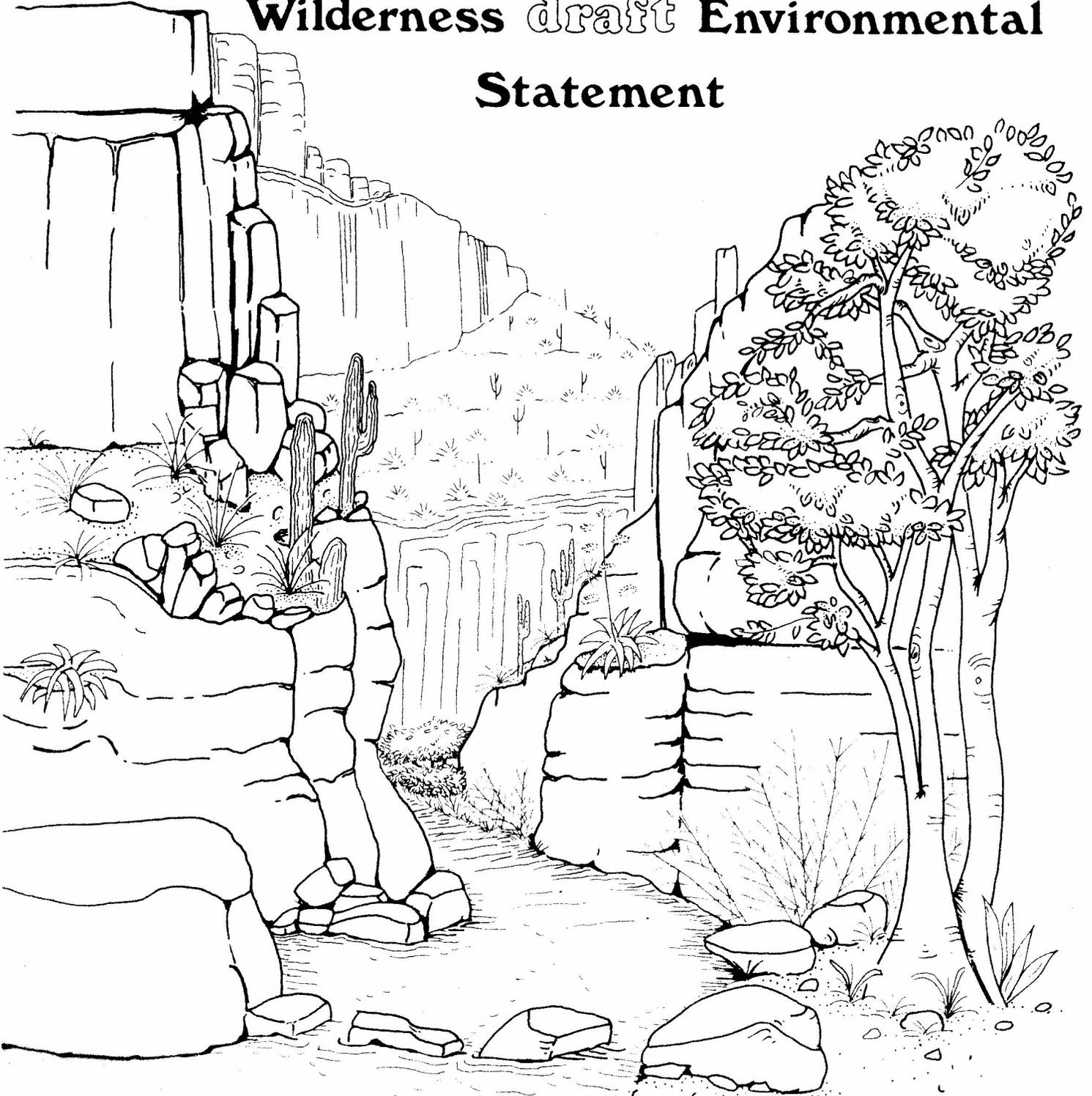


# ARAVAIPA CANYON

## Wilderness draft Environmental Statement



Prepared by  
U.S. Department of the Interior  
Bureau of Land Management  
Arizona

**DEPARTMENT OF THE INTERIOR  
DRAFT  
ENVIRONMENTAL STATEMENT**

**ARAVAIPA CANYON  
WILDERNESS**

Prepared by

**BUREAU OF LAND MANAGEMENT  
DEPARTMENT OF THE INTERIOR**

 *Edward F. Spang*, Acting

State Director, Arizona State Office

SUMMARY

Draft (x)                      Final ( )                      Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of Action:            Administrative ( )            Legislative (x)
2. Brief Description of Action: The proposal discusses the incorporation of Aravaipa Canyon Primitive Area (designated in 1969) into the National Wilderness Preservation System. The area contains approximately 4,044 acres and is located in Pinal and Graham Counties, Arizona.
3. Summary of Environmental Impacts: Wilderness designation would cause no significant immediate or long-range environmental changes. BLM manages Aravaipa Canyon Primitive Area for the retention of primitive and wilderness values and the regulation of public use and has no plans to change its present management. Wilderness designation would afford these lands added legislative protection.
4. Alternatives Considered
  - A. Increase the Size of the Proposed Wilderness Area
  - B. No Action
5. Comments Have been Requested From the Following:

Federal Agencies

Advisory Commission on Historic Preservation  
Army Corps of Engineers  
Department of Agriculture  
    Agricultural Stabilization and Conservation Service  
    Forest Service  
    Soil Conservation Service  
Department of the Interior  
    Bureau of Indian Affairs  
    Bureau of Mines  
    Bureau of Reclamation  
    Fish and Wildlife Service  
    Geological Survey  
    Historic Conservation and Recreation Service  
    National Park Service  
Environmental Protection Agency  
Federal Energy Regulatory Commission

State Agencies

Arizona State Clearinghouse  
Governor of Arizona

See Consultation and Coordination section for complete listing.

6. Date Draft Statement Made Available to EPA and the Public:  
July 1979

TABLE OF CONTENTS

	Page
DESCRIPTION OF THE PROPOSED ACTION.....	1
DESCRIPTION OF THE ENVIRONMENT.....	3
Climate.....	3
Topography.....	3
Geology.....	3
Soils.....	3
Water Resources.....	3
Air Quality.....	4
Noise.....	4
Vegetation.....	4
Animals.....	5
Cultural Resources.....	6
Landscape Character.....	7
Wilderness Values.....	7
Land Use.....	7
Land Use Plans-Controls-Constraints.....	12
Economic and Social Conditions.....	12
ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION.....	13
Impacts.....	13
Mitigating Measures.....	15
Unavoidable Adverse Impacts.....	15
Relationship between Local Short-term Uses of the Environment and the Maintenance of Long-term Productivity.....	15
Irreversible and Irretrievable Commitment of Resources.....	15
ALTERNATIVES TO THE PROPOSED ACTION.....	15
Alternative 1: Increase the Size of the Proposed Wilderness Area.....	15
Alternative 2: No Action.....	17
CONSULTATION AND COORDINATION.....	18
APPENDIXES.....	20
Appendix 1 Aravaipa Canyon Management Plan Summary.....	20
Appendix 2 Aravaipa Canyon Wilderness Intensive Inventory...	22
GLOSSARY.....	24
REFERENCES.....	25

# DESCRIPTION OF THE PROPOSED ACTION

## INTRODUCTION

This draft environmental statement (DES) discusses the wilderness character of Aravaipa Canyon and the impacts of the possible designation of Aravaipa Canyon Primitive Area (4,044 acres) and adjacent public lands (2,543 acres) to the National Wilderness Preservation System. The statement refers to these combined areas (6,587 acres) as the "study area."

Over the years Aravaipa Canyon has gained national recognition for its outstanding natural beauty. Visitors are attracted by the canyon's unique perennial stream, flowing at the base of 1,000-foot high multi-colored cliffs. Contrasting with the riparian community and enhancing the area's scenery and interest are the desert plant communities of the canyon slopes, side canyons, and the tablelands above the canyon. Riparian and desert communities, in turn, provide habitat for diversified wildlife species. Together, the stream, varied vegetation, and rugged terrain create an aura of isolation and solitude.

Aravaipa Canyon was first proposed for retention in Federal ownership and primitive area status in August 1968. After a public hearing that showed strong local, State, and national support, Aravaipa Canyon Primitive Area was established by order of the Secretary of the Interior on January 16, 1969.

The Bureau of Land Management (BLM) initiated a management plan study in October 1969 and announced management plan decisions one year later after considerable public involvement and hearings on the plan. BLM has managed Aravaipa Canyon under those plans as a de facto wilderness for the past 10 years.

The Aravaipa Canyon Wilderness is proposed in response to a congressional mandate in Section 603 of the Federal Land Policy and Management Act (FLPMA) of 1976. FLPMA directs the Secretary of the Interior to have BLM study all public lands under its jurisdiction for their wilderness potential. FLPMA further provides that BLM review the wilderness potential of its natural and primitive areas designated before November 1, 1975 (wilderness instant study areas), using guidance in Section 3(d) of the Wilderness Act of 1964. The Secretary of the Interior is then required to report to the President his recommendations on the wilderness suitability of these instant study areas.

BLM specialists used procedures outlined in the Wilderness Inventory Handbook (BLM, 1978) to inventory Aravaipa Canyon for wilderness characteristics. They incorporated data gathered through the intensive inventory into the BLM planning system. They then updated the inventory data to identify and include the study area's wilderness values. They also identified the wilderness potential of adjacent public lands.

Considering the identified wilderness values and the lack of significant resource conflicts, these specialists recommended that Aravaipa Canyon be proposed for wilderness designation. They also recommended that livestock use continue as under the previous designation, and that recreation facilities be limited to those needed to support the existing use without attracting additional use.

## DESCRIPTION OF THE PROPOSED ACTION

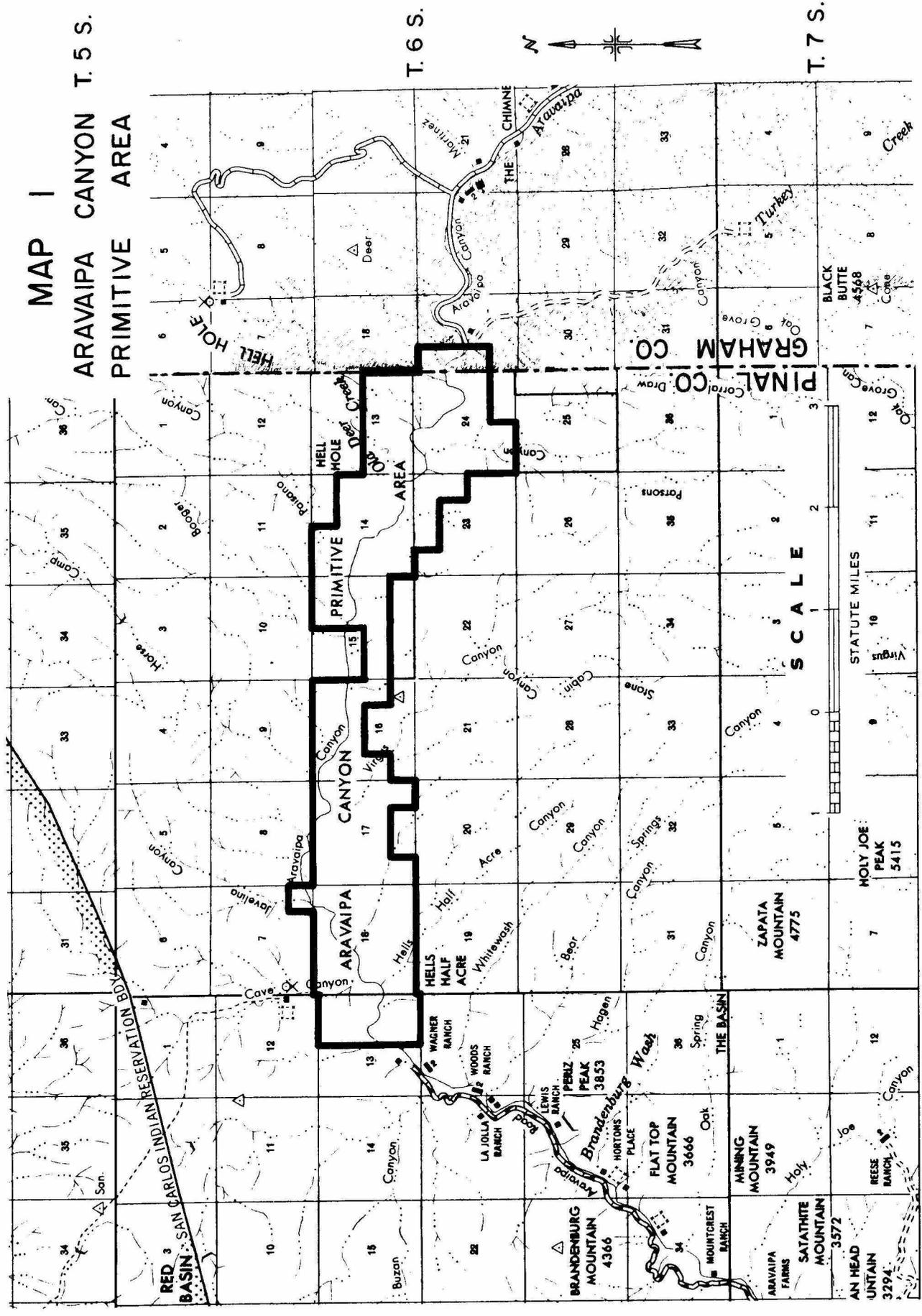
The proposal is to establish a 4,044-acre wilderness area north of the Galiuro Mountains in southeastern Arizona on public lands presently designated as Aravaipa Canyon Primitive Area (map 1). The primitive area includes canyon bottoms, walls, and portions of tablelands adjoining the rim. The proposal's objective is to protect wilderness values through legislative designation.

