categories of uses, many are designed to specifically enhance the environment or increase biological diversity.

Changes which cause a decrease in bio-diversity would be related to those uses which develop lands into mono-cultures (such as agricultural) or create change such as permanent developments, which eliminate vegetation, wildlife or their interactions.

**Administrative uses** have resulted in 3,525 acres of permanent disturbance to this district. Of this disturbance, 98 percent (3,456 acres) has resulted in decreased biological diversity, in or near growing communities. An additional 1.9 percent (69 acres) of the total disturbance has occurred in remote areas, and overall, would not decrease biological diversity, even though they are considered permanent disturbances.

**Consumptive uses**, such as minerals, forestry, woodlands and grazing, have changed a total of 41,415 acres since 1976. Approximately 96 percent (39,928 acres) of these changes are short duration (less than 10 years). Most of the short-term changes, 97 percent (38,987 acres) were specifically incurred to enhance environmental components and increase biological diversity.

These changes are generally related to land treatments where homogeneous or less productive areas (stands of sagebrush or pinyon-juniper associations with poor understory conditions) are chained, plowed, or burned, and seeded. The end result has usually been an increase in biological diversity by creating change in a stagnant or undesirable climax successional stage. Changes to wildlife species occur throughout the actual disturbance phase. Mobile wildlife is temporarily displaced, but quickly return to the changed environment. Subsequent seedings create more diverse vegetative communities than previously existed and can generally be utilized by a wider variety of species than were present prior to treatment. Vegetative diversity resulting from land treatments is most often enhanced through use of a variety of seed mixtures that benefit wildlife as well as livestock.

Consumptive changes that are considered permanent account for two percent (1,115 acres) of the total. These changes are mostly roads to range improvements such as water developments. Such changes are considered to benefit livestock as well as wildlife and reduce grazing pressure on vegetation by ensuring proper livestock distribution. A small portion of permanent changes result from saleable mineral development and include community sand and gravel pits.

Locateable minerals account for short-term to long-term temporary changes. Only 2.8 percent (\_\_\_\_\_ acres) of total consumptive changes are attributable to locateable mineral exploration or development. Wildlife is displaced near exploration and development sites; generally for the duration of operations. Some species such as passerine bird or bighorn sheep may acclimate to ongoing disturbances with little consequence other than temporary loss of habitat.

Gathering of forestry and woodland products has created temporary surface changes, mostly in the form of overland vehicle travel. This disturbs vegetation and temporarily displaces wildlife. When woodland activities are concentrated in specific areas, the changes may be similar to land treatments in that overstory is removed, allowing for a more productive understory. Some negative changes to wildlife species have occurred in areas where small roads are created in order to accomodate harvesters.

**Nonconsumptive uses** of land resources which generally do not result in a permanent commitment of resources include such uses as watershed, cultural, wildlife, recreation, and lands activities. These activities account for 24,065 acres of surface change which have also impacted wildlife and vegetative components of the environment.

Watershed management practices represent the majority of change in this category of use. Approximately 87 percent (21,016 acres) of all nonconsumptive uses are attributable to this activity, which mostly includes land treatments to stabilize or enhance

soil cover, reduce erosion and sedimentation, and enhance vegetative cover. Of the total change resulting from watershed activities, 99.8 percent has been short-term change designed to enhance long-term biological diversity and productivity.

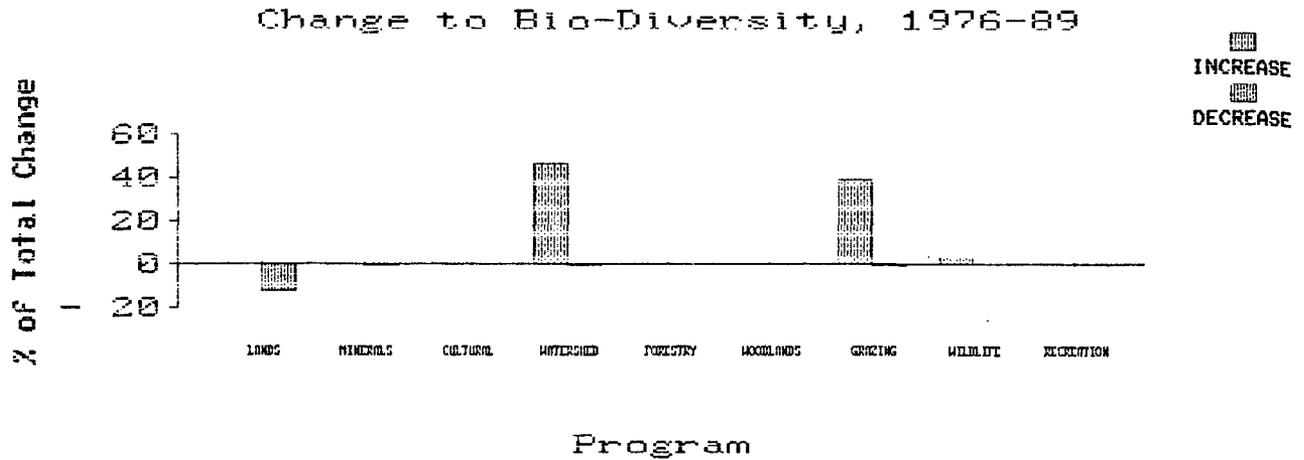
The cultural and recreational programs have accounted for 84 acres of surface change or 0.3 percent of total change from nonconsumptive uses or activities. Of these acres, only 10 acres represent a permanent commitment of resources. The remaining acreage represent short duration, unregulated camping activities, which have nominal changes to wildlife and vegetation components.

The nonconsumptive changes from lands activities have resulted in approximately 1,488 acres or six percent of the total changes from nonconsumptive uses. The majority of such uses (98.5 percent) represent a permanent commitment of resources in which vegetation and wildlife is permanently changed through construction resulting in permanent loss of habitat. Approximately 1.5 percent (23 acres) of wildlife habitat or vegetation receives only short-term changes from lands activities.

