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BACKCOUNTRY USE PLAN

for

Chiricahua National Monument

May 10, 1973

CHIRICAHUA NATIONAL MONUMENT
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BACKCOUNTRY USE PLAN CHIRICAHUA NATIONAL MONUMENT

OBJECTIVE

To provide for long term quality use of the backcountry through planned management without irreversible or irreparable impacts on the environment.

INTRODUCTION

Chiricahua National Monument was reserved from the Coronado National Forest, April 29, 1933, to preserve the outstanding geologic land forms located in this portion of the Chiricahua Mountains.

Since its establishment, backcountry (trail) use has been given major emphasis. The 18 miles of trails provide the only access to most of the outstanding land forms. Although trail use has declined to about 1% of the total visitation, it is expected to increase both percentage wise and as total visitation increases. Horseback use was once popular but now appears limited to one club (40 horses) one day per year, plus occasional individuals. This use could increase.

Overnight backcountry camping has not been encouraged. About ten people per year participate.

Of the total 10,646 acres available, 10,229 are classified as III, IV, or V. A backcountry use plan is necessary to properly manage this significant portion of the park acreage.

SUMMARY

Under this plan, day use is recognized as providing the maximum quality use. The plan establishes a total carrying capacity of 26 parties per hour (78 people) for all trail corridors and six parties (18 people) per day for trailless areas. If the carrying capacity were reached on each day of the year, this could represent an average backcountry use (based on three persons per party) of 71,540 persons per year. A series of plans are presented for enforcing backcountry carrying capacity. Based on present use trends it is anticipated that enforcement of the established carrying capacity may be necessary beginning in 1978.

CARRYING CAPACITY

Determining factors in establishing carrying capacity are solitude for maximum enjoyment of the environment, distance separation per party for attainment of solitude, parking lot capacity, and available methods of interpretation.

Application of the carrying capacity is accomplished by establishment of two management zones. These are designated trail corridors and trailless areas.

The carrying capacity for each area within these management zones will be as follows:

Corridor	Maintained Length	Carrying Capacity	
		1 Hour	1 Day
Heart of Rocks	8.46	8/24	48/144
Echo Canyon	4.22	8/24	64/192
Sugar Loaf Mt.	0.92	6/18	48/144
Natural Bridge	4.29	4/12	24/ 72
Total	17.89	26/78	184/552

Trailless Area	Size	Carrying Capacity
East Whitetail	400 acres	2/6 *
Garfield Peak- Erickson Ridge	700 acres	2/6 *
Jesse James	900 acres	2/6 *

*At any one time.

Carrying capacity columns indicate number of parties/number of people; the average party based on three people per party.

For supportive data, see Appendix C, Management Zones.

ACTION PLANS
1973-1975

Determining use on each of the trail corridors and trailless areas is necessary in order to manage backcountry use based on the carrying capacity concept. This will be accomplished by placement of new trail registers, relocating existing registers, compilation of register sheets, new signing, and increased trail patrols. The preceeding will be accomplished utilizing existing funds and manpower.

Action Plan - 1973

I. Trail Corridors

A register box will be placed at a central point on each corridor. Registration will be on a voluntary basis, the register sheets to be collected weekly to prevent loss or vandalism. The registers will be used until trailhead enforcement of use is indicated (see Appendix E). Registers will be placed at the following locations:

<u>Corridor</u>	<u>Location</u>
Heart of Rocks	Sara Deming-Heart of Rocks Jct.
Echo Canyon	Echo Park
Sugar Loaf	Sugar Loaf *
Natural Bridge	Natural Bridge Overlook

*When the lookout is manned, use statistics will be maintained by lookout personnel to insure accuracy.

By July 31, 1973

II. Trailless Areas

Required registration is the only method of determining use. Until such registration is required, efforts will be made to determine what this use might be. A register box will be placed midway along the Whitetail roadscar, on Garfield Peak, and in Jesse James Canyon.

Spot checks will be made every two weeks from May 1 through September 30 on each trailless area to determine accuracy of the voluntary registration system.

By August 30, 1973

III. Data Compilation

Use figures will be summarized monthly, the information to be a part of the Backcountry Use file. Review of this file will provide current data as to backcountry use and will indicate that date to initiate trailhead enforcement.

By September 1, 1973

IV. Regulations

The following regulations will be put into effect in accordance with Title 36CFR by posting at trailheads. Enforcement will not take place until such posting is completed.

- 1) No camping
- 2) No open fires
- 3) No pets

Achieving visitor awareness and compliance of these regulations will be accomplished by interpretive aids such as campfire talks, visitor center information desk, trailhead signing, and trail patrol.

By September 1, 1973

V. Signing

A. Trail Corridors

Placement of new signs providing trail regulations and repair and relocation of existing signs as needed.

Signing shall conform to the standards established in 1971. It consists of lichen covered rock bases, individual sign slats painted brown with routed white lettering. A metal photo type map shall be mounted onto the sign base at each location. Signing will be limited to trail intersections, specific geographic location designations and outstanding geologic formations.

B. Trailless Areas

No signing will be done.

By September 1, 1973

VI. Sanitation

Information shall be provided the visitors and available at each trailhead indicating the importance of using restroom facilities prior to departing.

A. Trail Corridors

The pit toilet presently in use near the Heart of Rocks Loop (junction routes #2 and #9 - see Appendix C) will remain in place during 1973.

On the other trail corridors, no facilities will be placed until a health or environmental problem is eminent. Facilities will then be limited to the type that wastes can be carried out.

B. Trailless Areas

No sanitation facilities will be installed. When it is determined that a health or environmental problem is eminent, the carrying capacity of the area will be reduced.

VII. Resource Use

At this time the only resource use recognized as a problem is firewood. Due to limited resources, no open fires will be permitted.

VIII. Physical Developments

Except for those associated with and required for trail safety, such as bridges, required sanitation facilities (see VI), and signing (see V), no physical developments will be permitted.

IX. Emergencies

In case of injury; time, hazardous conditions, and safety shall be considered and the following priority followed:

- 1) Self-removal
- 2) Carry out
- 3) Helicopter (cost shall not be used as a determining factor)

X. Trail Maintenance

Trail maintenance will conform to existing activity standards (Resource Requirements Data) which shall be considered a part of this plan.