BLM would implement this proposal in three stages: interim management, designation as wilderness, and management as wilderness. During interim management and after designation BLM would continue to use the approved management plan, since its guidelines and policies conform to the guidelines for interim management of wilderness study areas and requirements of Section 4 of the Wilderness Act. (Refer to Aravaipa Canyon Management Plan Summary--appendix 1--for specific management objectives.)

FLPMA requires that a recommendation be made to the President by July 1, 1980 and that the President submit his recommendations to Congress within 2 years of receipt of this report. Congress, however, has no time limit in which to act upon the President's recommendation. The designation by Congress will be permanent, subject only to change by act of Congress.

The only authorizing actions will be congressional designation of Aravaipa Canyon to the National Wilderness Preservation System.

**MAP I**  
**ARAVAIPA CANYON T. 5 S.**  
**PRIMITIVE AREA**



Map base reproduced from Atlas of Graham County and Atlas of Pinal County with permission of the Arizona Department of Transportation.

R. 17 E.

R. 18 E.

R. 19 E.

# DESCRIPTION OF THE ENVIRONMENT

This section describes the environment of the ES study area, which includes Aravaipa Canyon Primitive Area and adjacent public lands.

## CLIMATE

Aravaipa Canyon is located in a desert region of long hot summers, short mild winters, low annual rainfall, low relative humidity, high evaporation rates, and a high percentage of sunshine. Aravaipa Creek, however, somewhat modifies the desert climate by increasing humidity, supporting riparian vegetation that produces shade, and by reducing air temperatures.

Clear skies and a dry atmosphere cause surface heating during the day and rapid radiational cooling at night, producing daily temperature variations averaging 40 degrees F. During summer (mid-May to mid-October) maximum temperatures commonly exceed 100 degrees F. Winter temperatures typically reach daily maximums in the 60's.

Annual precipitation fluctuates highly, and periodic droughts are common. Annual precipitation averages 15 inches, 40 percent occurring during July, August, and September. Summer storms, typically short and intense, cover only small areas but occasionally produce flash floods. Relative humidity ranges from 20 to 60 percent in the summer and from 40 to 60 percent in the winter. The mean annual pan evaporation rate is estimated to be over 7 feet.

## TOPOGRAPHY

The study area lies in the Basin and Range physiographic province, an area of broad, flat valleys and high, block-shaped mountains. The Galiuro Mountains--one such block--consist of series of flat-lying volcanic rocks fractured by numerous faults. Aravaipa Canyon crosses the Galiuros from Aravaipa Valley to the San Pedro Valley, creating a combination of mesa-type high cliffs, precipitous and colorful canyon walls, and narrow, twisting canyon floors.

Canyon floor elevations range from 3,060 feet at the east end to 2,640 feet at the west end. The top of the mesas, however, gently increase in elevation toward the west. The increase in canyon-wall elevation, aided by the change in the erosional characteristics of the different rock types, creates a variety of spectacular cliffs (figures 1 and 2).

## GEOLOGY

Aravaipa Canyon provides an outstanding opportunity for the study of geology. The walls of the canyon's western end consist of Galiuro volcanics--ash and lava flows up to 3,000 feet thick and 22-25 million years old. Beneath the volcanics, the Whitetail conglomerate lies on Precambrian diabase, a contact representing over 500 million years. In places, the volcanics rest directly on older Precambrian porphyry, dated at more than 2.6 billion years (Krieger, 1968). At the east end of the canyon, the Hell Hole conglomerate, which is up to 2,000-feet thick, overlies the Galiuro volcanics. This formation's erosional characteristics give the cliffs a pitted, rough veneer (figure 3).

## SOILS

The soils of the study area may be divided into two major groups: shallow soils of the uplands and deep alluvial soils of the canyon bottoms.

The shallow soils of the uplands have formed primarily of volcanic parent material of weathered andesite, tuff, rhyolite, and conglomerate. These soils have a dark gravelly clay loam or gravelly loam surface over a gravelly clay subsurface horizon. The gravelly clay subsurface overlies weathered bedrock. These soils are generally 20 inches or less to bedrock.

Hillsides have pockets of soil deeper than 20 inches, but these pockets occur on less than 15 percent of the area.

The alluvial soils in the canyon bottoms generally exceed 60 inches in depth and have a gravelly fine sandy loam surface and a gravelly sandy loam, loamy sand, or gravelly sand subsurface. These soils have a rapid or very rapid permeability, and their location next to Aravaipa Creek makes them unsuitable for sewage disposal. These soils are also highly susceptible to water erosion.

## WATER RESOURCES

The water flowing through Aravaipa Canyon is a key natural resource upon which the recreational value of the primitive area is based (figures 4 and 5). Aravaipa Creek, the main water course through the canyon, with a drainage area of 541 square miles, is a free-flowing perennial stream for 15 miles. It has maintained a relatively constant and dependable flow, although its level recedes during extreme dry periods. A small acreage of irrigated croplands and pastures lies upstream from the study area, but topography limits expanding the irrigable land by more than 100 acres.

Of the 14 major tributaries of Aravaipa Creek in the study area, 4 flow perennially. The others flow only intermittently or are ephemeral (storm flow). Ten perennial springs exist in the canyon bottom or in side canyons. The study area also has an unknown number of seeps.

Frequently, flooding after heavy rain damages primitive area signs and trail counters and threatens visitors in the canyon. A study of the canyon in 1972 found high water marks at least 12 meters above its normal surface (Minckley, 1972).

Untreated surface water is unfit for human consumption because of bacterial contamination, thereby requiring visitors to carry potable water during their stay.

A microchemical analysis of Aravaipa Creek found all dissolved element concentrations except mercury within recommended water quality standards. Mercury concentrations often exceeded recommended maximum levels for drinking water and for freshwater aquatic life and wildlife (Minckley, 1972). The points where mercury is entering the system have not been identified.

#### AIR QUALITY

Although never measured, the air quality over the canyon seems good. Prevailing winds from the west generally provide good air drainage, which dissipates air pollution. Smoke from nearby smelters, however, has been observed over the canyon. Fugitive dust or smoke (from either wildfires or one the three smelters within 50 miles of the primitive area) could be the major degraders of the air quality.

The distance and direction of these smelters from the study area are as follows: San Manuel, 40 miles south-southwest; Hayden, 28 miles west-northwest; Christmas (not operating), 29 miles northwest.

The study area was designated Class II under the Clean Air Act. (See glossary: Air Quality Classes). Neither Pinal nor Graham County meets primary standards for particulates, and Pinal County fails to meet primary standards for sulfur dioxide.

Aravaipa Canyon Primitive Area was reviewed in accordance with requirement of the Clean Air Act for redesignation to a higher air quality class (Class I). Reviewers recommended that the area remain in Class II.

A wind frequency of occurrence study (2.3 years of data) indicates that 47 percent of the time the prevailing winds at the San Manuel smelter blew from the west, west-northwest, and northwest (Arizona Dept. of Health Services, 1979). A similar study (3.9 years of data) for the Hayden smelter revealed no prevailing wind direction but an even scattering in all directions (Arizona Dept. of Health Services, 1979).

The studies indicate that smoke and particulates from either smelter would float toward the canyon approximately 15 percent of the time. Smoke only slightly impairs visibility over the tableland. A number of mountain peaks, higher than the smoke stacks and the tablelands around Aravaipa Canyon and lying in direct line between them, should redirect the flow of smoke, somewhat dissipating it over the tablelands and the canyon.

Data are lacking on the movement and effect of blowing dust in the area surrounding Aravaipa Canyon.

#### NOISE

Noise within the primitive area is primarily natural: insects, flowing water, foraging wildlife. Any interruption of these natural sounds occurs only sporadically, primarily from aircraft.

Aircraft, mainly military jets and helicopters, have been observed flying at high and low altitudes directly over the canyon. Though brief, such noise can be ear shattering as the sound waves reverberate along canyon walls. On rare occasions, planes have been seen flying on "wing tip" between the canyon walls.

#### VEGETATION

##### VEGETATION TYPES

A variety of parent materials, exposures, and microclimates allow a diversity of vegetation in the study area (figures 6 and 7).

The lower, southern and western exposures contain typical Sonoran Desert vegetation (desert shrub vegetation type) such as

jojoba	mesquite	black grama
burweed	cholla	sideoats grama
brittlebush	prickly pear	

The study area has 2,191 acres of the desert shrub type, 1,330 acres within the primitive area and 811 acres on adjacent lands.

The northern and eastern exposures support plants requiring more moisture--the mountain shrub vegetation type. This vegetation type comprises 2,244 acres within the primitive area and 1,582 acres on the adjacent lands, for a total of 3,826 acres. Common plant species include