Graph III-2 depicts changes to biological diversity incurred by different programs since 1976. Of the 45,761 acres receiving intensive management or use over the last 14 years, Graph III-2 shows how each program either increased or decreased biological diversity as a percentage of the total change. In addition to the increases and decreases depicted, biological diversity was maintained on 22,950 acres.

Overall, management on the district since 1976 has maintained or increased biological diversity on 62,905 acres of public land where various intensive programs and uses have taken place. Generally, such diversity has been maintained or slightly increased on the 2,799,289 acres receiving less intensive management or use. Only 5,806 acres have decreased in biological diversity as a result of programs and uses.

GRAPH III-2



### Remoteness Component

Remoteness is defined as "recreation experience opportunities in backcountry, natural-appearing settings." Experience opportunities (or the possibilities for visitors to engage in activities in order to feel satisfaction) are dependent on a physical setting, social setting and managerial setting. Backcountry areas having different combinations of these three settings generally fall into the four, less urban classes described in Appendix III-17: primitive, semi-primitive nonmotorized, semi-primitive motorized, and roaded natural. The "remoteness" analysis estimates change to the availability the various classes brought about by 14 years of management under MFPs.

Management of the watershed, grazing, wildlife, and woodland products programs has brought about the greatest change to recreation experience opportunities. Obvious change to physical settings brought about by land treatments, facility development, and associated roads has generally shifted recreation classes from the primitive end of the Recreation Opportunity Spectrum toward the urban end. These management activities have made man's presence more obvious, thus impacting "remoteness." However, the change over time is less noticeable as vegetative diversity and succession within treated areas occurs.

Mineral exploration and development have slightly changed physical settings with new and upgraded roads and development sites. These activities have generally changed recreation opportunities in semi-primitive nonmotorized and motorized classes by shifting settings toward the urban end of the recreation spectrum. However, these activities are considered short-term changes due to mitigation, which includes almost total

rehabilitation of access roads, mine yards, and powerlines. The greatest change associated with mineral activities appears to be from new and upgraded roads on the social settings. As roads are either built or upgraded to improve hauling access, access for the general public is also improved. This has a tendency to encourage the public to go into areas they previously avoided due to poor road conditions. With greater numbers of visitors in an area comes a change to the social setting toward the urban end of spectrum.

As growth and associated development has occurred in the Littlefield-Beaver Dam area and the Colorado City-Cane Beds area there has been a change to recreation settings on nearby public lands. Use authorizations and land ownership adjustments have either increased the number of growth-related developments on public lands or transferred ownership to private or state interests. In either case, recreation settings have moved toward the urban end of the spectrum in these areas.

In 1984 the designation of eight wilderness areas on the district contributed significantly to the preservation of semi-primitive and primitive recreation opportunities on the district.

#### **Socio/Economic Components**

The socio/economic component is made up of three main attributes, which include population, income, and social perceptions. BLM actions affect each of these attributes in various ways. The following is a summary of how these actions have affected each of these attributes to date through implementation of the existing MFPs.

#### **Population**

BLM actions which have encouraged and accomodated population growth on the district include the granting of rights-of-way, issuance of leases, processing land exchange applications and patents, and authorizing the use of mineral materials. Together these uses have affected some 5,580 acres of public land.

Most of the affected acreage is located in the vicinity of established communities. Here, approximately 3,280 acres have been affected through R&PP patents and leases, airport leases, landfill and small tract leases, and private exchanges. All of these actions are directly related to the expansion of the population and communities on the district.

The remainder of the affected acreage is dispersed throughout the district. This acreage includes various road and utility rights-of-way, communications sites, and mineral material rights-of way and sites. Together these authorizations have

affected some 2,300 acres. These types of authorizations benefit the population in the general vicinity of the Arizona Strip and do not directly change populations.

### **Income**

Income within the Arizona Strip region is derived primarily from government, trade, and services. Together, these types of employment provide approximately 75 percent of the jobs. The remaining 25 percent is composed of jobs in the manufacturing, construction, mining, transportation/public utilities, and fire suppression fields. BLM land use management actions under MFP direction have not significantly changed the traditional types of jobs available in the area or the associated per capita income.

### **Social Perceptions**

Since the MFPs were developed in the mid-1970s, social perceptions concerning the Arizona Strip and resource use and development have intensified. One of the factors leading to the increase in intensity is the development of resources on the district, specifically uranium mineral resources. Various groups and individuals located primarily outside of the district are strongly opposed to resource development on the public lands. The actions which encourage the development of the natural resources are generally looked on by these groups and individuals with disfavor. In contrast, actions which would restrict uses on the public lands would be generally favored by this group. With regard to uranium mineral resource development, the opposition appears to be further based on perceptions concerning environmental effects of mining and the philosophical arguments concerning the use of uranium and storage of radioactive waste.

The population which resides within or adjacent to the Arizona Strip District, believe that economic development is needed. This development, it is perceived, would tend to stabilize employment and increase income. To this end, there appears to be widespread local support for increased activities related to manufacturing, construction, and mining. These jobs are generally higher paying than those in the service sector. The sought after employment opportunities would also provide more stable employment opportunities, less likely to be affected by seasonal fluctuations such as those service sector jobs related to tourism.

## CUMULATIVE AND REASONABLY FORESEEABLE IMPACTS

For the purpose of this analysis, cumulative impacts are those changes to the environment which have resulted from the implementation of the existing Management Framework Plans (MFPs) for the Vermillion and Shivwits Resource Areas between 1976 and 1989. Reasonably foreseeable impacts are those changes to the environment that could occur between 1989 and 2005 if the preferred alternative is selected and implemented fully.

To facilitate this analysis, all environmental parameters are grouped into four categories: Non-living (surface disturbance); Living (biological); Remoteness (recreation settings and experience opportunities); and Socio-Economic.

### CUMULATIVE CHANGES (1976-1989)

Table III-\_\_\_ depicts cumulative changes and are representative of the baseline conditions now existing within the District. Thus, the cumulative analysis is used as a tool with which to compare those impacts which could occur in the next 15 years.