XI. Resource Maintenance

Resource Maintenance shall conform to existing activity standards (Resource Requirements Data) which shall be considered a part of this plan.

XII. Guided Hikes

Guided hikes can be considered as having the same type of impact as one party (see Appendix A, Daily Use) provided the size of the party is limited to a maximum of 20 people and also provided that no more than two guided hikes per day are permitted. In excess of two guided walks per day would raise the degree of impact on both the resource and the physical developments (trails).

XIII. Public Participation

After approval of the Trail Plan by the Director, Western Region, public participation in review of the plan will be accomplished as follows:

- A. Approximately 50 copies of the plan will be printed for distribution. Copies with invitations to comment will be distributed to:

Governor, State of Arizona
Senator Paul Fannin
Senator Barry Goldwater
Representative Morris Udall
U.S. Forest Service (Supervisor, Coronado National Forest)
Southeastern Arizona Governmental Organization (SEAGO)
Bureau of Land Management, Arizona State Office
Arizona State Association of 4-Wheel Drive Club
Arizona Conservation Council
Southern Arizona Hiking Club
Audubon Society
The Wilderness Society
Sierra Club, Grand Canyon Chapter
National Parks Association
Nature Conservancy, Tucson, Arizona

- B. A notice of availability of the Backcountry Management Plan will be handled through news releases in the following:

- Arizona Daily Star, Tucson, Arizona
- Arizona Republic, Phoenix, Arizona
- Tucson Daily Citizen, Tucson, Arizona
- Douglas Dispatch, Douglas, Arizona
- Arizona Range News, Willcox, Arizona
- San Pedro News, Benson, Arizona

- C. Copies of the plan will be available at:

- Chiricahua National Monument
- National Park Service, Southern Arizona Group, Phoenix, AZ

- D. A notice of availability of park personnel for discussion of the Management Plan with groups will also be included in the news releases.

This phase to be completed by December 31, 1973.

Action Plan - 1974

The plan will be reviewed and revised by February 28, 1974 in light of the 1973 experiences and information received through public participation in 1973.

Improving visitor compliance regarding trail registration and regulations will be continued, the emphasis being placed on interpretive techniques and trail patrol.

Action Plan - 1975

This will be the same as the 1974 Action Plan with the following exception:

Present visitor use figures indicate needed improvement in sanitation procedures in 1975. This will occur at the present location of the pit toilet near the Heart of Rocks Loop. This improvement will be removal of the present facility and installation of a toilet, the type of which will permit wastes to be carried out. This action will be accomplished during the 1975-1976 fiscal year.

Future Management Plans and their Effects

At the present time there are two entrance points to all corridors except Sugar Loaf. Carrying capacity is not expected to reach the enforcement state (Plan A - see Appendix E) until 1978 on any corridor. It is therefore not anticipated that the two access points will create any problems until that time.

One of the park's management objectives is establishment of a public transportation system. There is no doubt that the carrying capacity of the road corridor will be exceeded before the trail carrying capacity is reached. This is especially true at the present 1% backcountry use rate. In order to increase the carrying capacity of the road corridor, a public transportation system is necessary to eliminate the critical factor to the park carrying capacity - the automobile.

A public transportation system is expected to have the following effects on backcountry use of the trail corridors:

- 1) It will allow control for trail corridor use to be applied at the Visitor Center by directly controlling the shuttle bus activity.
- 2) It will allow a one-way trail system to be applied to the present Heart of Rocks and Echo Canyon corridors without imposing a hardship on the visitor.

- 3) It will increase backcountry use as a percentage of the total park visitation. One of the present handicaps to backcountry use is the dependence on the automobile.

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APPENDIX A

THE ENVIRONMENT

LOCATION AND RANGE

Chiricahua National Monument in southeastern Arizona is bordered on three sides by National Forest lands. This impressive natural area derives much of its scenic beauty from the outstanding erosional features in a forested mountain setting 70 miles north of the Mexican border. The Chiricahua Mountains are an island-type biotic community separated from similar islands by an expanse of grassland and desert averaging 10 to 40 miles in width. This isolation began 10,000 years ago when a decrease in precipitation resulted in an upward movement of life zones and the formation of a desert grassland region. Most biotic types can no longer cross-fertilize with similar types in the next range due to isolation.

The basic rock type - Rhyolitic Tuff - plus extensive faulting and fracturing, followed by erosion has resulted in the formation of numerous pinnacles, spires, balanced rocks and isolated small mesas with little soil covering except in the drainage bottoms or on the larger mesa tops. The nature of the soil formed from the parent rock encourages rapid erosion. Plant establishment is slow.

BIOTIC COMMUNITIES

The 17 (10,646 acres) square miles which comprise the monument encompasses three life zones within which are found a rich variety of flora and fauna. The terrain may be arbitrarily divided into four biotic community types:

1. The Upper Sonoran Grassland community with its cactus-chaparral association is an area of short grass cover and is found only in a small southwestern part of the monument. Here at the lowest elevations near the entrance, rolling hills are commonly punctuated with sharp outcroppings of volcanic tuff. Roadrunner, badger, redtailed hawk, and jackrabbit are most frequently seen here.
2. The Riparian Woodlands of the moist canyon bottoms harbor a variety of plant life which in turn shelters a wide range of wildlife. In the dry stream bottoms of lower elevations, sycamores are commonly seen and javalina and mule deer abound. In higher portions, cool shady canyons support rich stands of Arizona cypress, Douglas-fir, mosses, and bracken ferns. Large numbers of birds seek refuge in protected areas such as Echo Park, Bonita Canyon, and the Silver Spur Ranch area.

3. The Pine-Oak Woodland is the predominant association found in the monument. It extends generally from the 5,400 to 7,000 foot level. The seven species of oak and five species of pine are found in close proximity in many areas, but the oak, with brushy ground cover, will tend to dominate the lower elevations, while pine occupies the higher slopes.
4. The Vertical Rock Zone stands in sharp contrast to the other three, yet it is also unique. It supports at least four species of lichens which are instrumental in the break-down of rock and soil formations. These steep, rocky cliffs all but preclude plant growth, but upon closer examination, small pockets of soil can be seen and annual plants and grasses soon establish themselves. Further avenues of erosion continue in a long line of succession. Attracted to this solitary domain are such bird species as the Golden Eagle, White-throated swift, and two species of wrens.