Emory Oak	sideoats grama
shrub oak	Wright's buckwheat
juniper	hairy grama

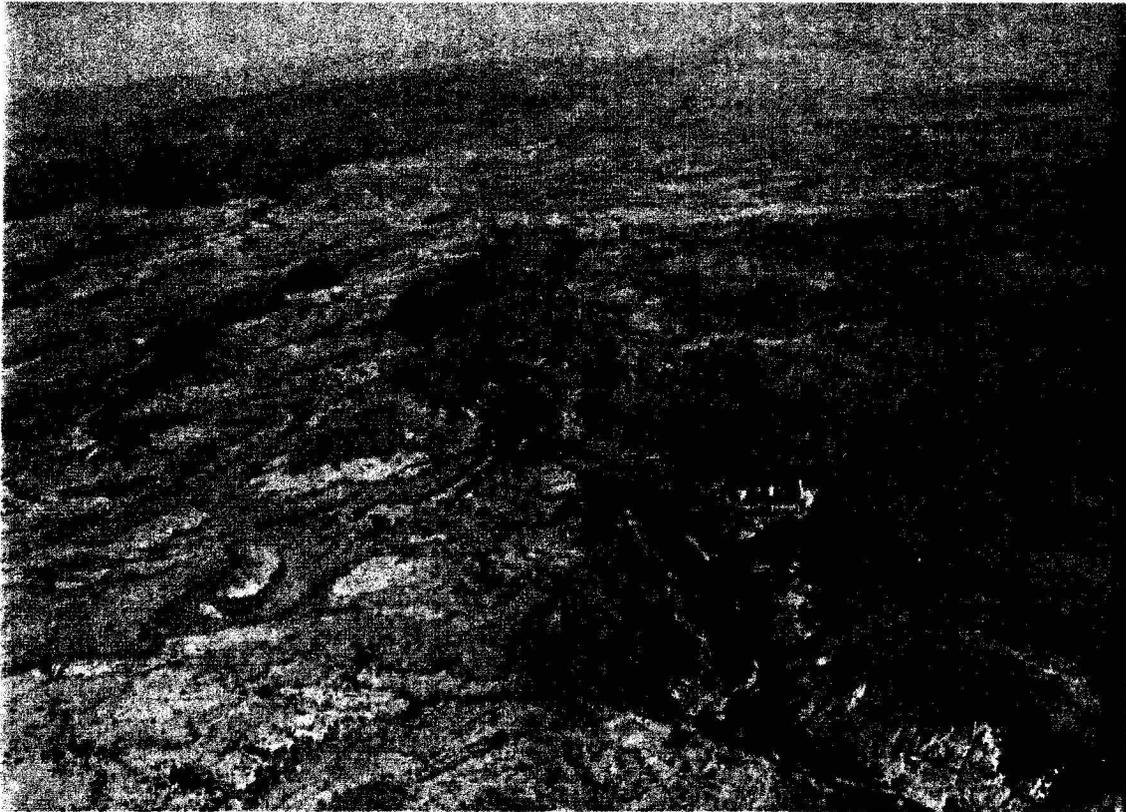


Figure 1



Figure 2

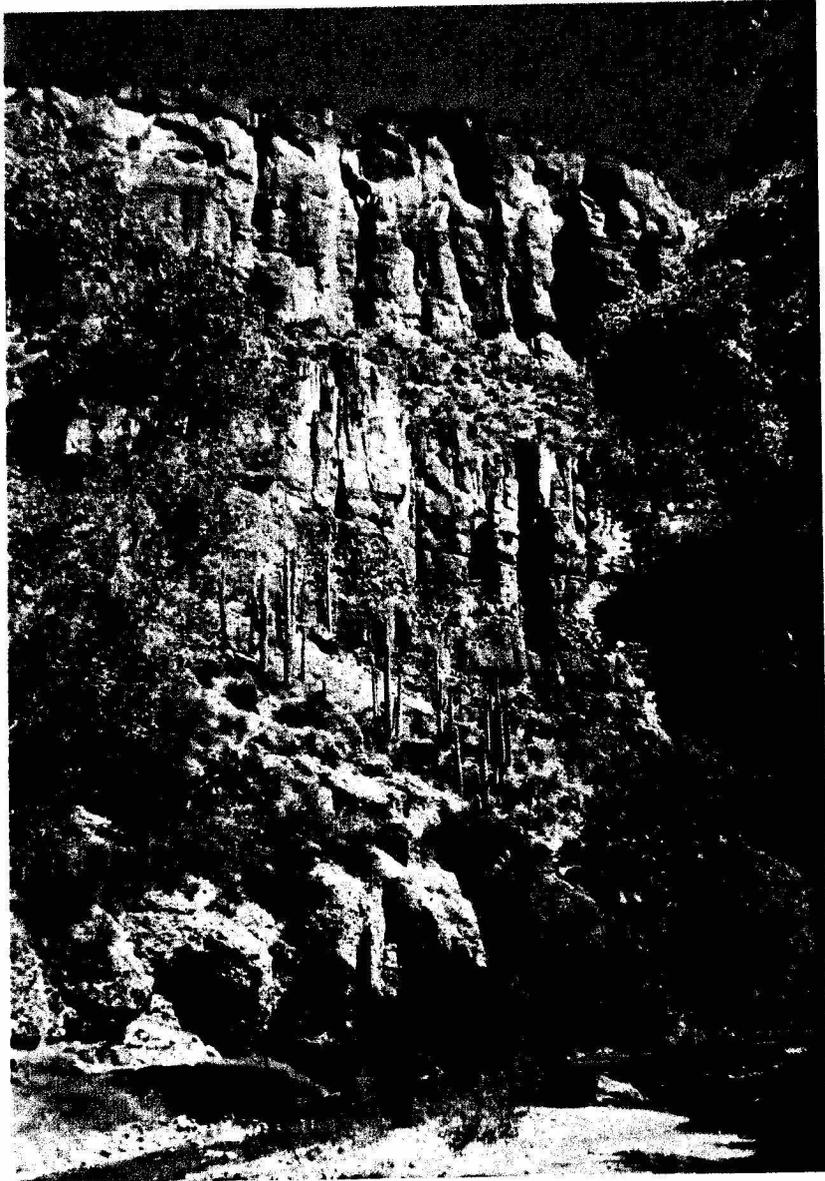


Figure 3

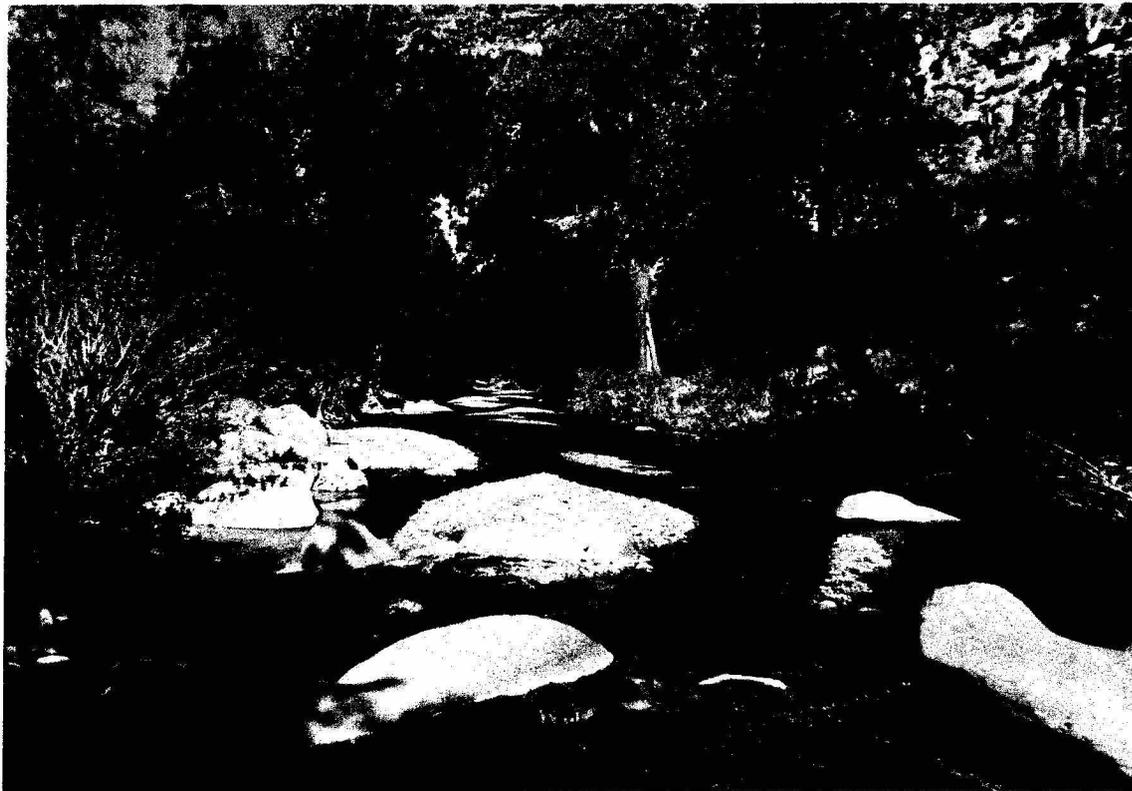


Figure 4

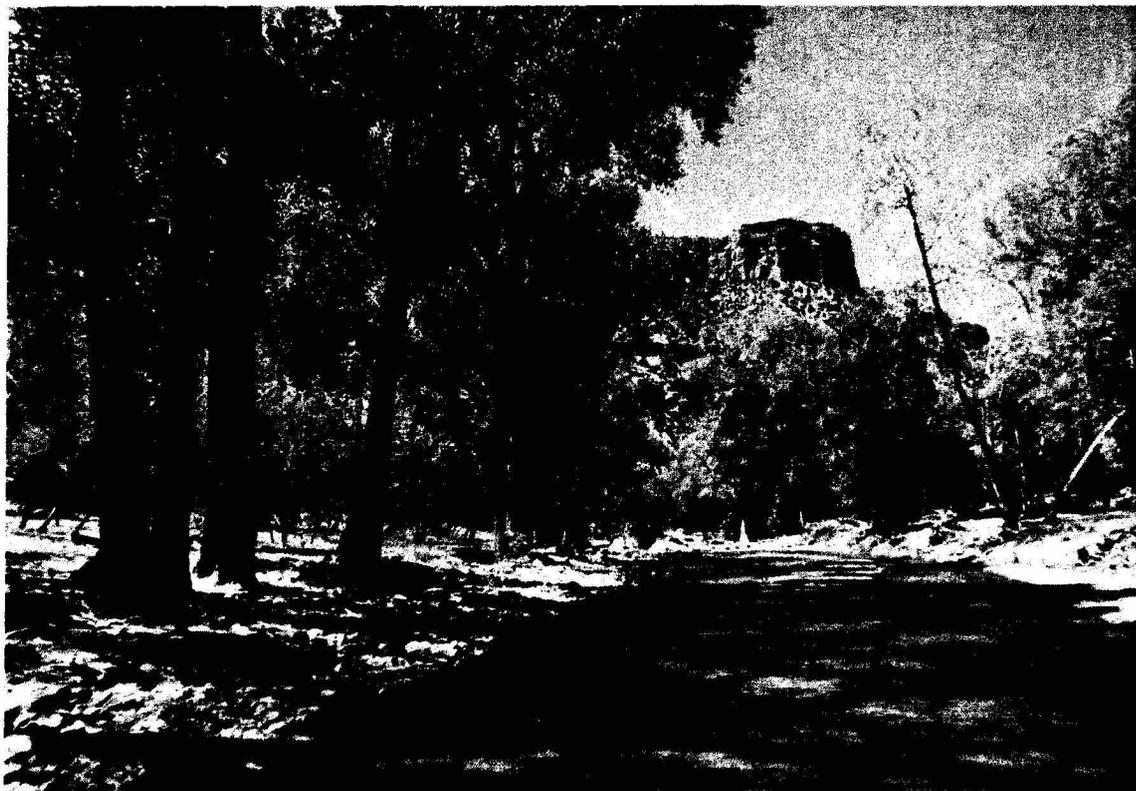


Figure 5

In the study area 2 species of amphibians and 14 species of reptiles inhabit only the desert shrub-mountain shrub habitat types. Three of the six known species of amphibians and 31 of the 35 known species of reptiles occur in the desert shrub-mountain shrub habitat types.

### AQUATIC HABITAT

Flowing the 12-mile length of the study area, Aravaipa Creek supports 8 of the 12 known native fish species of the San Pedro River system, in addition to the introduced green sunfish. No other Arizona stream is known to support as large a number of native fish species in the absence of substantial numbers of introduced species (Minckley, 1977).

Collections by Minckley and others indicate that all eight native fish species occur in unusual abundance. Aravaipa Creek is dominated by longfin dace and speckled dace, which constitute more than 85 percent of all fishes collected (Minckley, 1977). Aravaipa Creek also supports the last reproducing population of loach minnow in southern Arizona (Kepner, 1979)

One large-mouth bass, believed to be illegally introduced into the Creek or a stock pond, was collected in the canyon. If these bass become established, they will be detrimental to native fish (Kepner, 1979).

### THREATENED AND ENDANGERED SPECIES

Three animal species identified by the U.S. Fish and Wildlife Service as endangered and published in the Federal Register (Vol. 44, No. 12, January 17 1979) occur within the study area. The southern bald eagle occurs as an uncommon and unpredictable winter visitor. The peregrine falcon historically nested in the area but now occurs only as an uncommon winter visitor. The Gila topminnow was reintroduced into Aravaipa Creek in early 1978 by the Arizona Game and Fish Department (AG&FD), but none have been reported in the creek since.

Wildlife species found in the primitive area and designated by AG&FD as threatened in Arizona are detailed in table 2. The aplomado falcon, designated by the AG&FD as a Group I species, (species or subspecies extirpated from Arizona that may possibly be reestablished) was once sighted (Troutman, 1978), but the sighting is considered to represent an accident rather than a range extension. One caracara designated to be in Group IV by the AG&FD has been reported to be using an area east of the primitive area.

TABLE 2  
THREATENED ANIMAL SPECIES

Category	Birds	Mammals	Reptiles and Amphibians	Fish
Group II	Gray Hawk Southern Bald Eagle Peregrine Falcon		W. Massasauga	
Group III	Snowy Egret Zone-tailed Hawk Black Hawk Beardless Flycatcher	Desert Bighorn Sheep	Desert Tortoise Gila Monster	Gila Topminnow Loach Minnow
Group IV	Buff-breasted Flycatcher	Coati	Rock Rattlesnake	Round-tailed Chub Spikedace

Group II: Species or subspecies in danger of being eliminated from Arizona.  
Group III: Species or subspecies whose status in Arizona may be jeopardy in the foreseeable future.  
Group IV: Species or subspecies of special interest because of limited distribution in Arizona.

### CULTURAL RESOURCES

The Aravaipa Canyon area has been inhabited for perhaps the past 9,500 years. The primary prehistoric remains include Hohokam and Salado sites. Historical remains are sparse. Cochise, Apache, and Spanish explorer remains occur near the study area and are believed to occur within it.

A systematic intensive survey yielding a 5.5 percent sample (Gilman and Richards, 1975) and unsystematic surveys by BLM rangers covering 8 percent of the primitive area have recorded nine prehistoric sites and two historic sites in the primitive area and seven prehistoric sites in the study area outside the primitive area. In addition, numerous unknown sites, primarily prehistoric, are believed to exist.

Of the 18 known sites, 1 has been determined to be eligible for nomination to the National Register of Historic Places (HS02-04-074-Salazar Homestead), and one prehistoric site is believed to be of National Register quality (AR02-04-023).

Twenty-two percent of the cultural sites are in poor condition, 39 percent are in fair condition, and 33 percent are in good condition. The condition of the remaining 6 percent is unknown. Sources of damage to sites have been varied. One of the primary sources--trampling by cattle--has been eliminated in the canyon bottom. Camping, digging by vandals, and general visitor use account for 25 percent of the present damage.

Known sites have been evaluated, and the following uses are recommended: conservation for future use--15 sites; management use (a study area used to monitor and analyze impacts)--1 site (AR02-04-192); and recreation/visitor use--2 sites (HS02-04-074-Salazar Homestead and HS-1-DT-Horse Camp Ruins).

The San Carlos Apache Tribe of southeastern Arizona has identified no native American social, cultural, or sacred values in the area. In recent times no other tribes have used the area.

## LANDSCAPE CHARACTER

Aravaipa Canyon consists of irregularly eroded tuffs and conglomerates that form high mesa-type cliffs, which dominate the desert and mountain shrub and riparian vegetation communities. The subtle greys and greens of the lush riparian canopy contrast with the stark and often harsh buffs, tans, and whites of the canyon rock formations (figures 8, 9, and 10).

Aravaipa Creek, twisting and turning between the canyon walls, sends a mellowing, almost hypnotic sound up to the edge of the canyon rim, only to have it dissipated into the lonely solitude and quiet of the desert beyond the rimrocks.

Modifications of the natural landscape are few and highly subtle. They consist of two short lengths of abandoned road (approximately 1.5 miles) and one earthen reservoir. In each case the initial impacts have been reduced by natural changes, and, as a result, only portions of each modification remain noticeable and then only to one at or near the sites.

The visual resource management (VRM) classes established for the area are delineated on map 2.

## WILDERNESS VALUES

BLM inventoried the Aravaipa Canyon Wilderness Instant Study Area plus contiguous public lands using procedures outlined in Step 4 of BLM Wilderness Inventory Handbook (BLM, 1978). That intensive inventory revealed that these lands (map 3) meet the criteria established in Section 2(c) of the Wilderness Act of 1964 (figures 11 and 12), which states:

*"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."*

The intensive inventory is included as appendix 2.