### REASONABLY FORESEEABLE IMPACTS (1989-2005)

Reasonably foreseeable impacts are those impacts anticipated to occur if Alternative 2 is chosen as the preferred management strategy.

#### Non-living Components

Table IV-\_\_\_ represents an estimate of impacts (based on reasonable assumptions) which could occur in the next 15 years if Alternative 2 is selected as the preferred management strategy.

TABLE IV-  
ALTERNATIVE 2  
REASONABLY FORESEEABLE IMPACTS TO NON-LIVING COMPONENTS  
(Surface Change, 1989 to 2005)

PROGRAM	SOURCE OF IMPACT	ACRES	REMARKS
Lands	- Development associated w/ land use authorizations & ownership adjust.	20200	Generally, represents a long-term commitment of resources to development
Minerals	- Exploration and development of locatable, leaseable, salable minerals	2860	Mostly short-term impacts and a temporary commitment of resources; assumes 15 more uranium mines, fluid mineral field development, and 80+ acres for material sites
Cultural	- Excavations, field schools	5	Assumes 200% increase in program activity
Watershed	- Treatments and associated roads	1350	Temporary commitment of resources
Forestry	- Commercial harvest	0	
Woodlands	- Fuelwood, posts, poles, Christmas trees	21780	Generally represents short-term impacts from vehicle access; assumes 2% increase over the next 15 years
Grazing	- Rangeland developments, land treatments, roads	19200	Assumes 48% of total land treatments to be done would be to stimulate bio-diversity; short-term surface impact
Wildlife	- Wildlife developments, land treatments, roads	5320	Assumes short-term impacts for treatments, pipelines, spring developments; long-term for roads, reservoirs, catchments, tanks
Recreation	- SRPs and camping	85	SRPs and camping; generally short-term impacts
Total		70800	

Under Alternative 2, approximately 70,800 acres of surface change could occur in the next 15 years. Approximately 28 percent of this change (20,200 acres) could result in permanent improvements or developments due to land ownership adjustments or other authorized uses. The other 72 percent or approximately 50,000

acres of surface change would be related to some form of land treatments, generally designed to enhance certain environmental components (i.e. watershed, wildlife, grazing) or provide for other land uses (cultural, recreation). As such, the majority of impacts are generally designed to increase biological diversity, either directly or indirectly.

Only four percent or 2,860 acres of surface change would result from locatable, leasable, or salable minerals activity. In this case, mandatory mitigation would require reclamation to return the area to prevailing conditions and therefore, impacts are considered short-term.

### Living Components

Of the total 70,800 acres of disturbance anticipated in the next 15 years from Alternative 2, vegetation and wildlife would be impacted to some degree.

Wildlife habitat would receive adverse impacts from most of those developments which represent permanent commitment of resources (28 percent of the total or 20,200 acres). In general, these permanent, adverse impacts are mostly related to lands activities where land ownership changes to private holdings. Other such uses for material sites, utilities rights-of-way, etc., represent permanent change or disturbance to wildlife habitat, but with minor degrees of impacts. For example, a large utility rights-of-way would remove some habitat (feeding, nesting cover, etc.) but could provide additional nesting habitat for raptors if proper construction techniques are made mandatory.

Watershed, grazing, wildlife, and woodlands programs would cause short-term impacts to wildlife and vegetation. However, these same programs would ultimately increase vegetation diversity and directly and indirectly benefit wildlife. Approximately 50,500 acres (81 percent of the total 70,800 acres) of disturbance would be related to land treatments designed to enhance the environment and bio-diversity.

### Remoteness Component

Alternative 2 would increase the maintenance and enhancement of remote, backcountry settings \_\_\_\_\_ percent over current management. The designation of ACECs, establishment of SRMAs and RCAs, designation of additional acreages of VRM Class I and II, designation of additional acreages of OHV Closed and Limited to Designated Roads and Trails, guidelines of area B, and the interim management of two potential Wild and Scenic Rivers all would contribute to the significant shift from current management in "remoteness management".

Ongoing management of the watershed, grazing, wildlife habitat, and woodland products programs carried forward would continue to bring about the greatest change to recreation experience opportunities outside of special management areas. Change to physical settings created by land treatments, facility development, and associated roads would continue to shift recreation classes from the primitive end of the Recreation Opportunity Spectrum toward the urban end; slowly decreasing the "remote" acreage available on the district. However, the change over time would be less noticeable as vegetative diversity and succession within treated areas occurs.

Mineral exploration and development would continue to slightly impact physical settings with new and upgraded roads and development sites. These activities would generally impact recreation opportunities in semi-primitive nonmotorized and motorized classes by shifting settings slightly toward the urban end of the recreation spectrum. However, these activities would be considered short-term, temporary impacts due to mitigation, which would continue to include almost total rehabilitation of access roads, mine yards, and powerlines. The greatest impacts of mineral exploration and development on "remoteness" could come in the form of changes to the social setting from construction of new and upgraded roads. Improved access could have a tendency to encourage the public to go into areas they previously would have avoided due to poor road conditions. Greater numbers of visitors in an area would then shift the social setting toward the urban end of spectrum.

Continued growth and development in the Littlefield-Beaver Dam area and the Colorado City-Cane Beds area could impact recreation settings on nearby public lands. Use authorizations and land ownership adjustments would either increase the number of growth-related developments on public lands or transfer ownership to private or state interests. In either case, recreation settings would shift toward the urban end of the spectrum in these areas.

On-going management of the eight designated wilderness areas on the district would continue to preserve semi-primitive and primitive recreation experience opportunities in these areas.

Generally, "remoteness management" under Alternative 2 would moderately change current management's broad and general approach to one focused on experience opportunities and settings. Thus, in the long run, such management could be much more responsive to changing visitor needs and more custodial of the settings in which those needs are met.

## Socio/Economic Component

### Population

Under Alternative 2, the preferred alternative, 1,300 acres of land would be available for exchange, sale, or R&PP lease/sale. In addition, 15,000 acres would be available for R&PP lease/sale. This acreage is in excess of that projected to be needed to accommodate population growth in the area over the life of the plan. It is not expected that all of the identified lands would be transferred out of Federal ownership. The excess acreage identified for this purpose would accommodate a wide range of uses and foster good community planning. All lands identified as available for this purpose are located in the vicinity of existing communities.