CLIMATE

Precipitation in the Chiricahua Mountains varies greatly according to elevation. At the 5,000-7,000 foot level, the average is about 18 inches per year. This moisture is bi-seasonal with the majority falling during July and August in the form of severe thunderstorms producing 1-2 inches per hour. During the winter, December and January are the two wettest months. Precipitation falling at this time may be snow or light rain, usually lasting one or two days. Run-off from rains and winter snow create temporary streams. A few small permanent springs seep the year around. Daytime temperatures average 80-90 degrees from May to September and 55-70 degrees from October to April. Freezing nighttime temperatures occur from October through May; the lowest temperature (1962-1971) was 4 degrees.

TOPOGRAPHY

Mountain peaks and ridges range to approximately 7,400 feet with an extensive network of canyons dropping sharply to 5,400 feet. A domed peak named Sugar Loaf dominates Chiricahua National Monument. Drainage from the eastern slope of the northern range of the mountains is diverted into Whitetail Canyon, while western drainage is largely carried by Bonita and Rhyolite Canyons. A network of trails provide access to these remote areas. Three major trails, Natural Bridge (2½ miles), Echo Canyon (4½ miles), and Heart of Rocks (7½ miles) serve as avenues to the more scenic places. Two fire trails and old wagon roads provide secondary routes in case of emergencies such as fires or rescue work.

APPENDIX B

BACKCOUNTRY USE

Recreational use falls into two main categories - daily use and overnight use. Current daily uses are hiking, horseback riding, and mountaineering, while overnight use revolves around backcountry camping. Other recreational activities such as skiing, snowmobiling, trail use by recreational vehicles, and fishing are limited or non-existent because of unsatisfactory natural conditions or regulations.

OVERNIGHT USE

In order to provide a backcountry camping experience of the quality outlined under the Wilderness Act of 1964 (Public Law 88-577) consideration must be given to durability of the Environmental Resources, amount of solitude available, and the degree of Physical Development necessary. Since ruggedness of the terrain confines 99% of backcountry use to a corridor of 50 feet along the trail network and the trails are maintained to a sufficient degree of "hardness" to withstand the majority of the impact, Resource Durability need not be a primary consideration. By the same token, this ruggedness of terrain creates a significant problem in relation to solitude since it concentrates use to a relatively small area. Topography limits the number of suitable camping sites to three on the Heart of Rocks Trail, one on Echo Canyon Trail, and three on the Natural Bridge Trail. Based on past studies, each camping unit or party on the average contains three people which leads to a figure of 21 people per day that may participate in overnight camping and still be afforded an outstanding opportunity for solitude. With these figures in mind as a carrying capacity, physical development need be limited to routine maintenance of already established trails and construction and maintenance of three additional toilet facilities.

DAILY USE

Daily use has nearly the same impacts and requirements of overnight use with the exception of the campsite requirement. Resource impacts are perhaps even lightened since there is no trampling effect on campsite vegetation or use of wood. The length of stay per recreationist is also less. Solitude or quality experience for a larger number of recreationists is a more realistic goal for daily use since hiking, the main form of daily use, implies a continuous movement or ordered flow of people through the backcountry. Although terrain would still limit use to within 50 feet of the center of the trail, spacing the hikers at $\frac{1}{4}$ -mile intervals insures the maximum degree of solitude by minimizing encounters between hikers. Taking into account the length of each trail, and the average amount of time required to complete each trail, the following ideal carrying capacity is derived: hiking parties can leave the trail

heads from 8 am to 2 pm on Heart of Rocks; 8 am to 3 pm on Natural Bridge; and 8 am to 4 pm on Echo Canyon for a total of 21 hiking hours. Allowing for $\frac{1}{4}$ mile separations between units, eight parties can leave per hour, 168 parties per day, providing they are distributed evenly on each individual trail. The Sugar Loaf Trail carrying capacity must be computed by applying different criteria. The interpretive capacity of the lookout station is the limiting factor on this trail. Past experience has shown the station is suited for use of six parties per hour, from 8 am to 5 pm. Therefore, total trail use capacity is 216 parties or 648 people per day. An exception to this carrying capacity figure would be guided walks since (1) those electing to accompany an interpreter are not necessarily interested in solitude, therefore human to human contact is not a limiting factor in carrying capacity and (2) the presence of a ranger/interpreter minimizes environmental impact (litter, removal of natural vegetation, etc.) thus increasing carrying capacity from an environmental standpoint. Physical development again, as in overnight use is necessary only to the extent that maintenance of the trail system and provisions for self-contained toilets are required. It should also be noted as visitation or use figures approach the carrying capacities, ranger trail patrols should also increase to insure minimum safety standards.

CONCLUSIONS

From this discussion of carrying capacities, it may be concluded that overnight use is less suited to management objectives than daily use. The Master Plan philosophy of providing the greatest amount of recreational opportunities for the largest number of people possible would be nullified by the adoption of a management plan based on the severely limiting carrying capacity for overnight use. Similarly, adoption of a split management plan including provisions for both daily and overnight use (i.e., allowing both activities but reducing each carrying capacity by half), would create frequent encounters between the two types of users and reduce respectively their wilderness enjoyment. Under provisions of the Wilderness Act, this would preclude management as a wilderness unit. Clearly then, with Master Plan documents and the Wilderness Act in mind, management as a daily use unit provides the optimum program.

APPENDIX C

MANAGEMENT ZONES

Topography severely limits access to the backcountry at all but the trail access points. At present, at least 99% of the backcountry use lies within the trail corridors. There remain certain portions of the monument which are accessible and can be utilized by visitors without approaching or using the trails. In addition, it seems reasonable to conclude that visitors at some time in the future will be using these trailless areas. We have therefore determined that two distinctive management zones are necessary. These are designated trail corridors and trailless areas. For discussion on enforcement of use, see Appendix E.

I. Trail Corridors

These management zones are defined as that portion of the backcountry area lying within 50 feet of either side of the center line of any established trail.