## LAND USE

### RECREATION

Existing Designated Aravaipa Canyon Primitive Area

BLM has administered Aravaipa Canyon Primitive Area since January 10, 1969. Public land within the

primitive area has been withdrawn from all appropriations under existing agricultural and mining laws (see map 4). At the same time all of the adjacent public lands and the mineral rights on all but 880 acres of the study area were also withdrawn. To protect outstanding natural values, the canyon bottoms of the primitive area are not grazed. The area also has an established limit of 50 visitors per day.

### Off-Road Vehicles (ORV) Use

Aravaipa Canyon Primitive Area has been "closed" to ORV use as directed by Executive Order 11644. The public lands adjoining the primitive area have not been designated.

### Recreation Uses, Use Areas, and Amounts

Recreation resources in the ES area were identified through extensive inventories. The quality of the recreation resource is displayed on table 3.

TABLE 3  
RECREATION RESOURCE QUALITY FOR ARAVAIPA CANYON AREA

Recreation Activity	Class Value*	Comments
Hunting--Big Game	A	Deer, Javelina and Mountain Lion
Hunting--Small Game	B	Dove, Quail, and Rabbits
Sightseeing--Geological	A	Volcanics
Sightseeing--Zoological	B	Desert Bighorn Sheep, Birds, Reptiles, Small Mammals
Sightseeing--Scenery	A	Unique Primitive Area

\*Class A - Excellent; Class B - Good; Class C - Fair.

### General Leisure--Camping and Picnicking

Camping and picnicking account for the majority of recreation visitor days recorded in the study area. The majority of use occurs along the Aravaipa Creek in the main canyon, but some use appears to be dispersed into the major side canyons and up on the tablelands adjoining the canyon. Visitor use fluctuates from year to year (table 4).

TABLE 4  
ANNUAL VISITOR USE FOR ARAVAIPA CANYON PRIMITIVE AREA

	1973	1974	1975	1976	1977	1978	2000*
	July - Dec.						
<b>East End</b>							
Visits	514	902	1,026	1,618	1,277	1,054	
Visitor Days	1,028	1,804	2,051	3,233	3,123	2,657	
% of Total	34.15	28.94	39.16	43.36	31.00	32.55	
<b>West End</b>							
Visits	991	2,214	1,594	2,119	2,784	2,184	
Visitor Days	1,982	4,428	3,188	4,225	6,497	5,396	
% of Total	65.84	71.05	60.83	56.66	69.00	67.45	
<b>Total</b>							
Visits	1,505	3,116	2,620	3,737	4,061	3,238	
Visitor Days	3,010	6,232	5,240	7,456	9,620	8,053	17,000

\*Source for year 2000: Arizona Outdoor Recreation Coordinating Committee, 1972.