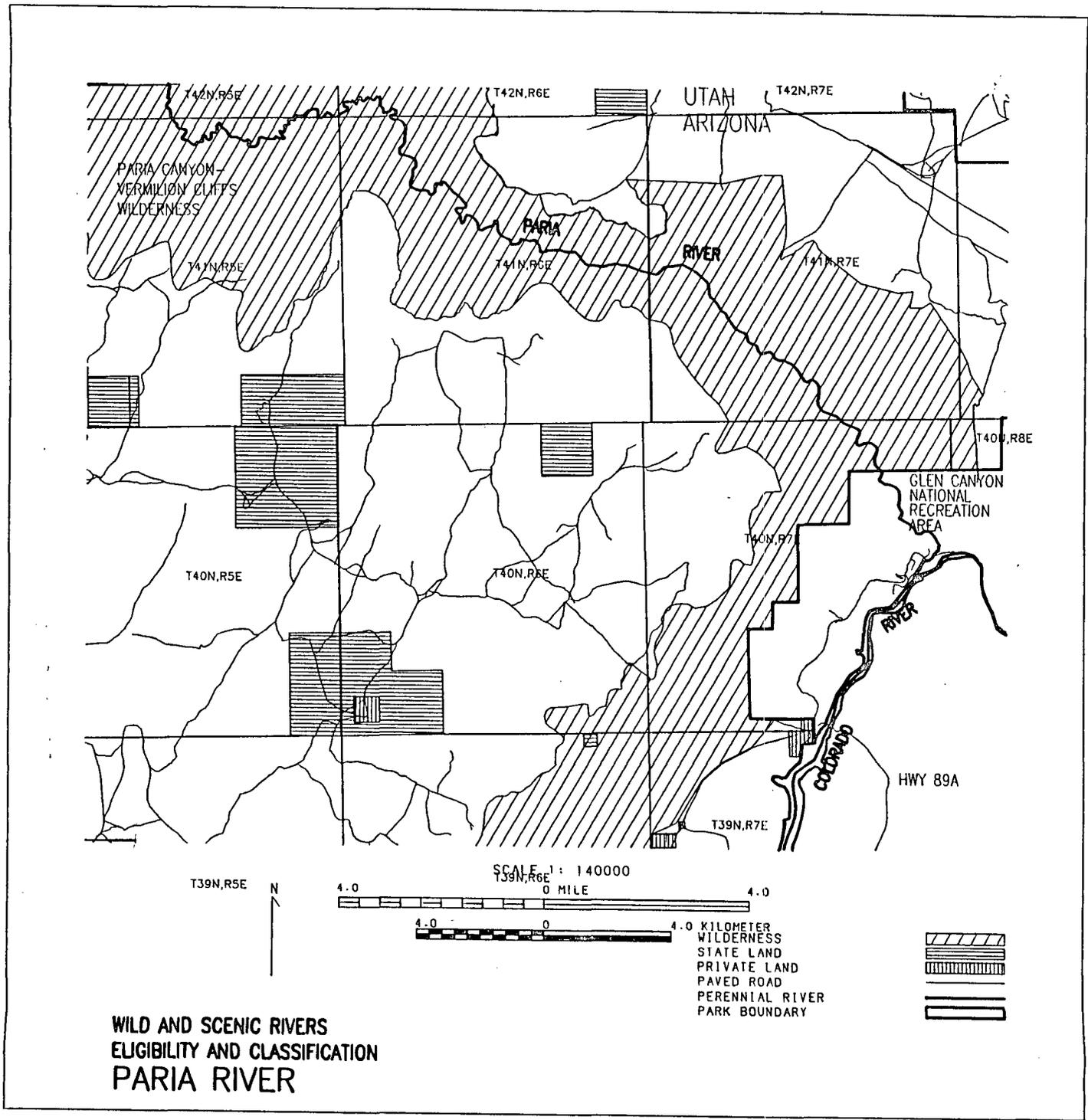
### Income

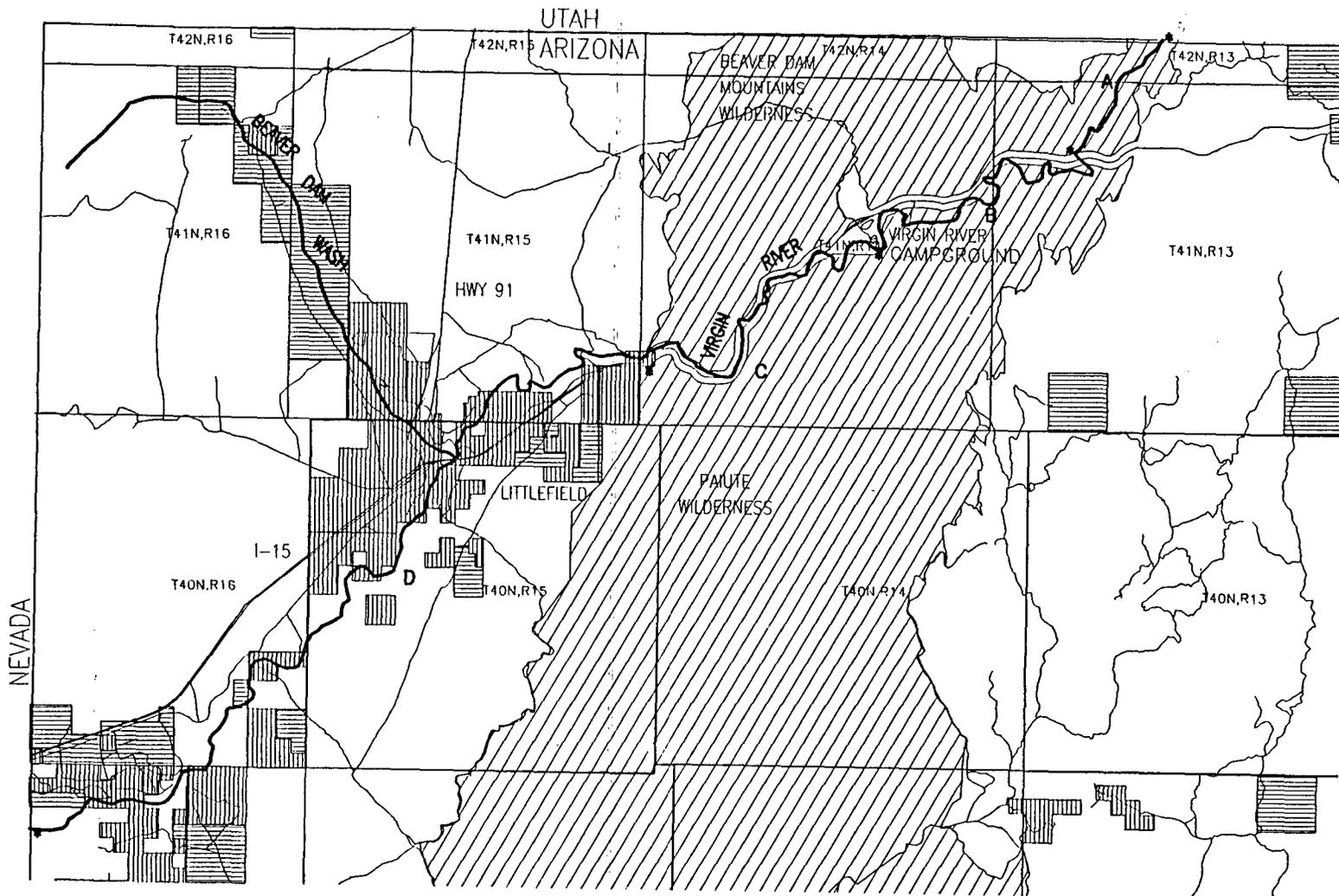
Under Alternative 2, direct impacts to income types or per capita income within the local communities are not expected. A small amount of new revenue may be generated in the service sector related to tourism as a result of the SRMA and RCA designations. These impacts are not expected to be significant, however, as most tourism is expected to remain associated with the Grand Canyon and Lake Powell.

### Social Perceptions

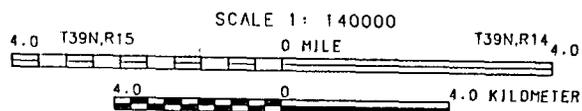
Management under Alternative 2 would be more restrictive than under current management. Under the preferred alternative, special management areas would be established and management prescriptions would benefit the preservation of natural values and remoteness. Depending upon the particular use, implementation of Alternative 2 would be seen as either adverse or beneficial to the user or user group. Area B guidelines benefit the preservation of the feeling of remoteness and naturalness while providing for the use and development of natural resources in the area. In general, the perceptions held by those in the local communities are that no broad restrictions are needed in order to protect the identified resources within the ACECs or feeling of remoteness or naturalness. Certain groups and individuals, however, may perceive that threats to the identified resources are much greater and that a much greater level of control or restriction is needed in order to protect these resources.