A. Heart of Rocks Corridor

Serves that area between Massai Point and the Visitor Center via the Heart of Rocks Trail. This includes the Massai Point connecting trail (Route #4), the Sara Deming Trail (Route #2), the Inspiration Point Trail (Route #8), the Heart of Rocks (Loop) Trail (Route #9), the SE Fire Trail (Route #14), and a portion of the Rhyolite Canyon Trail (Route #1). This corridor is used primarily (95%) on a one-way basis.

For maintenance purposes the total mileage of this corridor is 8.46 miles.

1. Carrying Capacity

The critical factor for carrying capacity was determined to be a distance separation of $\frac{1}{4}$ mile per party in order to insure the maximum degree of solitude. This factor is appropriate to the Heart of Rocks Corridor. The average hiking rate per party has been estimated to be two miles per hour. Given the above hiking rate and separation distance, the carrying capacity of the Heart of Rocks Corridor is eight parties per hour. There is an average of six hours of hiking time available (8 am to 2 pm) for this trail, giving a total of 48 parties or 144 persons per day.

2. Present Use

Although no accurate statistics are available, estimates indicate that the greatest daily use at the present time is approximately 15 parties per day. This use occurs approximately once a year.

B. Echo Canyon Corridor

Serves that area between the Echo Canyon Parking area and the Visitor Center. This includes the Echo Canyon Trail (Route #3) and the Rhyolite Canyon Trail (Route #1). This corridor is used primarily (95%) on a one-way basis.

For maintenance purposes the total mileage of this corridor is 4.22 miles.

1. Carrying Capacity

The critical factor was determined to be a distance separation of $\frac{1}{4}$ mile per party to insure the maximum degree of solitude. This factor is appropriate to the Echo Canyon Trail. The per hour carrying capacity of the Echo Canyon Corridor is eight parties per hour.

There is an average of eight hours hiking time available (8 am to 4 pm) for this trail, giving a total of 64 parties or 192 persons per day.

2. Present Use

Although no accurate statistics are available, estimates indicate the greatest daily use at the present time is approximately 25 parties per day. This use occurs approximately five days per year.

C. Sugar Loaf Mountain Corridor

Serves that area between Sugar Loaf parking area and Sugar Loaf Lookout. This includes Sugar Loaf Trail (Route #5).

This corridor is used primarily (99%) on a two-way basis only.

For maintenance purposes, the total mileage of this corridor is 0.92 miles.

1. Carrying Capacity

The critical factor was determined to be a distance separation of $\frac{1}{4}$ mile per party to insure the maximum degree of solitude. This factor is not appropriate to this trail. The trail is short; the destination point is the lookout where for four months of the year there is a lookout in residence; the lookout is also used as an interpretive station. For most of the length of the trail the road, cars, and parking lots are in view. It is also a two-way trail. It is impossible to achieve a maximum degree of solitude on this trail regardless of the separation distance. There is, however, another factor which is limiting. That is the number of parties that can enjoy the lookout at any one time as an esthetic as well as an educational experience. The interior of the lookout is small. All items considered, it seems that an average of six parties

arriving at the lookout per hour would be a maximum in order to provide a satisfactory experience to all visitors. The carrying capacity of the Sugar Loaf Mountain Corridor is six parties per hour.

There are an average of eight hours of hiking time available (8 am to 5 pm) for this trail giving a total of 48 parties or 144 persons per day.

2. Present Use

Limited statistics are available. A maximum of 20 parties per day hike this trail. This use occurs approximately five days per year.

D. Natural Bridge Corridor

Serves that area between the Natural Bridge Parking Area and the Natural Bridge Overlook. This includes the Natural Bridge Trail (Route #6) and the NW Fire Trail (Route #13).

This corridor is used primarily (95%) on a two-way basis.

For maintenance purposes, the total mileage of this corridor is 4.29 miles.

1. Carrying Capacity

For the Natural Bridge Corridor to provide the maximum degree of solitude, it is necessary that a $\frac{1}{2}$ mile per party separation be provided. This is because it is a two-way trail. There is another factor. The maximum number of cars the parking lot will hold is four. Assuming the round trip hike takes the average hiker three hours ($\frac{1}{2}$ hour to view the bridge) the total number of parties that could park per day would be eight (seven hours hiking time available, 8 am to 3 pm). For solitude, the maximum number would be four parties per hour or 28 parties per day.

The carrying capacity of the Natural Bridge Corridor is four parties per hour provided that at no time is the the four car capacity of the parking lot exceeded.

There is an average of seven hours of hiking time available for this trail, giving a total of 28 parties or 84 persons per day.

2. Present Use

No accurate statistics are available. It is estimated that the greatest number using the trail at present would be four parties per day.

II. Trailless Areas

The topography limits access to most trailless areas of the park. Where access is difficult it is not anticipated that use will be great enough based on present indications to warrant carrying capacity assignments. It should be watched, however. These are trailless areas which are accessible from the existing trail corridor system. Current use indicates that if carrying capacity restrictions are imposed on the corridors, this will also protect these areas from over-use for some time to come. This determination is also based on present use patterns.

Three trailless areas are worthy of consideration at this time, because access is difficult. Present use is extremely low (five parties per year). Use of these areas however could increase in the near future. The critical factor in managing these areas is solitude.

A. East Whitetail Trailless Area

Contained within the East Whitetail Trailless Area was at one time a telephone line and a road right of way used for east-west travel. The road was closed in the early 1950's, but the remaining road scar makes access easy. The telephone line has been abandoned.

1. Carrying Capacity

Of prime importance here is the solitude factor. Size of the area alone would limit use to not in excess of two parties in the area at any one time. The average length of use per party would be four hours. Generally this would mean four parties per day. However, since some may wish to stay longer, the carrying capacity of the East Whitetail Trailless Area is two parties at any one time.

2. Present Use

Present use consists of residents of East Whitetail Canyon hiking to the park about three times per year. These people are "hiking through." In addition, park employees use the old road scar as access to maintain the East Boundary once a year.

B. Garfield Peak Trailless Area

This area includes Garfield Peak and Erickson Ridge. This could be a popular off-trail hiking area. The critical factor would be solitude.

1. Carrying Capacity

The carrying capacity for this area is two parties at any one time.

2. Present Use

No statistics. Minimal use.