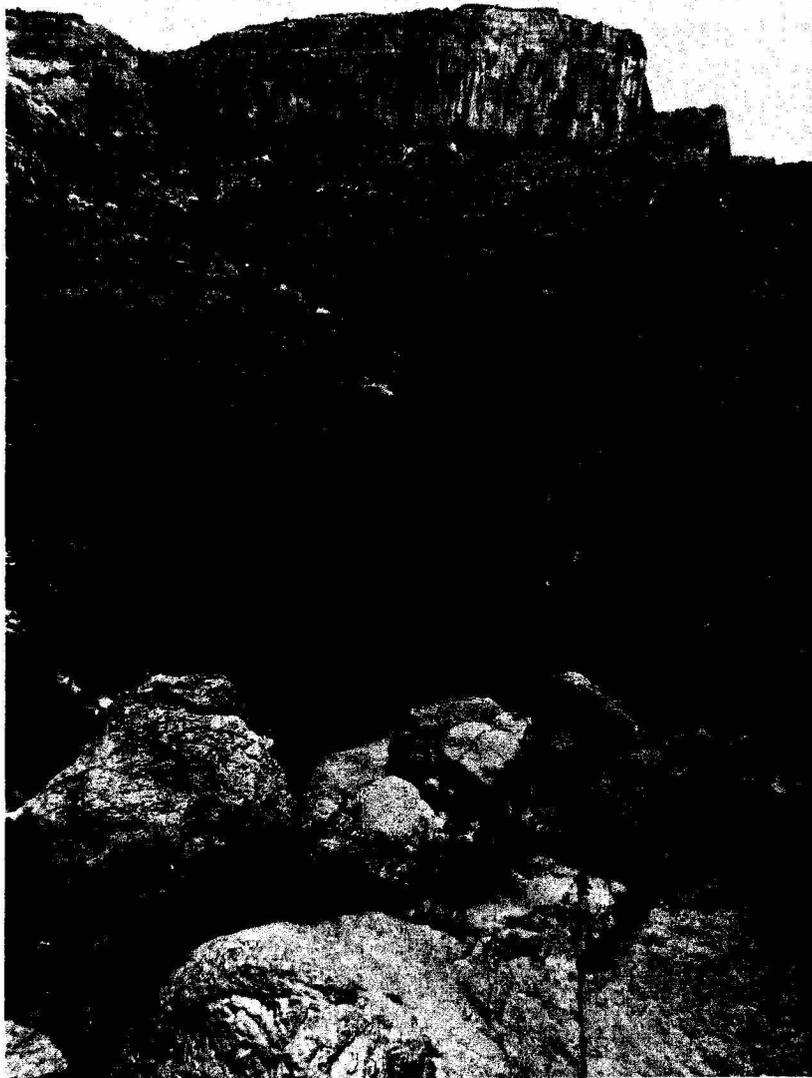


Figure 8



Figure 9



Figure 10



Figure 11

Courtesy of Stephen J. Krasemann

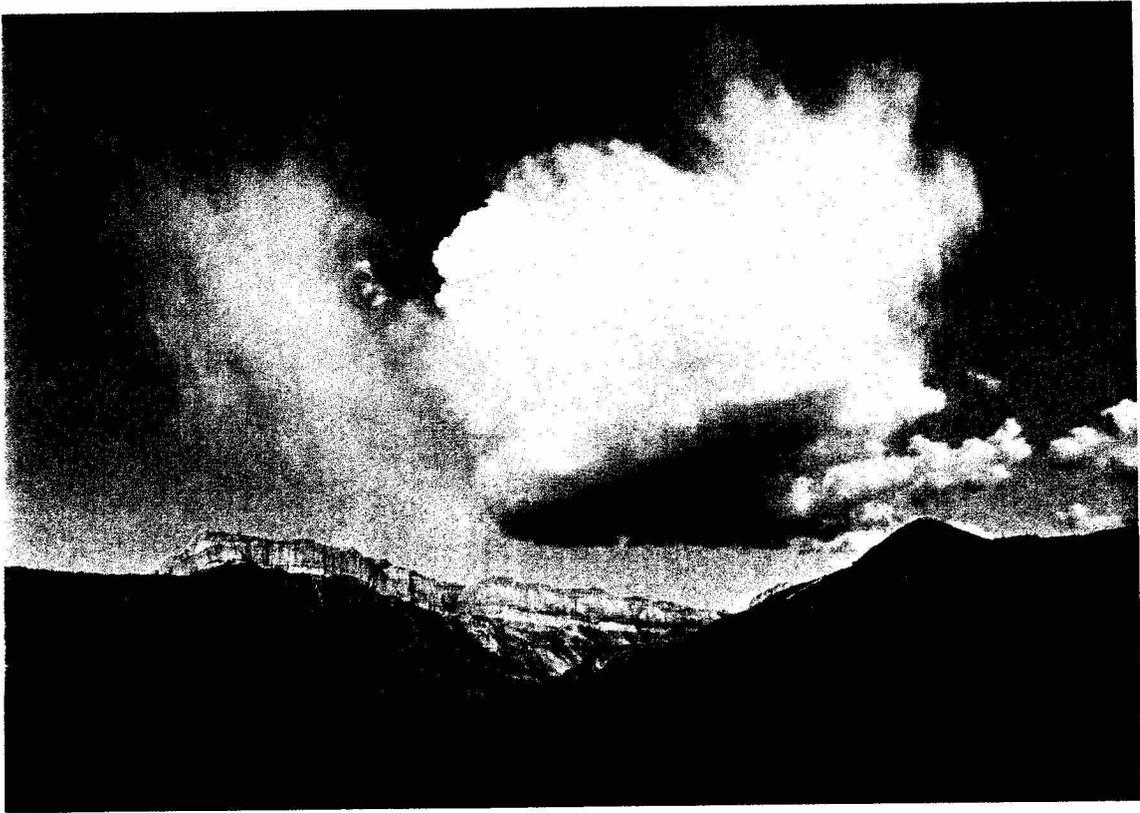


Figure 12

Courtesy of Stephen J. Krasemann

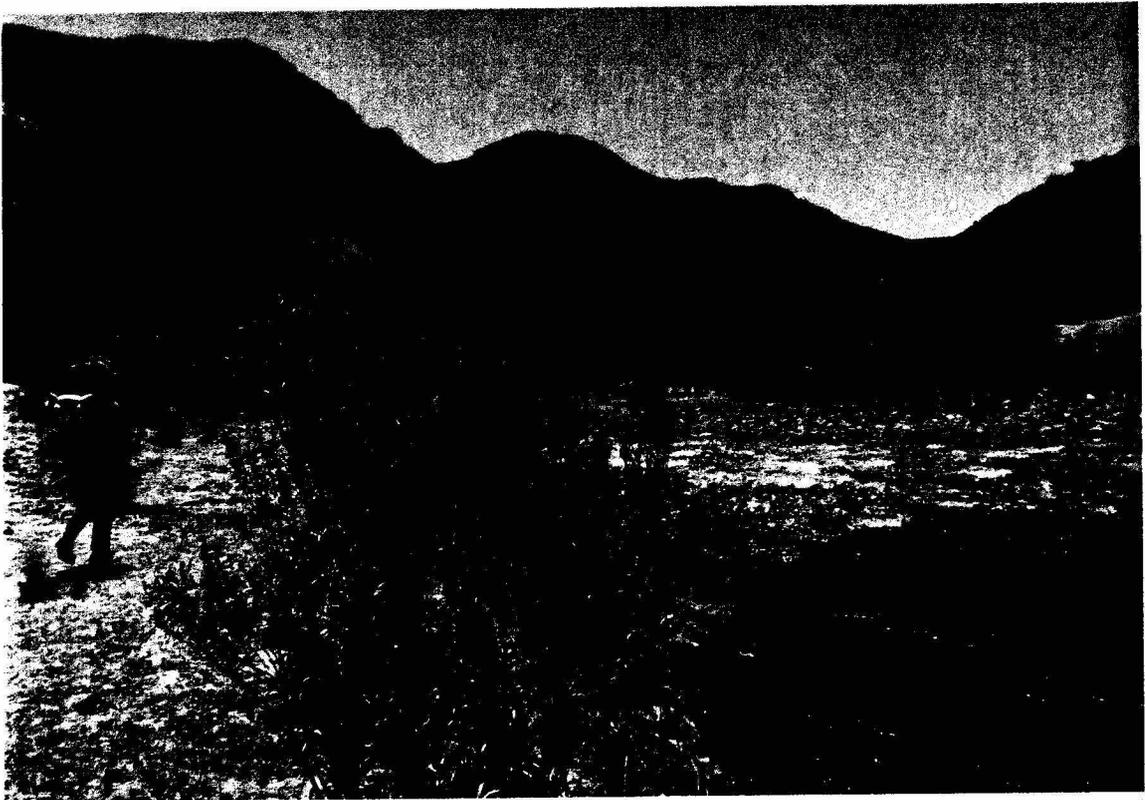


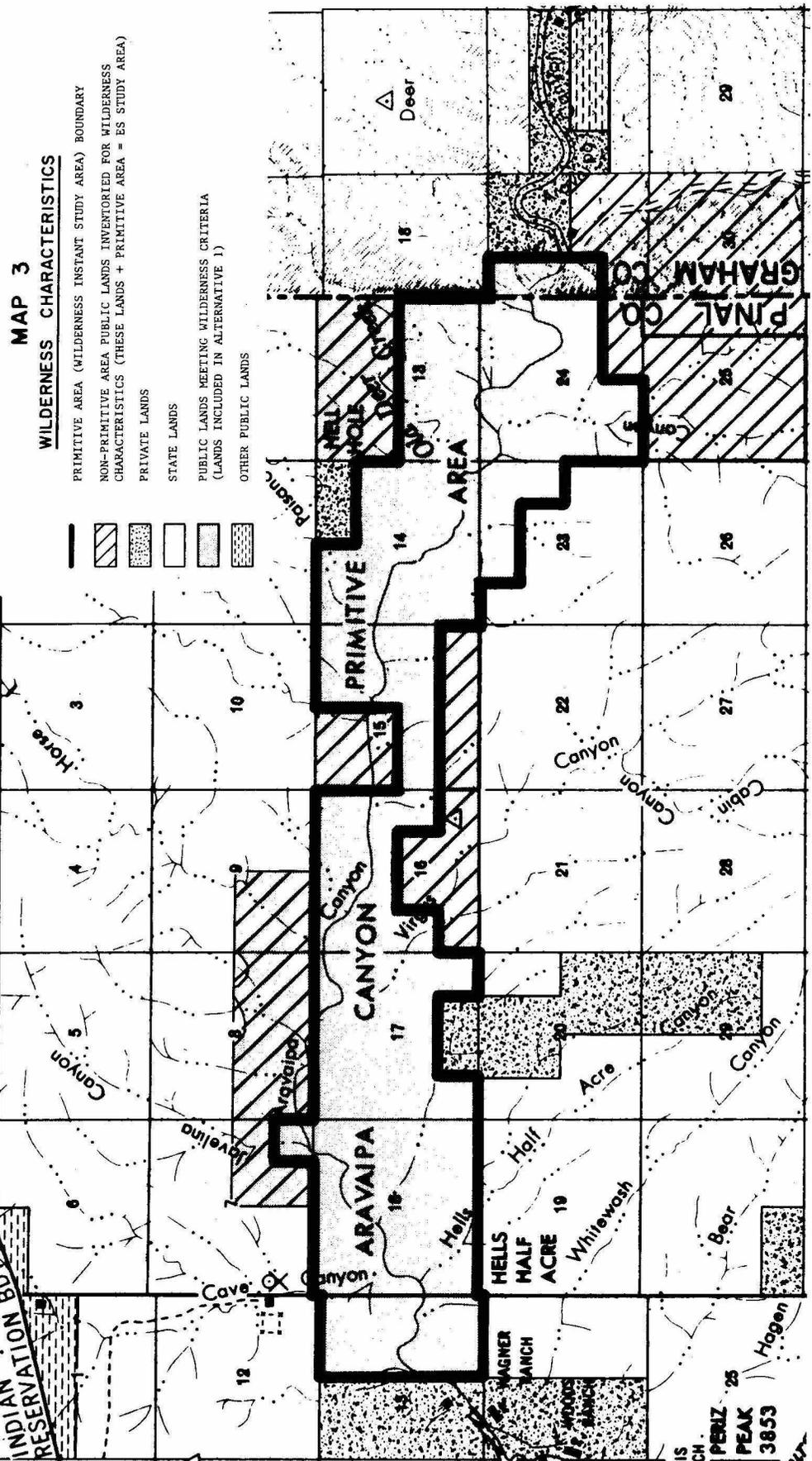
Figure 13

R. 17 E.

R. 18 E.

R. 19 E.

INDIAN RESERVATION BOUNDARY



MAP 3

WILDERNESS CHARACTERISTICS

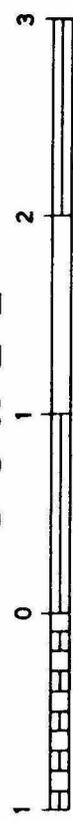
- BOUNDARY
- ▨ PRIMITIVE AREA (WILDERNESS INSTANT STUDY AREA)
- ▩ NON-PRIMITIVE AREA PUBLIC LANDS INVENTORIED FOR WILDERNESS CHARACTERISTICS (THESE LANDS + PRIMITIVE AREA = ES STUDY AREA)
- ▧ PRIVATE LANDS
- STATE LANDS
- ▨ PUBLIC LANDS MEETING WILDERNESS CRITERIA (LANDS INCLUDED IN ALTERNATIVE 1)
- ▩ OTHER PUBLIC LANDS



T. 6 S.

Map base reproduced from Atlas of Graham County and Atlas of Pinal County with permission of the Arizona Department of Transportation

SCALE



STATUTE MILES

N $\frac{1}{2}$ SW $\frac{1}{4}$ , Section 13, N $\frac{1}{2}$ , Section 16, S $\frac{1}{2}$ S $\frac{1}{2}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ , and Section 25, E $\frac{1}{2}$ E $\frac{1}{2}$ .

The U.S. Geological Survey and the Bureau of Mines have conducted a mineral survey of Aravaipa Canyon. Their report is on file in the Safford District office and available for public inspection.

## LAND USE PLANS-CONTROLS-CONSTRAINTS

### Local planning and Zoning

Most of the study area is in Pinal County, the remainder is in Graham County. State land predominates in the area surrounding the ES area. Private and public land is scattered, making up a small percentage of land ownership (map 4).

Both Pinal and Graham Counties have adopted zoning ordinances. Both counties have zoned their respective portions of the study area as general rural, permitting residential, agricultural, and related uses.

### Governmental Controls - Constraints

Several withdrawals have been made within the study area. These withdrawals include Secretarial Order (SO) 602 for Water Power Designation No. 5 (Arizona No. 2), Power Project AR-730, Public Land Order (PLO) 5298, and A-2696, the withdrawal for Aravaipa Canyon Primitive Area and multiple use management.

The original A-2696, signed November 15, 1968, withdrew 5,297 acres of public land and State land with Federal mineral rights, segregating the public land from sale, exchange, selection, and appropriation under the agricultural and mining laws. The State land with Federal mineral rights was segregated only from appropriation under the mining laws. On January 9, 1969, the Secretary of the Interior designated 3,957 acres of the land withdrawn under the original A-2696 as the Aravaipa Canyon Primitive Area. In April 1971 the primitive area boundary was adjusted to exclude land in Turkey Creek and to include additional land along the north and south rims of the canyon. This final primitive area designation included 4,044 acres (see map 4).

On November 1, 1972, PLO-5298 withdrew an additional 1,063 acres from all appropriation under the public land laws for the expansion and protection of the primitive area.

The study area has two power site withdrawals. SO-602 for Water Power Designation No. 5 (Arizona No. 2), signed February 9, 1917, withdrew all lands within 0.25 miles of Aravaipa Creek for the potential development of water power. Power Project AR-730, dated September 23, 1930, was application by the Arizona Sodium Production Company. This application also withdrew all land within 0.25 miles of Aravaipa Creek for power production. BLM has initiated action to revoke both of these power site withdrawals.

In December 1978, BLM acquired through exchange an additional 1,480 acres of State land next to the primitive area. This acquisition culminated a management proposal, initiated in 1972, to improve management and protection of the primitive area.

### Transportation and Utilities

Two county roads provide access to the ES area. The west end of the ES area, in Pinal County, is served by Aravaipa Canyon Road, which leaves State Route 77, 10 miles south of Winkelman. This road follows Aravaipa Creek to the west end trail head. On the east side, the Klondyke-Aravaipa Road connects with U.S. 70, 6 miles west of Pima. Both roads are maintained by the respective counties. The first 5 miles of the Aravaipa Canyon Road are paved.

Although utility rights-of-way cross adjoining land, none cross the study area. The primitive area precludes issuing rights-of-way.

## ECONOMIC AND SOCIAL CONDITIONS

### POPULATION

The area surrounding Aravaipa Canyon is rural and sparsely populated. It is primarily inhabited by ranch and farm families living along Aravaipa Creek and the main access routes to the canyon.

### INCOME AND EMPLOYMENT

Although ranching is the primary land use of the area surrounding Aravaipa Canyon, copper exploration, extraction, and processing produce the most income for the area. The concentration of mining and mineral processing makes personal income higher near the study area than in surrounding non-mining areas.

### SOCIAL CONDITIONS

Archaeological and historical data indicate a long record of continuing human interest in and use of Aravaipa Canyon. Until the 1950's, this interest and use were limited to local residents, ranchers, miners, and hunters. Occasionally hikers and horseback riders also used the area.

During the 1950's, however, the popularity of the canyon soared as a result of publicity. Several articles in State and national magazines brought attention to its significance as a place for various kinds of recreation. Visitor demands on the canyon increased dramatically, leading to a growth of vandalism and litter and the destruction of some of the attractiveness of the canyon.

Valuing efforts to preserve the canyon from unrestricted visitor use, certain user groups were anxious for BLM to impose regulations. These groups were supported by some residents, who regretted what they had seen happen to the canyon

and who feared what might occur if visitor use were not controlled. The public widely accepted and approved BLM's management plan for the primitive area. The only strong opposition came from off-road vehicle (ORV) groups opposed to closing the canyon to motorized vehicles and from hunters opposed to banning the discharge of firearms in the canyon bottoms.

Local residents, user groups, and the public strongly support preserving Aravaipa Canyon's natural beauty and uniqueness from overuse and abuse. One of the former ranchers, for example, reported selling his ranch to an environmental organization because he felt its sale would help protect the canyon for future generations. Many of the letters and responses to the BLM management plan expressed this concern.

In January 1979 a BLM sociologist conducted non-directive interviews with hikers, hunters, ranchers, and students of nature from Tucson, Phoenix, Safford, and communities near Aravaipa Canyon. The interviewer selected interviewees by asking his first respondents for the names of others who might be interested in talking about Aravaipa Canyon. Each

interview required 20 to 60 minutes, for an average period of 30 minutes. The interviewer took no notes or recordings, but at its completion summarized each interview by topic.

Although the data collected are accurate, their use is limited because they were not obtained from a statistically valid sample of the user population. These data, however, are useful for illustrating attitudes of local residents and users of the canyon.

Of the 38 interviews held, all respondents expressed concern about visitor overuse of the canyon, and none of the respondents objected to permits being required for entering the canyon. Sixteen respondents mentioned publicity attracting visitors otherwise unaware of the canyon.

All of the respondents recognized that BLM had management responsibilities for the primitive area. Ten respondents (26 percent) felt that BLM should provide for more intensive care/protection of the area by assigning it a permanent staff of several rangers. (See appendix 1 for present staff working in canyon.) More than half of the respondents (22) mentioned knowing of others who had not visited the Canyon, but who wanted or planned to do so.

## ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The analysis of impacts of the proposed action is based on the following assumptions:

1. BLM will continue to have the capabilities and resources to manage Aravaipa Canyon.
2. A wilderness designation will cause few, if any, management changes because present management is consistent with wilderness management.
3. Visitor demand will continue to increase, but the increase may intensify more rapidly with a wilderness designation. The number of users will be limited to the 50 visitors per day until a carrying capacity study is completed. At that point the limit may be adjusted to reflect the results of that study.
4. The President or Congress will not identify any higher and better use of the resources than that of designation as wilderness.
5. The proposed action will protect wilderness values only within the existing primitive area.

No impacts to topography, geology, soils, air quality, noise, water rights, vegetation, or livestock grazing were identified. Wilderness designation would have the following impacts on other resources.

### VISUAL RESOURCES

The replacement of existing facilities shown on table 6 would have involved minimal surface disturbance during construction, resulting in very short-term impacts. The minimal impact of the structures, however, will continue throughout their lives.

### WILDERNESS RESOURCES

The wilderness values previously mentioned will be impacted beneficially in the long-term. Under a wilderness designation, the area will not be subjected to future man-caused impairments.

Designating only the primitive area as wilderness would preclude the option of protecting values known to exist on public lands next to the primitive area. A later proposal to designate these adjacent lands is unlikely.

## LAND USE

### RECREATION

Recreation designations, facilities and uses were evaluated to determine whether the proposed action would enhance or be detrimental to their present management objectives, recreation quality, and level of visitor use.

Designations: The Aravaipa Canyon Primitive Area

The proposed action would benefit this area. Since the action is consummated through an act of Congress, a wilderness designation would be more permanent and less susceptible to future change than the present primitive designation.

#### Off-road Vehicle Designations

The proposed action would not affect ORV designations, since the areas "closed" designation would remain in effect.

#### Facilities

The proposed action would not impact the existing management facilities identified in table 6. Section 4 (c) of the Wilderness Act of 1964 allows for certain facilities to meet minimum requirements for the administration of the area.

#### Recreation Uses, Use Areas, and Amounts

The proposed action was evaluated to determine whether it would benefit or adversely affect the Recreation Information System (BLM Manual 6110) quality rating, recreation opportunity, or visitor use of each activity. The proposed action would have virtually no long-term impact (table 7). Recreation quality or opportunities would not change, and visitor use changes would be minimal.

TABLE 7  
LONG-TERM IMPACTS ON RECREATION

Activity	Quality	Oppor- tunity	Visitor Use
Camping	0	0	L+
Picnicking	0	0	L+
Hunting	0	0	X
Sightseeing	L-	0	L+

L - Low, M - Moderate, H - High, (+) Beneficial Impact, (-) Adverse Impact, (X) Negligible Impact, (0) No Impact.

### General Leisure--Camping and Picnicking

A change in designation from primitive to wilderness would not impact the quality or opportunity for these activities, since they are legitimate uses of an established wilderness area. Visitor use, however, might change as a result of more widespread notoriety of the area during the decision making process and after designation as wilderness. The additional exposures by the news media and wilderness guide books might increase demand for permits to use the area and increase visitor use.

### Hunting--Big Game and Small Game

The quality and opportunity for hunting would not change nor would restrictions change on firearms discharge in the canyon bottoms. Applications for hunting permits for Game Management Units 31 and 32 (on either side of Aravaipa Canyon) might increase because of the additional exposure to the area in the media.

### Sightseeing

The proposed action would impact neither the quality nor the opportunity for sightseeing. Visitor use might increase slightly from the additional exposure in the news media and national recognition given to wilderness areas. This increased visitor use might slightly increase vandalism to cultural sites. Commonly accepted measures of preventing vandalism (8-to-10 foot high storm fence, total salvage of data) would probably not be allowed within the wilderness area, and less effective methods for site preservation would have to be used. Overall, a wilderness designation would have a slightly adverse impact on cultural sightseeing.

## MINERAL RESOURCES

The proposed action would further restrict the availability of the mineral resources but would not change their physical characteristics.

## LAND USE PLANS CONTROLS - CONSTRAINTS

Wilderness designation would largely preclude power site development, although economic and technical considerations have made such development unrealistic. A wilderness designation would also preclude transportation and utility rights-of-way and adopting other land uses.