OTHER MAPS OF INTEREST

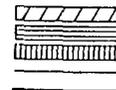


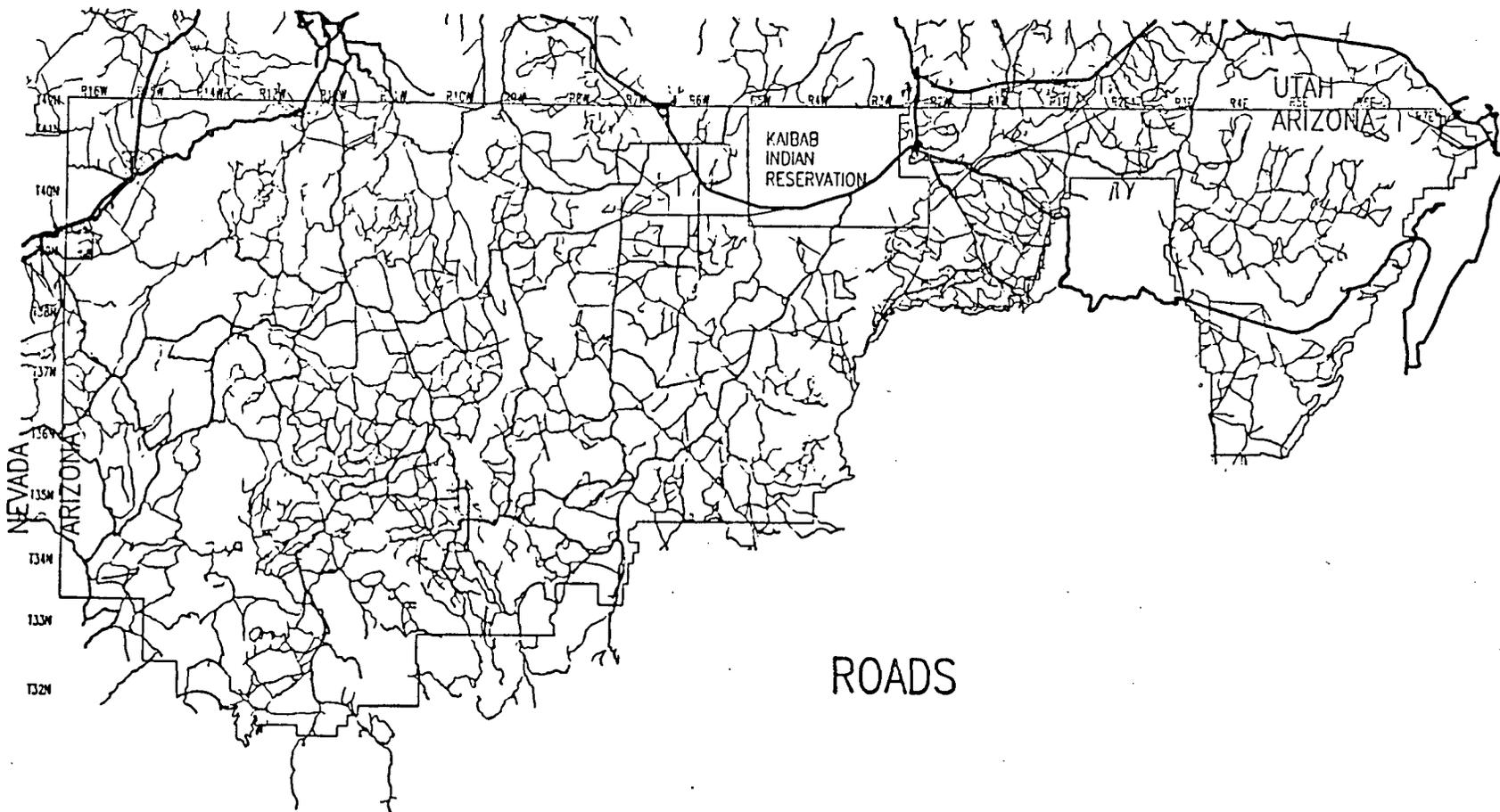


WILD AND SCENIC RIVER  
ELIGIBILITY AND CLASSIFICATION  
VIRGIN RIVER



WILDERNESS  
STATE LAND  
PRIVATE LAND  
PAVED ROAD  
PERENNIAL RIVER



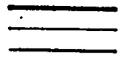


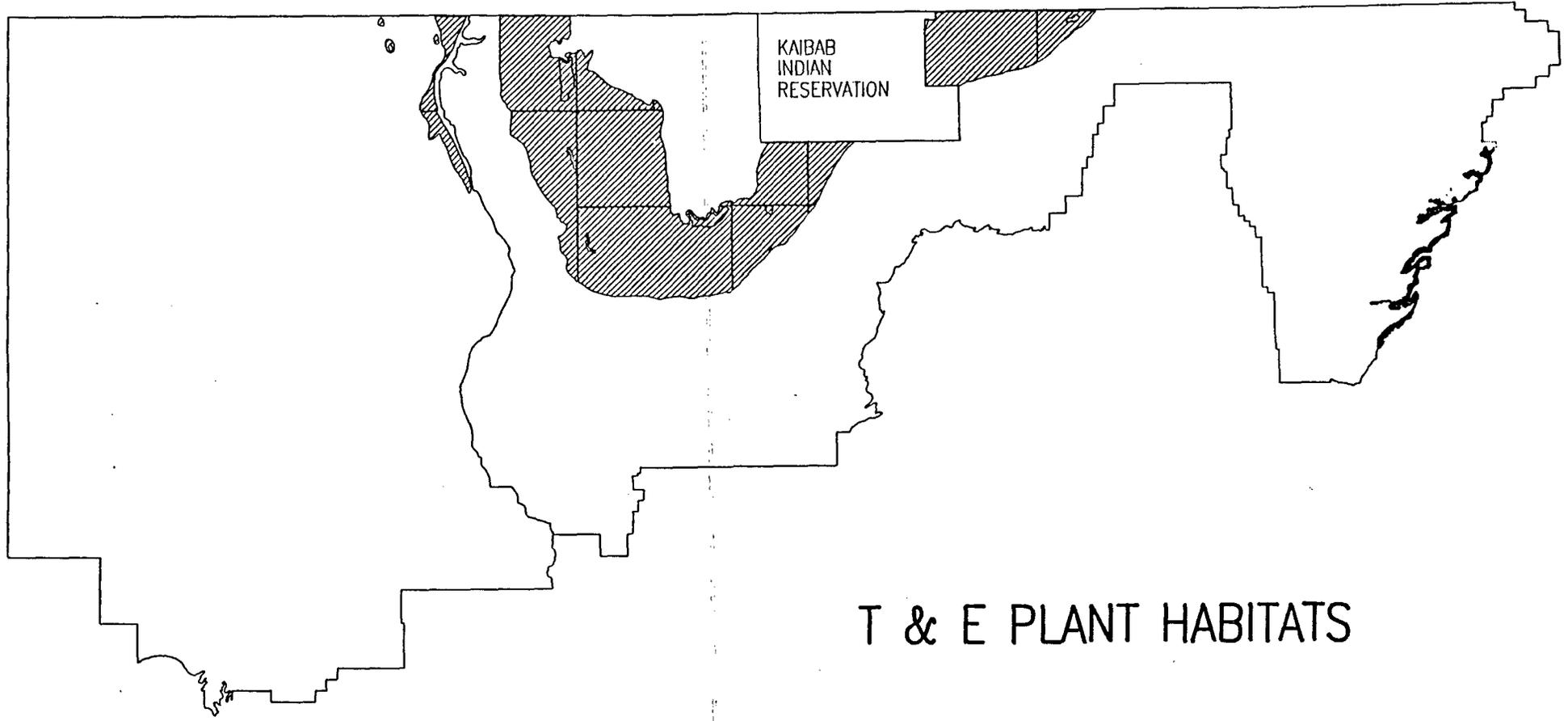
ROADS

SCALE 1: 825000