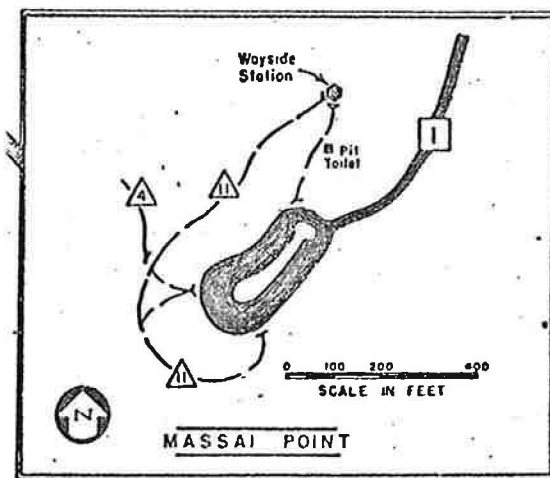
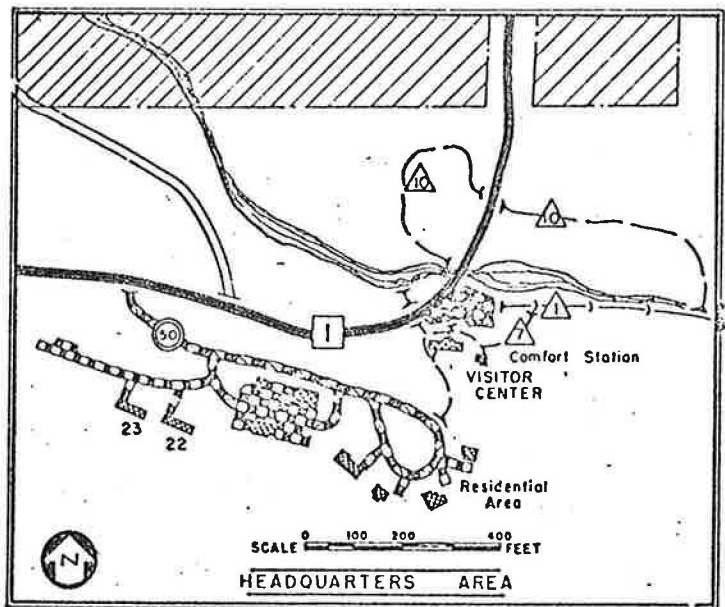
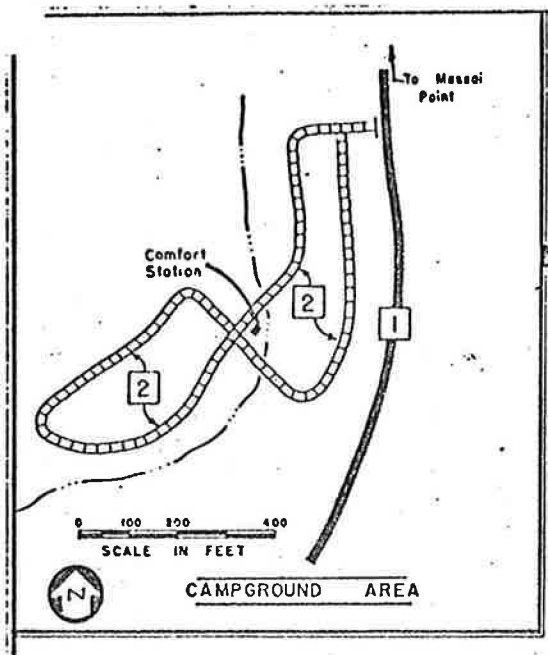
C. Jessee James Trailless Area

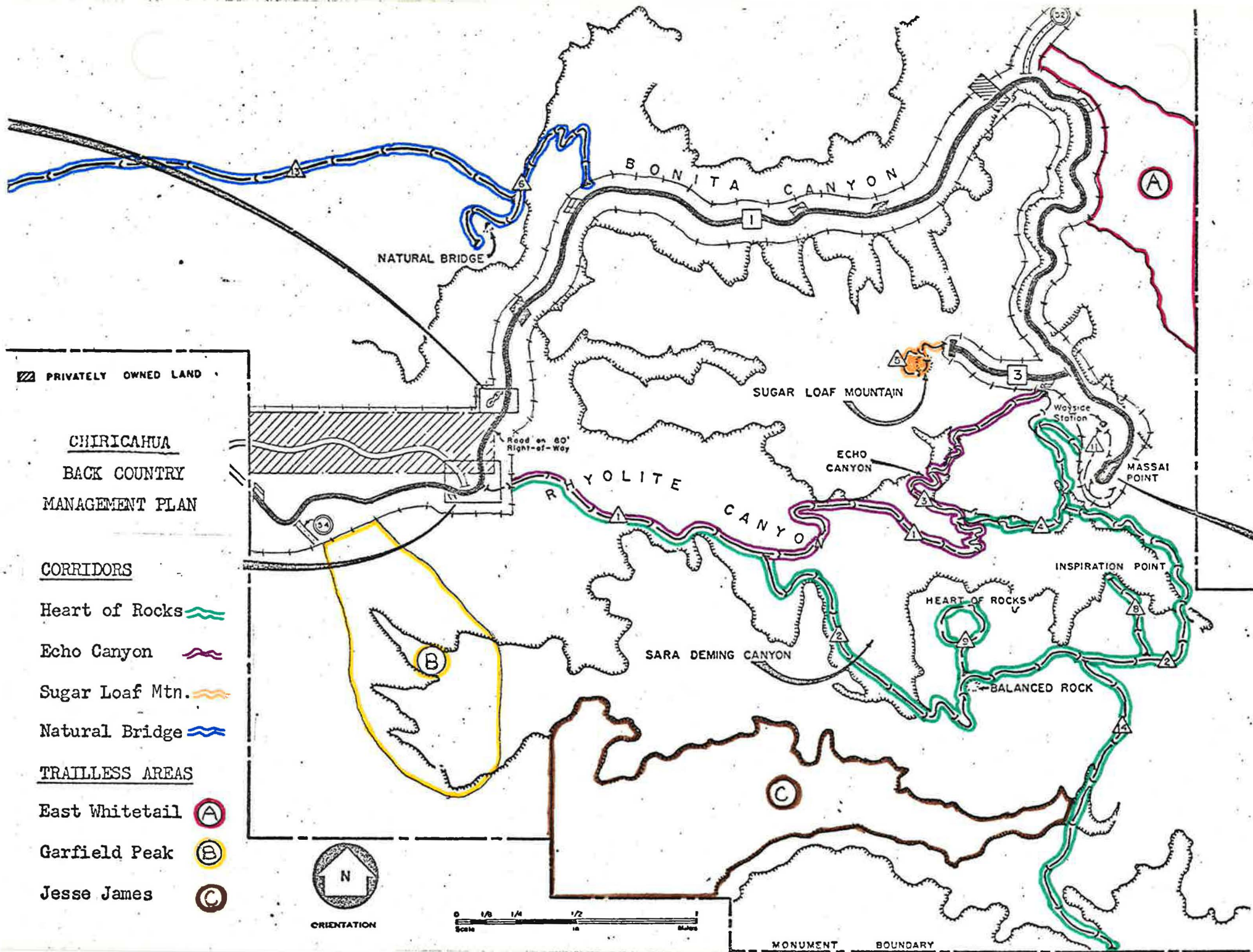
This area includes Jessee James and Little Jessee James Canyons from the SE Fire Trail Southwest to the park boundary. These are rugged, scenic canyons. Solitude is the critical factor.