## SOCIAL CONDITIONS

The public generally understands that the proposed action is an administrative reclassification and that the management of the wilderness area would be a continuation of the program used under the primitive area designation. Thus no direct impacts on social values and human attitudes would result.

## MITIGATING MEASURES

Routine management procedures will be developed as necessary to mitigate environmental disturbances should any occur.

## UNAVOIDABLE ADVERSE IMPACTS

Few adverse impacts have been identified. Many of those identified will be mitigated by management. If, in fact, Aravaipa's popularity increases through wilderness status, an increased demand may well be experienced. Such demand may cause periods of maximum use to be extended beyond the week-ends, thus reducing the recovery or resting time of certain impacted resources.

## RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

The proposed action does not involve any losses to long-term productivity. Wilderness designation would tend to maintain long-term productivity and provide maximum protection to a unique ecosystem complex.

## IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The designation of lands as wilderness constitutes a long-term commitment of resources and land. Congress, however, can change the classification. Thus wilderness designation can be considered neither an irreversible nor an irretrievable commitment of resources.

# ALTERNATIVES TO THE PROPOSED ACTION

This section discusses two alternatives to the proposed action: (1) increasing the size of the proposed wilderness area, and (2) no action--continuing the present management of Aravaipa Canyon Primitive Area.

## ALTERNATIVE 1: INCREASE THE SIZE OF THE PROPOSED WILDERNESS AREA

Alternative 1 to the proposed action would designate Aravaipa Canyon Primitive Area and 2,325 acres of adjacent public lands determined to have wilderness characteristics to the National Wilderness Preservation System as Aravaipa Canyon Wilderness (map 3). Figures 14-17 show some of the adjacent public lands included in the alternative. The objective of this alternative is to protect the identified wilderness values through legislative designation. The stages of implementation would be the same under this alternative as under the proposed action: interim management, designation as wilderness, and management as wilderness.

This alternative's implementation time frame would be identical to the proposed action's, and, like the proposed action, the designations would be permanent, subject only to change by Congress. Authorizing actions and interrelationships under this

alternative would also be the same as under the proposed action. In addition, the existing environment and impacts on climate, topography, geology, soils, water resources, air quality, noise, landscape characteristics, livestock grazing, land use plans, controls, and constraints, and economic conditions under this alternative would be the same as under the proposed action.

## VEGETATION

The additional lands studied for inclusion as wilderness contain approximately 811 acres of desert shrub vegetation type, 1,364 acres of mountain shrub vegetation type, and 150 acres of broadleaf riparian vegetation type. The addition of these lands would afford a protective status these lands now lack.

## ANIMALS

The additional lands contain both riparian and desert shrub-mountain shrub habitat types, including 150 acres of prime riparian habitat and 600 acres of crucial desert bighorn sheep concentration area. The addition of 2,325 acres would benefit animals by permanently protecting habitats through wilderness designation.

## CULTURAL RESOURCES

This alternative would place seven additional known prehistoric sites under wilderness management as well as some unknown sites, providing additional administrative protection (figure 16). Visitor use and other sources of adverse impacts, however, would be primarily the same as under the proposed action.

## WILDERNESS VALUES

Wilderness values on the adjacent public lands would permanently benefit from a wilderness designation. Opportunities for solitude and primitive and unconfined recreation would increase supplemental values (such as geology and ecological and cultural resources) on adjacent public lands and reinforce and complement similar values within the primitive area.

## RECREATION

The addition of 2,325 acres of wilderness would facilitate the area's management. The lands next to the primitive area proposed for wilderness status include two portions of the main canyon (150 acres) and portions of two side canyons recently transferred from State to Federal ownership. Since these lands are unprotected by primitive area status, BLM cannot control their use, manage them consistently with the adjoining primitive area or future wilderness, or protect primitive and wilderness values. BLM, for example, cannot control camping in these areas as it can in the primitive area. Wilderness designation for these lands would remedy such management problems. The relative permanence of a wilderness designation would reduce the chances of future impairment of wilderness values. Table 8 summarizes the impacts of this alternative on outdoor recreation.

TABLE 8  
LONG-TERM IMPACTS OF ALTERNATIVE 1 ON RECREATION

Activity	Quality	Oppor- tunity	Visitor Use
Camping	X	M+	L+
Picnicking	0	0	L+
ORV Use	0	L-	X
Hunting	X	L+	L+
Sightseeing	M+	M+	L+

L - Low, M - Moderate, H - High. (+) Beneficial Impact, (-) Adverse Impact, (X) Negligible Impact, (0) No Impact.

### General Leisure--Picnicking and Primitive Camping

The designation of additional land as wilderness would insure a wider selection and variety of camping areas, including high country, by protecting these

lands from conflicting and nonconforming uses. Certain areas with exceptional recreation values for camping would be added to the proposed wilderness, including Virgus and Horse Camp Canyon and two portions of Aravaipa Canyon (figure 17).

### Off-Road Vehicle (ORV) Use

Designating adjacent public land as wilderness would close to motor vehicles several "ways" leading to both the north and south rims of Aravaipa Canyon. Overall this impact would be minimal, however, because the highly dissected rocky topography of much of the adjacent land is unsuitable for ORV use.

### Hunting

Wilderness designation would generally improve hunting quality and opportunity by precluding uses that could disturb additional wildlife habitat. Designation may thus indirectly increase wildlife populations. Higher populations would increase hunting opportunity, provided the Arizona Game and Fish Department issues more hunting permits. The desert bighorn sheep population might increase enough to support an annual harvest of surplus rams. Hunting might also increase in the long term because of the national recognition and exposure by the news media. Banning the discharge of firearms in additional areas of the canyon bottoms, however, would slightly reduce hunting opportunity.

### Sightseeing

In the long term, this alternative would benefit general sightseeing. Although it would not affect the quality of geological sightseeing, it would protect the area's geology. The quality of vegetation and animals would benefit from the increased amount of riparian community protected by wilderness designation. With improved riparian and aquatic communities, birds are expected to increase as well as the opportunity to view them. The opportunity for viewing desert bighorn sheep might also increase, since almost all the suitable public land next to the primitive area is prime bighorn habitat.

## MINERAL RESOURCES

Increasing the size of the proposed wilderness area would preclude mining (after December 31, 1983) on 840 acres now open to exploration and mining. Since this additional acreage has low mineral potential, its removal from mineral entry would not adversely affect mineral resource development.

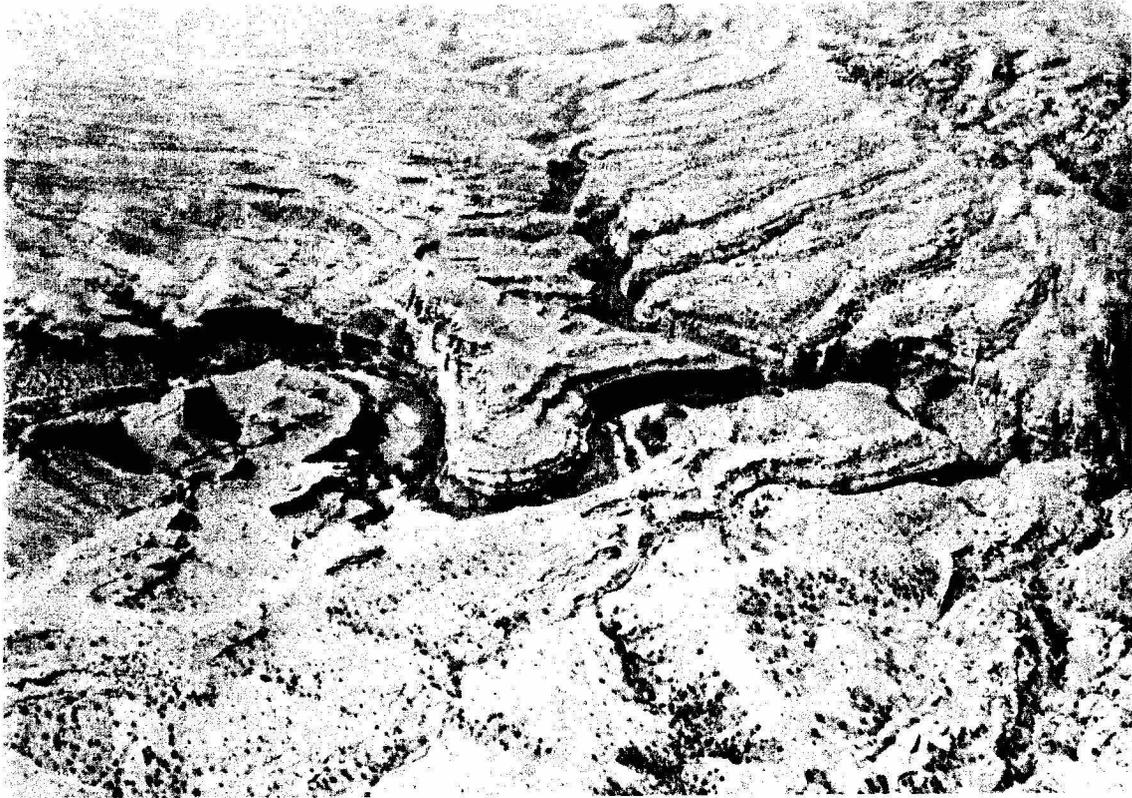


Figure 14

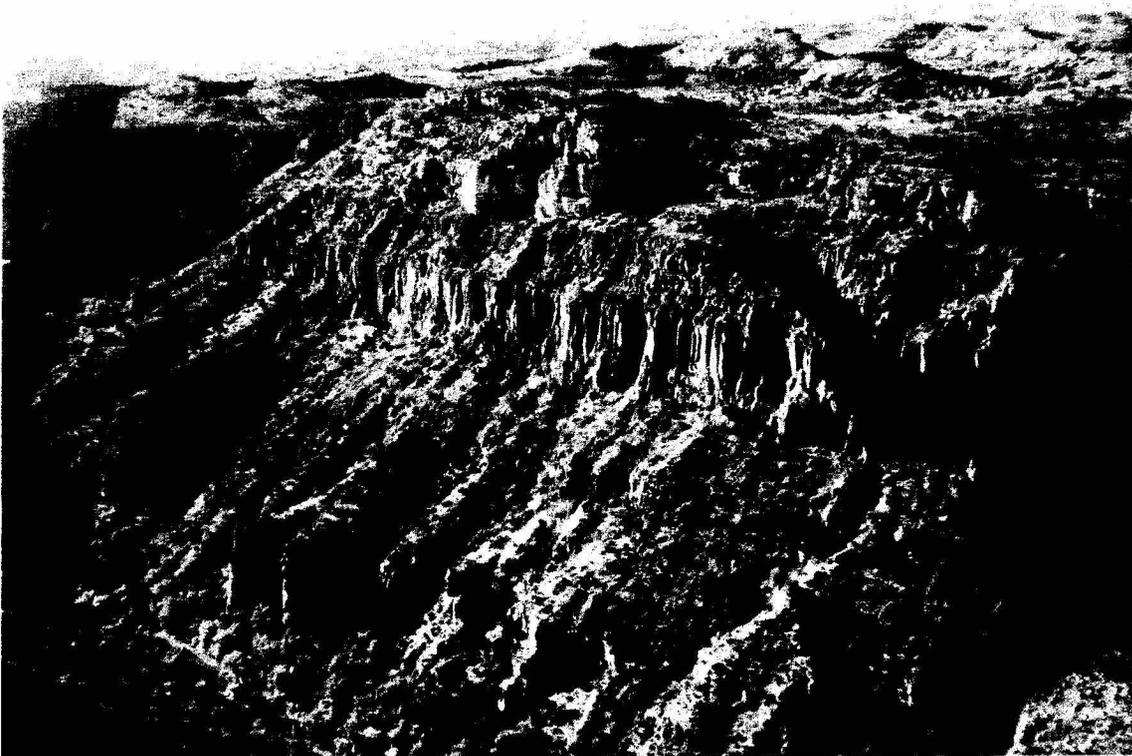


Figure 15

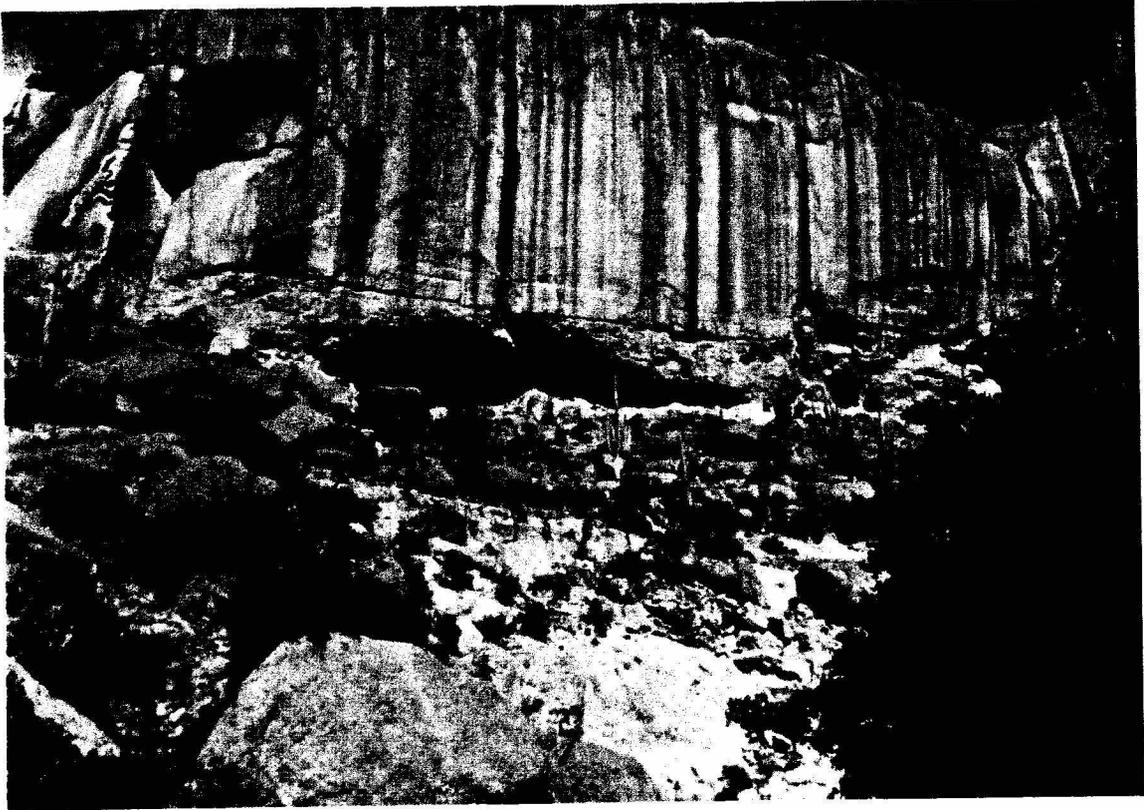


Figure 16



Figure 17

## ECONOMIC CONDITIONS

Increasing the size of the proposed wilderness area would have no known impacts on economic conditions.