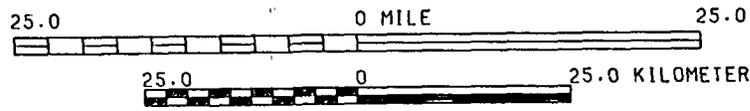
PAVED ROAD  
PRIMARY UNPAVED  
SECONDARY/4WD UNPAVED





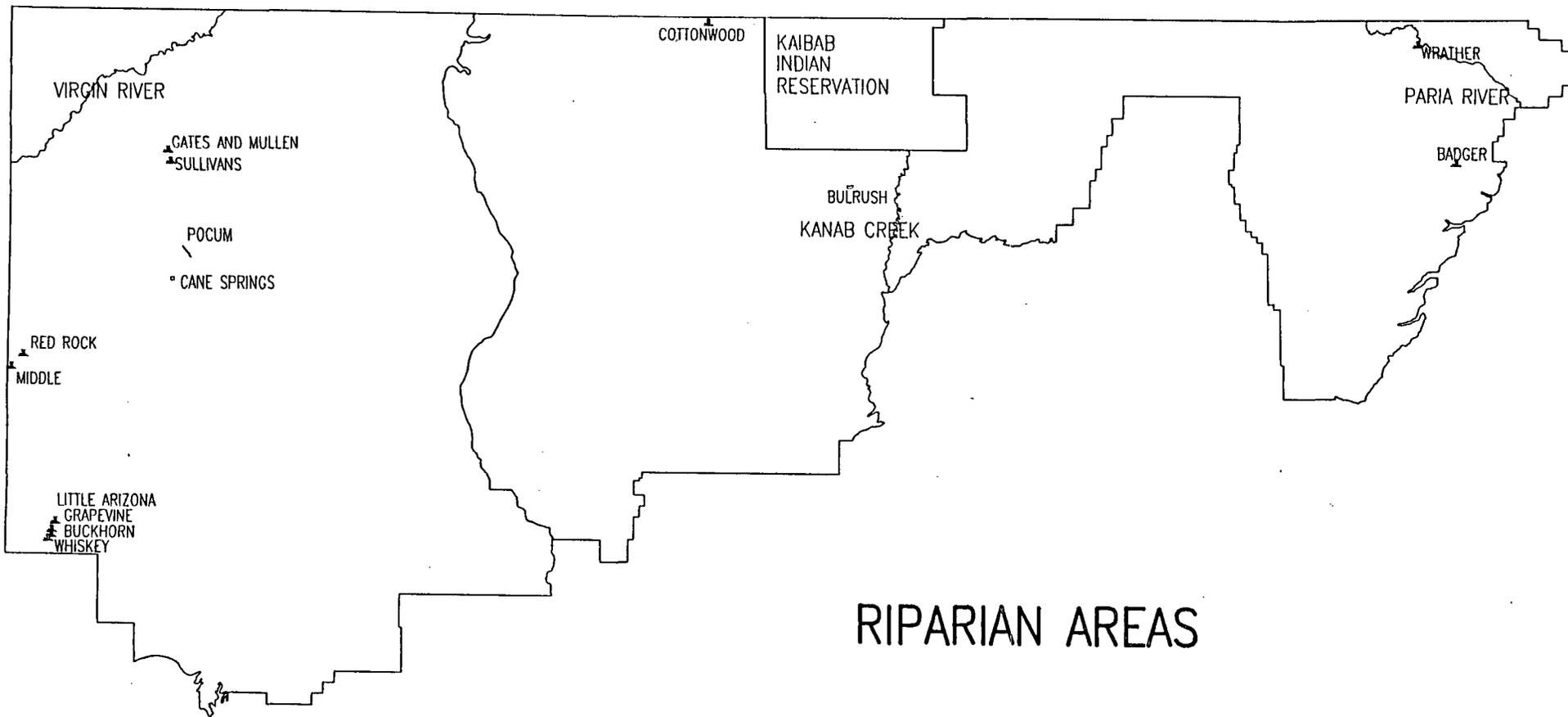
# T & E PLANT HABITATS

SCALE 1: 825000



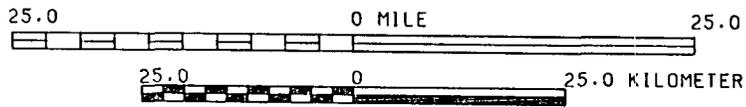
PEDIOCACTUS BRADYI  
PEDIOCACTUS SILERI

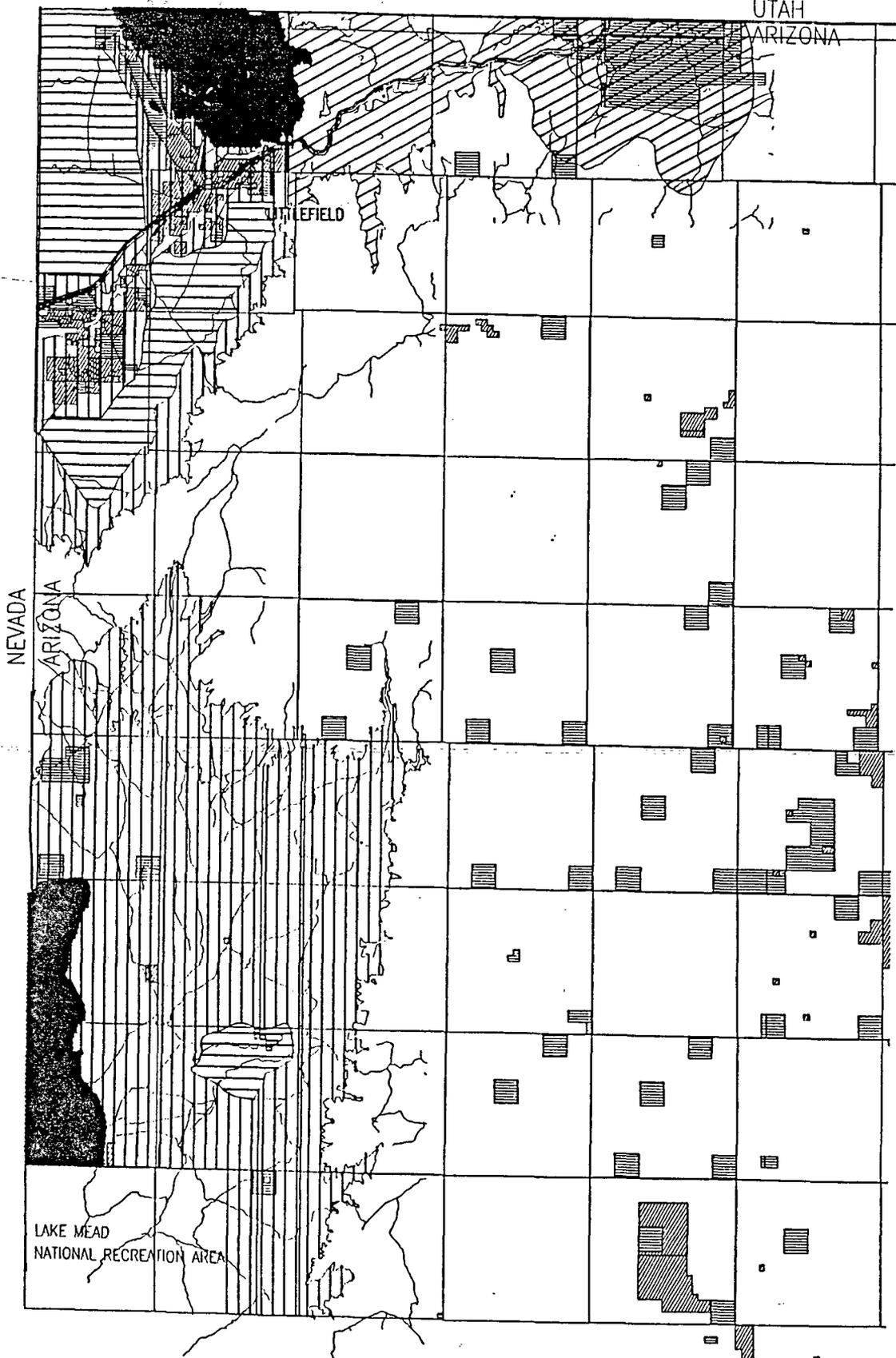




# RIPARIAN AREAS

SCALE 1: 825000





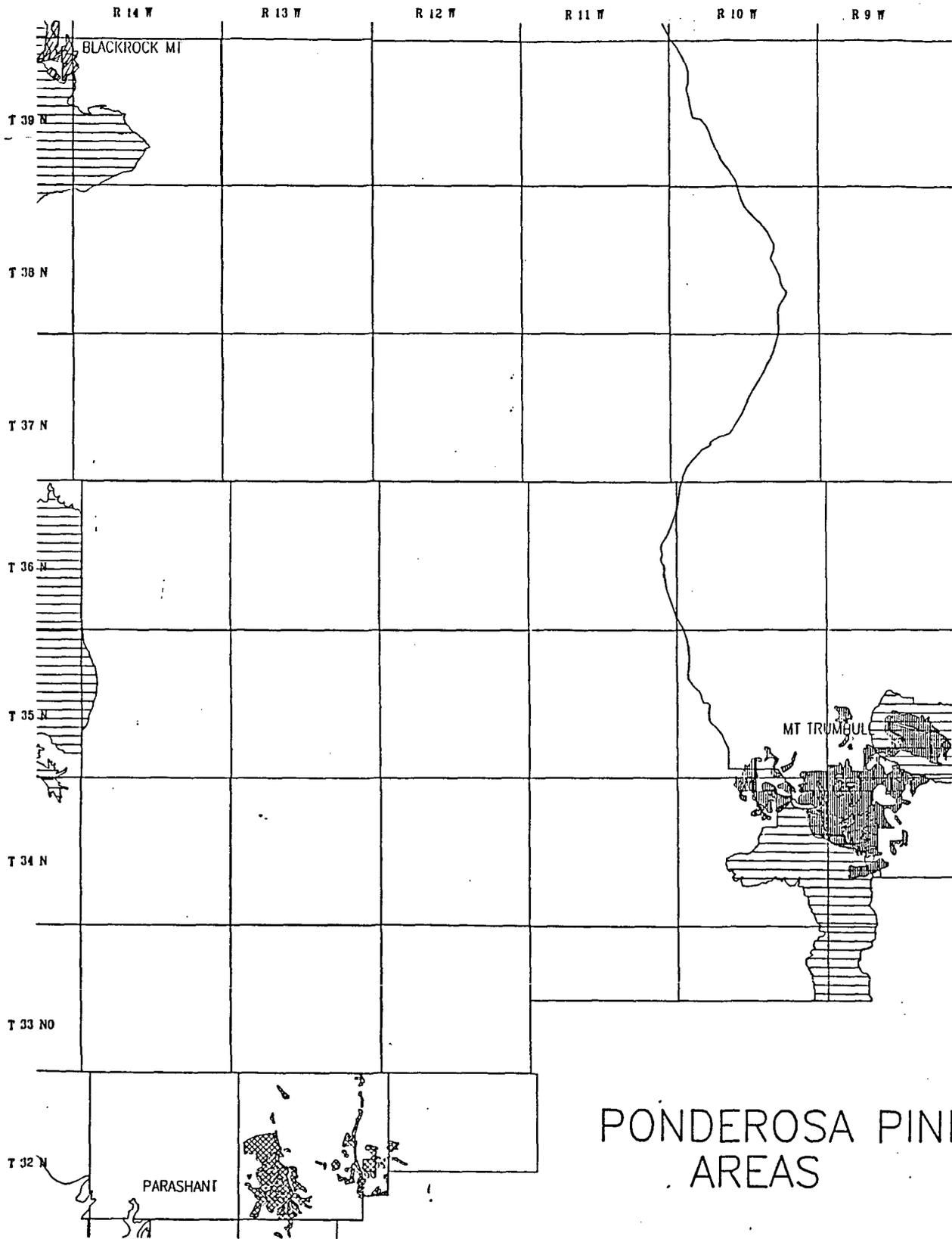
LAKE MEAD  
NATIONAL RECREATION AREA

SCALE 1:300000  
0 MILE



# PROPOSED DESERT TORTOISE HABITAT CATEGORIZATION

- TOWNSHIP & RANGE LINES
- INTERSTATE 15
- ROADS
- PRIVATE LANDS
- STATE LANDS
- CATEGORY 1
- CATEGORY 2
- CATEGORY 3
- CATEGORY 7



# PONDEROSA PINE AREAS

SCALE 1: 225000



BLACKROCK PONDEROSA  
PARASHANT PONDEROSA  
TRUMBULL PONDEROSA  
WILDERNESS  
PRIMARY ROAD