1. Carrying Capacity
Two parties per day
2. Present Use
No statistics. Minimal use.

APPENDIX D

MAP





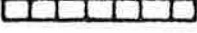
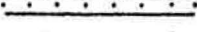
CHIRICAHUA NATIONAL MONUMENT
ROAD SYSTEM

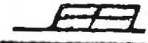
Ro. No.	Name	Termini	Type	Length Miles
<u>Primary</u>				
1	Entrance Road	West Bdry to Massai Point	Surfaced Mainline	6.90
			Surfaced Equivalent	0.09
			Graded Equivalent	0.17
			Surfaced Equivalent	0.07
			Based Equivalent	0.06
2	Campground Road	Rt 1 through Campground	Graded Mainline	0.45
			Graded Equivalent	0.16
3	Sugar Loaf Mtn Spur	Rt 1 to Sugar Loaf Mtn Pkg Area	Surfaced Mainline	0.70
			Surfaced Equivalent	0.04
			Total Primary Roads -	8.64
<u>Secondary</u>				
50	Res-Utility Area Road	Rt 1 to Res & Utility Area	Base Seal Mainline	0.32
			Base Seal Equivalent	0.16
52	North Patrol Road	Rt 1 to North Bdry	Primitive Mainline	0.50
54	Dump Road	Rt 1 to Quarry Dump Area	Graded Mainline	0.10
			Total Secondary Roads -	1.08
TOTAL ROAD SYSTEM MILEAGE -				9.72

<u>TRAILS</u>				
1	Rhyolite Canyon Trail	V.C. Pkg Area to Jets 3 & 4	Surfaced	2.61
2	Sara Deming Trail	Rt 1 to Rt 4	Surfaced	3.72
3	Echo Canyon Trail	Echo Cyn Pkg Area to Jet Rt 1 & 4	Surfaced	1.61
4	Massai Point Connecting Trail	Connects Rts 2 & 3 to Rt 11	Surfaced	1.92
5	Sugar Loaf Mtn Trail	Rt 3 Pkg Area to Lookout	Surfaced	0.92
7	Hdqtrs Walks	V.C. to Res & Utility Area Bldg	Surfaced	0.10
8	Inspiration Pt Trail	Rt 2 to Inspiration Pt	Surfaced	0.54
9	Heart of Rocks Trail	Rt 2 thru Heart of Rocks	Surfaced	0.84
10	Nature Walk	V.C. Pkg to Rt 1 to V.C.	Surfaced	0.26
11	Nature Walk	Massai Pt Pkg A to Wayside Shelter & Rt 4	Surfaced	0.40
			Total Surfaced -	12.92
6	Natural Bridge Trail	Rt 1 to Natural Bridge	Graded	2.35
13	Fire Trail	Rt 6 to NW Bdry	Graded	1.94
14	Fire Trail	Rt 2 to SE Bdry	Graded	1.44
			Total Graded -	5.73
TOTAL TRAIL SYSTEM -				18.69

ROAD SYMBOLS

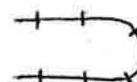
2 PRIMARY SECONDARY
(Secondary Symbols 2/3 width)

PAVED 
BASE SEALED 
PAVED 
ADED 
PRIMITIVE 

ROUTE & SECTION LIMITS 
PARKING AREA 

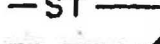
2

APPX. DEVELOPMENT
LIMITATION ZONE →



TRAILS

2

FOOT 
HORSE 
STOCK 
TRAIL TERMINI 

APPENDIX E

ENFORCEMENT OF USE

I. Trail Corridors

The following plans shall apply to each individual trail corridor:

Plan A: When use reaches 75% of day use capacity on more than ten days per year, trailhead enforcement shall become effective for all periods when trail use is expected to exceed 60% of the day use capacity.

At the present rate of use and a maximum of 10% increase per year, it is anticipated that Plan A will be required no sooner than 1978.

Plan B: When use reaches 90% of the hourly capacity on more than 20 days per year, trailhead enforcement shall become effective for all periods when trail use is expected to exceed 80% of the hourly capacity. At the present rate of use and a maximum of 10% increase per year, it is anticipated that Plan B will be required no sooner than 1980.

II. Trailless Areas

When day use exceeds the carrying capacity on more than ten days per year, required registration shall be effected. This would take effect no sooner than 1978.

Refer to Appendix K, Resource Requirements Data for patrolling, etc.

APPENDIX F

FUNDING

I. Trail and Resource Maintenance

Funding of trail maintenance shall be in accordance with the Resources Requirements Data. Funding of Resource Maintenance shall be in accordance with the Resources Requirements Data and the Resources Management Plan.

II. Wilderness and Backcountry Use (Activity Standards)

Resources Requirements Data for this activity are appropriate to this plan and indicate the following:

Standard	98 M.D. required	\$3,800
Existing	23 M.D. "	\$1,200
Deficiency	75 M.D. "	\$2,600

In order to carry out this plan at Standard, an additional 75 Man Days and \$2,600 is required above present funding.