## SOCIAL CONDITIONS

Although user groups and the public have generally accepted and approved of the existence of the primitive area and its proposed wilderness designation, attitudes might be different towards expanding the proposed wilderness area. User groups and the public in Arizona know that a wilderness designation represents a narrowing of options for use. Such groups as hunters, hikers, and nature studiers in principle could support the expansion. Informal interviews, however, indicate that some groups might oppose this alternative.

## ALTERNATIVE 2: NO ACTION

The no-action alternative would continue the administration of Aravaipa Canyon under its present management plan. The objective of this alternative would be to preserve the identified wilderness values under the present designation.

Under this alternative the study area is expected to remain unchanged in the future, although a few conditions would change.

The quality of the riparian habitat is expected to improve, increasing numbers of nongame birds.

Air quality is expected to improve slightly with improved pollution control technology, more stringent standards, and strict enforcement of the standards.

Increased air traffic may intensify noise, but improved technology and stricter controls may lessen such noise.

Grazing use will be determined by studies and levels determined by the Upper Gila-San Simon Grazing Environmental Statement (BLM, 1978b).

# CONSULTATION AND COORDINATION

## TEAM ORGANIZATION

A team of diverse resource specialists from BLM's Arizona State Office and Safford District office was assembled on November 27, 1978 in Safford, Arizona. BLM'S Washington Office and Arizona State Office provided periodic review.

## CONSULTATION AND COORDINATION IN PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT

The public was extensively involved in events leading to the primitive area designation for the Aravaipa Canyon. Subsequently, the development of the activity plan for management of the primitive area and the Winkelman Planning Unit Management Framework Plan provided additional opportunities for public comment.

In preparing this draft ES, BLM carried out the following consultation and coordination measures:

(1) Issued a news release (dated December 20, 1978) to local and intrastate newspapers, announcing the start of the ES preparation.

(2) Informed the Bureau of Indian Affairs office in Phoenix and San Carlos and the Tribal Chairman of the San Carlos Apache Tribe by letter dated January 15, 1979 of the writing of the ES and requested information about sites of cultural value to the Apache Tribe.

(3) Held an open house at the Safford District office on January 10, 1979 to discuss the ES. Seven attended.

(4) Participated in a meeting in Tucson also attended by representatives of the Sierra Club, Southeast Arizona Hiking Club, and Audubon Society, where Aravaipa Canyon Wilderness was a major topic of discussion. Twenty-one attended.

(5) Made a presentation on Aravaipa Wilderness to the Safford Chamber of Commerce meeting on February 16, 1979. Thirty-five attended.

(6) Made a similar presentation to the Resource Conservation and Development Area monthly meeting at Sierra Vista on January 25, 1979. Twelve attended.

No public hearings are scheduled on this ES.

## COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

Comments on the draft ES will be requested from the following agencies and interest groups.

Environmental Protection Agency

Advisory Council on Historic Preservation

Department of the Interior

Fish and Wildlife Service

Bureau of Reclamation

Heritage Conservation and Recreation Service

Geological Survey

Bureau of Mines

National Park Service

Bureau of Indian Affairs

Department of Agriculture

Agricultural Stabilization and Conservation  
Service

Forest Service

Soil Conservation Service

Army Corps of Engineers

Federal Energy Regulatory Commission

Congressional Delegation

Arizona State Agencies

Arizona Department of Library and Archives

Arizona Department of Property Valuation

Arizona Department of Public Safety

Arizona Department of Transportation

Arizona Indian Affairs Commission

Arizona Outdoor Recreation Coordinating  
Committee

Arizona Resource Information Systems

Arizona State Clearinghouse

Arizona State Museum

Arizona State Water Commission

Arizona Advisory Commission on Arizona  
Environment

Arizona Mineral Resources Department

Selected State Legislators

Bruce Babbitt, Governor of Arizona

State Land Department

State Game and Fish Department

State Parks Board

State Historic Preservation Officer

County Commissioners

Gila County  
Graham County  
Pima County  
Pinal county

Educational Institutes

Arizona College of Technology  
Arizona-Sonora Desert Museum  
Arizona State University  
Northern Arizona University  
University of Arizona  
Western Archaeological Center

Conservation Organizations

Amerind Foundation  
Arizona Conservation Council  
Arizona Wilderness Coalition  
The American Scenic and Historic  
Preservation Society  
Environmental Clearinghouse  
Friends of the Earth  
Isaac Walton League of America  
National Association of Conservation  
Districts  
National Council of Public Land Users  
Natural Resources Defense Council, Inc.  
The Nature Conservancy  
New Mexico Wilderness Study Committee  
Pacific Legal Foundation  
Sierra Club  
Southern Arizona Environmental Council  
Wilderness Society

Wildlife Organizations

Arizona Desert Bighorn Sheep Society  
Arizona Wildlife Federation  
Arizona Wildlife Society  
Audubon Society  
Defenders of Wildlife  
Friends of Animals, Inc.  
Graham County Wildlife Federation

Recreational Organizations

Arizona State Four-Wheel Drive  
Association  
National Campers and Hikers Association  
ORV Monitor  
Road and Trail Association, Inc.  
Southern Arizona Biking Club  
Tuscon Four-Wheelers

Other Economic Entities

Arizona Small Mine Operators Association  
Inspiration Copper Company  
Phelps Dodge Corporation  
Southwestern Environmental Consultants

Others

Arizona Cattle Growers' Association  
Cochise-Graham County Cattle Growers'  
Association  
League of Arizona Cities and Towns  
Public Land Council  
State Conservation Commission

Copies of the ES will be sent to approximately 300 individuals who have requested copies; newspapers, radio and television stations; and repository and local libraries.

# APPENDIXES

## APPENDIX 1

### ARAVAIPA CANYON PRIMITIVE AREA

#### MANAGEMENT SUMMARY

The Aravaipa Canyon Primitive Area Management Plan, widely endorsed by the public, establishes the following management objectives, providing for public recreation while protecting wilderness values:

- (1) to protect, enhance, and maintain the natural beauty and primitive character of the land while providing visitors with a meaningful and quality primitive experience through proper resource and visitor management;
- (2) to identify recreation facility requirements and limitations commensurate with protection of the environment and to identify public needs;
- (3) to identify and regulate an acceptable level of recreation use to preserve and protect other resources, particularly wildlife habitat;
- (4) to develop an interpretation and information program for the protection and identification of natural and cultural values for the benefit of visitors;
- (5) to ensure that the common goals for the implementation of the plan are carried out through coordination with other BLM resource activities; Federal, State, and local governments; and the general public;
- (6) to the extent feasible, to allow free and natural ecological succession for scientific and other study;
- (7) to manage the cultural resources for their scientific and recreation value and protect them from intentional or inadvertent loss or damage.

To achieve the primary objective of protecting, enhancing, and maintaining the natural beauty and primitive character of the land, positive steps are required to limit man's influence upon natural, cultural, visual, and primitive values:

- To protect the natural environmental and primitive values the primitive area is closed to motorized vehicles.
- For visitor safety, the shooting of firearms is prohibited in Aravaipa Canyon and adjoining side canyons.

- To allow for natural reproduction of the riparian vegetation and to eliminate conflicts with visitors, livestock grazing has been terminated in the canyon bottoms and continues under custodial management on the canyon rims.

- Mineral prospecting and mining under the 1872 Mining Law are prohibited within the primitive area.

- Visitor use is restricted by the following regulations. A permit system limits visitors to 50 persons per day. Length of stay is limited to 3 days and 2 nights. Horses can be used for day use only. Group size is limited to 10 per group for hikers and 5 per group for horseback riders. Recreationists are prohibited from collecting, disturbing, or destroying vegetation, animals, rocks, or cultural artifacts.

- Resource study and research will continue to monitor and evaluate the condition of each natural element. Water quality tests, vegetation trend studies, wildlife research, and visitor carrying capacity studies will be initiated or continued to insure preservation of the wilderness values and maintenance of maximum recreational enjoyment.

- An information and interpretation program will be continued to educate visitors and assist them in achieving the maximum enjoyment and benefit from the area.

- The primitive area will continue to be managed by a fulltime supervised staff of two, one residing at the east administrative site and the other at the west administrative site. This staff provides for visitor safety and protection through regular patrols in the canyon. They are trained in first aid and rescue procedures. They maintain trailhead and support facilities at either end of the canyon and continuously monitor visitor use and resource conditions. Radio communications between the canyon and District office ensure fast and direct response to any situation.

- Support facilities will be limited to those required to meet visitor needs and to protect the fragile resources within the primitive area.

APPENDIX 2

ARAVAIPA CANYON WILDERNESS INTENSIVE INVENTORY

WILDERNESS INTENSIVE INVENTORY

UNIT NO.: AZ-4-1 Instant Study

UNIT NO.: AZ-4-1 Instant Study  
 NAME OF AREA: Aravaipa Canyon

Explain by a concise narrative the following essential wilderness characteristics (for guidance see text in the Wilderness Inventory Handbook):

1. SIZE: 6,587 ± acres

Narrative:

4,044.33 acres are designated primitive. There are an additional 2,542.72 acres contiguous to the primitive area. An access road which lies in the bottom of Turkey Creek Canyon is clearly a regularly used road and will cause approximately 200 acres to be dropped from further consideration in Section 19 & 30, T. 6 S., R. 19 E.

Another access road to a livestock water development in Section 8, T. 6 S., R. 18 E. may exclude an additional 18 ± acres from consideration. The remaining 6,369 ± acres appear to have wilderness potential.

Summary: 1. Does the area have at least 5,000 acres of contiguous land and is it of sufficient size to make practicable its preservation and use in an unimpaired condition?

Circle one:  YES NO

2. Does the island have sufficient size to make practicable its preservation and use in an unimpaired condition?

Circle one:  YES NO

SIGNATURE: Harold Byrd, Jr. DATE 1-16-78

3. OUTSTANDING OPPORTUNITY FOR SOLITUDE OR A PRIMITIVE AND UNCONFINED RECREATION ANALYSIS

A. SOLITUDE:

Narrative:

Aravaipa Canyon provides a high degree of solitude and isolation because improved public access is limited to the east and west ends. The opportunity for solitude, which is diminished somewhat in the main canyon where visitor use is congested, increases as one moves deeper into the major side canyons and the limestone and sandstone ridges and arroyos of the tablelands.

The nature of the topography and the abundance of vegetation both enhance the opportunity for persons to seek out and find isolation and a feeling of solitude if so desired.

Even though the canyon bottom is relatively narrow and confined, it still possesses outstanding opportunities.

Summary: Does the area have outstanding opportunities for solitude?

Circle one:  YES NO

SIGNATURE: Harold Byrd, Jr. DATE 1-16-78

-3-

UNIT NO.: AZ-4-1 Instant Study

UNIT NO.: AZ-4-1 Instant Study

2. NATURALNESS

Narrative:

There are some visible signs of the imprint of man's work within the area. They are:

- Roads (2.5 miles) provide access to improvements or private land.
- Trails (5-10 miles) used primarily for livestock management.
- Abandoned roads (approximately 1 1/4 miles) access to shallow test holes for mineral exploration.
- Ways - 1/4 mile on north rim east of Horse Camp Canyon.
- Historic homesteads (2) one homestead used during early 20th century. Other never completed.
- Fences (approximately .7 mile) livestock management.
- Fire rings (numerous) recurring from continuous backpacker use of the canyon.
- Trail signs (8) identify tributary canyons in the canyon.
- Portable toilets (2) one near Virgus, one near Painted Cave Canyon (generally hidden from view in dense vegetation).
- Wooden fence (280 ft.) protects and identifies the Salazar homestead.
- Pipeline (3-3/4 miles) water pipeline used to pump water from the Aravaipa Creek to a stock tank on the south rim; and 375' water pipeline from well to storage at west boundary of primitive area.
- Abandoned water pump used to pump water through pipeline.
- Water well used for irrigation and livestock water.
- Approximately 120 ft. of overhead powerline.

House report 95-540 allows the presence of most of the above and the cumulative impacts of those not covered (roads, toilets, pipelines, powerlines, etc.) is minimal with regard to the total area.

Summary: Does the area or island generally appear to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable?

Circle one:  YES NO

SIGNATURE: Harold Byrd, Jr. DATE 1-16-78

B. PRIMITIVE AND UNCONFINED RECREATION

Narrative:

The area offers outstanding opportunities for many types of unconfined recreation such as: backpacking, hiking, horseback riding, hunting (outside canyon bottoms), mountain and rock climbing (very dangerous due to unstable nature of rock structure), bird watching, photography, and sightseeing for geological, botanical, and zoological features.

Many of these activities represent some of the most outstanding opportunities available within the region. Aravaipa Canyon has been the subject of many pictorial reviews in periodicals with nationwide circulations; the birding opportunities are widely recognized; visitors come from all over the nation to backpack and hike the area; and students and scientific researchers use the canyon regularly for educational and scientific purposes.

Summary: Does the area have outstanding opportunities for a primitive and unconfined type of recreation?

Circle one:  YES NO

SIGNATURE: Harold Byrd, Jr. DATE 1-16-78

-4-

-2-

APPENDIX 2 (cont.)

UNIT NO.: AZ-4-1 Instant Study

4. SUPPLEMENTAL VALUES

Narrative:

The geological features of Aravaipa Canyon are not only scenic but represent an important scientific and educational resource. Within the canyon, there is opportunity to study a cross section of earth's history representing nearly 2.6 million years.

The ecological resources of the canyon are also considered outstanding. The area provides habitat for several Threatened and Endangered Species; it supports a substantial herd of Desert Bighorn Sheep, families of Coati mundi and numerous other species of wildlife. These different vegetative communities can be found within the area; the riparian community is generally the most heavily used by visitors.

The visual resource is considered to be Class I by Bureau standards as the canyon is comprised of rugged, deep gorges with a variety of vegetation and rich colors, and offers outstanding sightseeing and photography opportunities.

Aravaipa Canyon and the adjacent area contain numerous archaeological and historical sites. Several possess high recreational, educational, and scientific values. The Turkey Creek Cliff Dwelling is a unique archaeological site, and the Salazar homesite has been nominated to the National Register of Historical Sites.

Summary: The first two areas mentioned above, which contain roads and other impairments to the wilderness character, totaling approximately 218 ± acres must be excluded from any further consideration because they cannot be naturally or artificially returned to their natural state.

The 1.5 acres of land in E<sub>2</sub> Section 13 adjacent to the west boundary of the primitive area contains unpermitted improvements which have been determined to be inadvertent or unintentional trespass on public land. These impairments will be rehabilitated through removal of structures and discontinuance of agricultural activities which have been carried on in the past. The area will be allowed to restore itself via natural processes in the future. By the time the area is considered by Congress for a wilderness designation, the impairment of its wilderness character will be insignificant.

The remaining 6,369 ± acres of public land inventoried contain all the necessary elements to meet the wilderness criteria. The remaining impairments to the wilderness character found within this area are judged to be substantially unnoticeable and will continue to be reduced by natural processes. This area is identified on the attached map as meeting all of the necessary criteria.

Circle one:  YES  NO

SIGNATURE: Hermin B. Boyd, Jr. DATE 1-16-79

Summary: Does the area contain ecological, geological, or other features of scientific, educational, scenic, or historical value?

Circle one:  YES  NO

SIGNATURE: Hermin B. Boyd, Jr. DATE 1-16-79

-5-

UNIT. NO.: AZ-4-1 Instant Study

5. POSSIBILITY OF CERTAIN AREAS RETURNING TO A NATURAL CONDITION

Narrative:

There are several isolated areas where the natural condition of the land has been impacted by man's actions and visible signs of his work are noticeable.

-The 1.8 miles of road in the bottom of Turkey Creek Canyon unquestionably meets the definition of a road as defined in Wilderness Inventory Handbook. The alteration of land form and vegetation caused by the road can probably never be returned to natural condition.

-Approximately .5 mile of road traverses public lands in Sec. 8, T.6S., R.18E.. This road provides access to a livestock water development on state lands just north of the public land. The potential for the road to be rehabilitated back to a natural condition without leaving a permanent impairment to the land is low.

-Approximately 1.5 acres of land in E<sub>2</sub> Section 13 adjacent to the west boundary of the primitive area have the imprint of man clearly evident. The natural land form has been permanently altered by leveling for agricultural purposes. A well has been drilled and associated storage tank and water pipeline have been constructed and used for many years. An overhead powerline to the well and pump crosses over the field. Approximately .2 mile of fence and road are presently maintained along the Aravaipa Creek. The possibility of this area being returned to its natural state is very remote.

-The area between Turkey Creek and Parson's Canyon (Sec. 25, T.6S., R.18E.; and Sec. 30, T.6S., R.19E.) has an old access road to mining exploratory drill holes. There has been no maintenance on the road for the past several years, and it is no longer passible by vehicle. It will probably remain as it presently is for many years.

-The fence which protects the Salazar homesite (Sec. 14, T.6S., R.18E.) from vandalism is another example of man's work which is visible. Its potential for removal and restoring the area to original form is very good.

-The water pipeline and old abandoned pump apparatus (Sec. 25, T.6S., R.18E.) could probably be removed without any evidence of its past presence.

-6-

-7-

WILDERNESS INVENTORY  
WILDERNESS SUMMARY SHEET

I. LOCATION

Inventory Unit No.: AZ-4-1 Instant Study

Areas/Island Name: Aravaipa Canyon Instant Study Area

District: Safford State: Arizona

II. SUMMARY

A. Results of wilderness characteristics analysis.

- 1. Does the area or island appear to be natural?  YES  NO
- 2. Does the area or island offer outstanding opportunities for solitude or a primitive and unconfined type recreation?  YES  NO
- 3. Does the area meet any of the size requirements?  YES  NO
- 4. Does the area or island have supplemental values?  YES  NO

B. Resulting map.

III. RECOMMENDATION

Check one:

- Area or island should be approved as WSA.
- Area or island does not qualify for wilderness study.
- A portion of the area(s) or island(s) should be approved as a WSA for further study and reported to the President. The restrictions imposed by Section 603 will no longer apply (reference to map) on the remainder of the area.

IV. APPROVAL

- A. Area Manager Hermin B. Boyd, Jr. Date 1-16-79
- B. District Manager Ray E. Bain Date 1-22-79
- C. State Director \_\_\_\_\_ Date \_\_\_\_\_

-8-

# GLOSSARY

The following abbreviations are used frequently in this statement. Those representing terms will be defined under respective entries in the glossary.

AG&FD	Arizona Game & Fish Department
AUM	animal unit month
BLM	Bureau of Land Management
ES	Environmental Statement
ORV	off-road vehicle
VRM	visual resource management

## TERMS

**Air Quality Classes:** Classes established by the Environmental Protection Agency that define the amount of pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be considered significant; Class II applies to areas where the deterioration normally accompanying moderate well-controlled growth would be considered insignificant; and Class III applies to areas where deterioration up to the national standards would be considered insignificant.

**Alluvial:** pertaining to or composed of sediment deposited by flowing water as in a river bed.

**Andesite:** a fine-grained igneous rock containing quartz or orthoclase.

**Animal Unit Mont (AUM):** the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month.

**Biomass:** the sum total of living plants and animals above and below ground in an area at a given time (Range Term Glossary Committee, 1974).

**Climax Vegetation:** The final vegetation community that emerges after a series of successive vegetational stages. The climax community perpetuates itself indefinitely unless disturbed by outside forces.

**Conglomerate:** rock of rounded and waterworn stones cemented together in a finer material.

**Cultural Resources:** those fragile and nonrenewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of cultural values from the earliest to the most recent.

**Endangered Species:** any species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the Endangered Species Act of 1973 would present an overwhelming and overriding risk to man. See Threatened Species.

**Ephemeral Stream:** a stream that flows only briefly after a storm.

**Fugitive Dust:** temporary transient dust, as from construction.

**Habitat:** a specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

**Hohokam:** a prehistoric culture group that dominated the Salt River Valley and spread over southeastern and south-central Arizona from about 300 B.C. to 1400 A.D.

**Igneous:** rock of interlocking minerals formed by the cooling and solidification of magma.

**Loam:** soil texture class for soil that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. See Soil Texture.

**Off-Road Vehicle (ORV):** any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain, excluding (a) any registered motorboat, (b) any fire, military, emergency, or law enforcement vehicle when used for emergencies, and any combat support vehicle when used for national defense, and (c) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract.

**Pan Evaporation:** the depth of water that would evaporate from a still body of water during a year. Pan evaporation measurements are used to estimate annual evaporation losses from reservoirs.

**Particulates:** fine liquid or solid particles, such as dust, smoke, mist, fumes, or smog, found in the air or emissions.

**Perennial Stream:** a stream that flows throughout the year.

**Permeability, Soil:** the capacity of liquids, gases, or plant roots to penetrate the soil.

**Porphyry:** an igneous rock containing conspicuously large crystals and a fine-grained or glassy groundmass.

**Primitive Area:** a natural, wild, and undeveloped area, essentially removed from the effects of civilization.

**Public Land:** formal name for lands administered by the Bureau of Land Management.

**Public Land Order (PLO):** an order effecting, modifying, or revoking a withdrawal or reservation that has been issued by the Secretary of the Interior through his delegations of authority.

**Rhyolite:** a fine-grained igneous rock with a composition of granite.

**Riparian:** situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to plants of all types that grow along streams or around springs.

**Salado:** a prehistoric culture group that probably originated in the Tonto Basin of Arizona and spread throughout southeastern Arizona from about 1200 to 1400 A.D.

**Schist:** any of various medium- to coarse-grained metamorphic rocks composed of laminated, often flaky, parallel layers of chiefly micaceous minerals.

**Segregation:** any action such as a withdrawal or allowed application (exchange) that suspends the operation of the general public land laws. To separate or set apart; to remove lands from the operation of part or all the public land mineral laws.

**Site:** (archaeological) a physical location where human activities or events occurred.

**Soil Texture:** the relative proportions of sand, silt, and clay particles in a mass of soil. The different texture classes are commonly referred to in general terms.

**Succession:** the orderly process by which plant communities develop toward the climax plant association.

**Study Area:** the study area of this environmental statement includes Aravaipa Canyon Primitive Area and non-primitive area public lands inventoried for wilderness characteristics. See map 3.

**Threatened Species:** any species likely to become endangered within the foreseeable future throughout all or a significant part of its range.

**Tuff:** a rock of fine volcanic particles, usually fused together by heat.

**Visual Resource Management (VRM) Classes:** Classification of landscape according to the kinds of structures and modifications that are acceptable to meet established visual goals.

**Vegetation Type:** a plant community with distinguishable characteristics (Range Term Glossary Committee, 1974).

**Withdrawal:** an action that restricts the use of public land and segregates the lands from some or all of the public land or mineral laws.

## REFERENCES

- Arizona Department of Health Services. 1979. Unpublished data for 1968 to 1973 from the Bureau of Air Quality Phoenix.
- Arizona Outdoor Recreation Coordinating Committee. 1972. *State of Arizona Statewide Comprehensive Outdoor Recreation Plan*. Phoenix.
- Bureau of Land Management. 1978a. *Wilderness Inventory Handbook*. Washington, D.C.
- Bureau of Land Management. 1978b. *Upper-Gila-San Simon Grazing Final Environmental Statement*. Phoenix, Arizona.
- Gilman, Patricia and Barry Richards. 1975. *An Archaeological Survey in Aravaipa Canyon Primitive Area*. Archaeological Series No. 77. Tucson: University of Arizona. Arizona State Museum.
- Kepler, W. G. 1979. Fisheries biologist. Bureau of Land Management, Safford, Arizona. Personal communication.
- Krieger, M.H. 1968. Geologic map of the Brandenburg Mountain Quadrangle, Pinal County, Arizona. Map GQ-668. Washington, D.C.: U.S. Geological Survey.
- Minkley, W. L. 1972. A Survey of Selected Physical-Chemical and Biological Parameters of Aravaipa Creek Arizona. Unpublished report to the Defenders of Wildlife and BLM. Safford, Arizona: BLM District files.
- Minkley, W.L. 1977. Ecological Analysis of Aravaipa Creek and Environs Relative to Future Land and Water Use. Progress report on Contract No. YA-512-CTG-98. Safford, Arizona: BLM District files.
- Range Term Glossary committee. 1974. *A Glossary of Terms Used in Range Management*. Denver, Colorado: Society for Range Management.
- Schnell, J.H. 1979. Ecologist, Defenders of Wildlife: Klondyke Rural Station, Willcox, Arizona. Personal communication.
- Shepard, R.A. 1975. Zeolites in sedimentary rocks, in Stanley, J.F., ed. *Industrial Rocks and Minerals*, 4th ed. New York: American Institute of Mining, Metallurgical and Petroleum Engineers, 1257-1271.
- Troutman, D.M. 1978. Recreation specialist, BLM, Lake Havasu City, Arizona. Personal communication.
- Waddell, T. 1979. Wildlife Biologist, Arizona Game and Fish Department, Pima, Arizona. Personal communication.