III. Carrying Capacity Enforcement

See Appendix E. Until such time as Plan A is placed into effect, carrying capacity enforcement is considered an operational item and is incorporated into the Resources Requirements Data for wilderness and backcountry use.

Plan A: When Plan A is placed in effect an additional estimated 0.5 M.Y. of employment will be required. By 1978, the earliest this plan will go into effect, it is anticipated that the total cost will be \$9,000 per year.

Plan B: When Plan B is placed in effect it will require 1.0 M.Y. of employment. By 1980, the earliest this plan will go into effect, it is anticipated that the total cost will be \$22,000 (i.e., an additional \$13,000 over Plan A).

APPENDIX G

LEGISLATION

The existing legislation (see Administrative Policies - Natural Areas, and Legislative History - Chiricahua) is sufficient to carry out the requirements of this Management Plan.

APPENDIX H

REGULATIONS

CFR Title 36 covers most of the required regulations needed to enforce this Management Plan.

Additional regulations required are as follows:

- I. A specific regulation authorizing the superintendent to establish carrying capacities associated with the management of the area and making it a violation to enter an area closed as a result of conforming to the established carrying capacities.
- II. A special regulation prohibiting the building of campfires except in Bonita Campground.*
- III. A special regulation prohibiting dogs, cats, and other pets in any designated backcountry area.*
- IV. A special regulation requiring registration prior to entering a trailless area.

*General regulations cover these items, but are too broad to enforce.

APPENDIX I

ADDITIONAL MANAGEMENT DATA

GENERAL

Cross-country off-trail uses are not significant. This is the result of the ruggedness of the terrain and the satisfactory coverage provided by the existing trail system. Non-trail related activities are therefore not considered significant at this time.

SECONDARY RECREATIONAL USES

Picnicking: Picnicking is compatible with most of the other types of recreational uses. No special developments or provisions are required to provide backcountry picnicking opportunities. Picnicking is mentioned only because of the management problems posed by the litter that is associated with it.

Horseback Riding: At present there is an average of 40 horse use days per year. Most of this use is represented by one organization. In the past, horseback use accounted for about 100% of the park use. At present horseback use is considered equivalent to foot use on the following basis: 2 horses = 1 party. If this activity increases to more than 200 horse use days per year, capacity figures should be determined and an enforcement plan established. Under no conditions should daily horse use for one corridor exceed the carrying capacity figure for parties as adjusted.

Mountaineering: This activity has not been popular, probably due to the small size of the area coupled with the satisfaction with the trail network. There are some conditions under which climbing must be restricted in order to protect natural geological features. Because of the hazards of rock fall, it could only take place more than $\frac{1}{4}$ mile from any road, trail, or public use area.

The general nature of the rock (average to poorly welded tuffs) makes it less enjoyable and more hazardous for climbing than other rock types. Considering all factors, climbing and other off trail use would have to be restricted to a registration system on an individual approval basis.

Motorized Vehicle Travel: Under present regulations, motor vehicles are not permitted in the backcountry. Since 98% of the backcountry is being considered for wilderness designation, motorized vehicle travel would also be prohibited under the Wilderness Act.

Whether prohibited or not, motorized vehicle travel would be extremely costly to manage. The nature of the soil, the grades and terrain make the area extremely sensitive to erosion. Expense in offsetting the erosional results would be prohibitive.

Photography: An extremely variable activity which most often is associated with other recreational activities. It presents no conflict with other types of recreation.

Exercise: In itself there exists no conflict with other purposes. Methods of exercise, as limited by the terrain, present no apparent conflict.

Interpretation: A recognized and high priority activity. Methods of interpretation will remain consistant with this plan while at the same time, attempting to reach as many park visitors as possible.

Esthetic Uses: As in the case of the recreational uses, esthetic uses are dependent on access (hiking, etc.). The uses would involve conflicts with other forms of use. The feeling of solitude or wildness is related to other recreational uses and numbers of people in general in inverse proportions.

Wildlife observations too, are related to other recreational uses in inverse proportions. Sightseeing is in the same category as solitude and observations. None of the above have adverse impacts, but they do conflict with other uses.

Research: Personal research is generally associated with either recreational or esthetic uses. The regulations governing areas of the National Park Service would preclude research which would affect the environment in any way. Personal research then is limited to observation.

Institutional research is a recognized activity. It places conflicting demands on backcountry use in that it may introduce unusual numbers of people for unusually long periods, or it may cause a destruction of the environment to the detriment of other uses. This research must be considered on an individual basis and the carrying capacity figures adjusted during the activity period.

APPENDIX J
USE STATISTICS

(Compilation of Use Statistics in progress)

APPENDIX K
RESOURCE REQUIREMENTS DATA

(see attachments)

AREA: Ch ahua NM
 DATE: 8/71

COST ACCOUNT: Management & Recreation A ities
 WORK ELEMENTS: _____

APPENDIX K
RESOURCE REQUIREMENTS DATA

Park Activity Standards	Season of Year	Workload Factors	Required to meet Standards	Adjustments
Campground and Picnic area Mgt. (see Law Enforce- ment)	May 1-Sept. 30	29,000 visitors 8,000 campers 7.5 miles visitor use rd	Patrol on foot $\frac{1}{4}$ of all visitor use trails . each day to provide information check, correct, or report hazards and render assistance as required. Intermittent back country patrol of trails.	60 M.D.
Wilderness and back country use		17 miles high standard visitor use trails	Training, search and rescue, fire, etc.	17
Motor vehicle traffic control (see Law Enforce- ment)		3.5 miles other trails 1 Visitor Center	Search and rescue	4
Search and rescue		36 unit campground	Structural fire control, training, super- vision, planning and external affairs for above activities	48
Recreation fee collection (see interpretation)		22 structures	Leave	13
Structural fire protection				
Public health and safety (See law enforcement)				
Boundary survey				
General				

AREA: Cl ahua NM
 DATE: 5/71

COST ACCOUNT: Management & Recreation A ties
 WORK ELEMENTS: _____

APPENDIX K
RESOURCE REQUIREMENTS DATA

Park Activity Standards	Season of Year	Workload Factors	Required to meet Standards	Adjustments
Campground and Picnic area (see law enforcement)	Oct 1-Apr 30	25,000 visitors 4,000 campers	Foot patrols on heavily used trails. 1 trip/month over whole system, provide information and assistance as needed	38 M.D.
Wilderness and back country use		7.5 miles of visitor use roads	Structural fire control, presuppression training, planning and reports, external activities	54
Motor vehicle traffic control (see law enforcement)		17 miles high standard trails	Fire inspections	10
Search and rescue		3.5 miles other trails	Boundary patrols	12
Recreation fee collection (see interpretation)		22 buildings and structure		
Structural fire protection		Safety and Fire hazard inspection annually		
Public health and safety (see law enforcement)		36 campground units		
Boundary				
General				

STANDARDS ARY
TRAILS PORTION
ROADS AND TRAILS
CHIRICAHUA

OPERATING PROGRAM [Deficiency to be incorporated into 10-237]

	<u>Standard</u>	<u>Existing</u>	<u>Deficiency</u>
<u>Funding</u>	\$16,571	\$16,141	\$430
<u>Personnel</u>			
Permanent			
Maintenance Supervisor [WS] [1]	64 Man Days	64 Man Days	0 Man Days
Temporary			
Work Leader [1] WE	130	0	130
Laborers [2]	<u>245</u>	<u>361</u>	<u>+116</u>
TOTAL	440	425	14
<u>Specialized Equipment</u>			
Power Wheelbarrow [1]	1	1	0
Pickup Truck [4 months]	1	0	1

Construction Requirements [To be incorporated into 10-238]

Construction to bring trails up to maintainable standards.
This means up to the level which existed after original
construction. Day Labor over a three year period \$11,700/year

\$35,100

CHIRICAH
STANDARDS S. BY
TRAILS PORTION
ROADS AND TRAILS

ELEMENTS	SEASON	STANDARD		EXISTING		DEFICIENCY			
		MAN DAYS	MONEY	MAN DAYS	MONEY	MANDAYS	% **	MONEY	% **
GRADED S SURFACES	YEAR *	167	5,470	156	5,325	11	93	145	97
DRAINAGE	YEAR	122	4,001	118	3,851	4	97	150	96
GROUNDS	YEAR	8	300	8	300	0	100	0	100
TRAILS STRUCTURES	YEAR	60	2,355	62	2,355	+2	103	0	100
SNOW & ICE REMOVAL	YEAR	4	201	3	159	1	75	42	79
SIGNS	YEAR	6	279	6	279	0	100	0	100
PUMP SUM LEAVE	YEAR	19	665	19	665	0	100	0	100
TRAINING SAFETY	YEAR	10	400	10	400	0	100	0	100
SUPERVISION PLANS, TRAIN.	YEAR	43	2,900	43 ⁵³	2,807	0	100	93	97
SUMMARY		440	16,571	425	16,141	14	97	430	97

* Trail work can only be done May 1 - Sept 30 except for planning
 ** % of Standard

AREA: Chiricahua National Monument
DATE: 8/71

COST ACCOUNT: Roads and Trails
WORK ELEMENTS: Trails

RESOURCE REQUIREMENTS DATA

Park Activity Standards	Season of Year	Workload Factors	Required to meet Standards	Adjustments
Graded Surfaces	May 1-Sept 30	1/2 miles Self Guiding Nature Trail 14 miles of top grade trails. 9 separate trails 12,000 visitor trail miles Material for trail tread must be hauled 0-1 mile for 1 mile of above trails 19" of rainfall annually Average of 2 storms depositing more than 1" per hour 4 mile walking distance to reach farthest point on system 20 minute drive to reach farthest trailhead Weather conditions preclude working other than this period of year Rodents digging on trails Use is by foot with occasional horseback party Most of the trails are located in proposed wilderness areas which will preclude use of motorized equipment for maintenance	Remove fallen rock, fallen trees, level surfaces, replace surface material, rake at beginning of spring each year. <u>14 mandays</u> Rework 1/3 of trails each year. <u>143 mandays</u> Repair 1 major washout per year resulting from heavy rain. <u>10 mandays</u>	

DATE:

Curicahua National Monument

8/71

COST ACCOUNT:

Roads and Trails

WORK ELEMENTS:

Trails

RESOURCE REQUIREMENTS DATA

Park Activity

Standards

Season of Year

Workload Factors

Required to meet Standards

Adjustments

Supervision, training

Annual

Supervision of Trails
programSupervision, planning, program overview,
train-ing 18 mandaysSpecialize equipment and other facility
Power wheel barrow [1]
Pickup Truck [1 - 4 months]

AREA: Chiricahua National Monument
 DATE: 8/71

COST ACCOUNT: Roads and Trails
 WORK ELEMENTS: Trails

RESOURCE REQUIREMENTS DATA

Park Activity Standards	Season of Year	Workload Factors	Required to meet Standards	Adjustments
Drainage		6,496 water bars or de-version ditches 600' rock lined drainage ditches Lack of vegetation causes high ratio precipitation to run off.	Open drainage ditches and bars each spring Check and reopen after each heavy rain. <u>112 mandays</u> Repair 1 major washout each year resulting from down pour <u>10 mandays</u>	
Right of way grounds		28 miles of trailside exposed to visitor erosion and erosion as a result of trail construction and related work	Hazard tree and limb removal, inspection seeding, fertilizing, replanting, transplanting, pruning vegetation control, along 28 miles of trail requires <u>8 mandays</u> .	
Trail Structures		1 foot bridge 1 bridge rail 200' pole fencing 100,000 square feet of retaining walls 1 tunnel 18' long	Maintain all trail structures as originally constructed <u>50 mandays</u> Repair or replace 1 major washout per year <u>10 mandays</u>	
Snow and Ice removal			Remove snow and ice and sand 100 yards of trail from parking lot to exhibit building <u>4 mandays</u>	
Signs		9 routed signs	Repair annually and replace 1/3 of signs each year <u>6 mandays</u>	
			Training of employees, safety, reading etc. <u>10 mandays</u>	
			Annual Leave, lump sum temporary <u>19 mandays</u>	