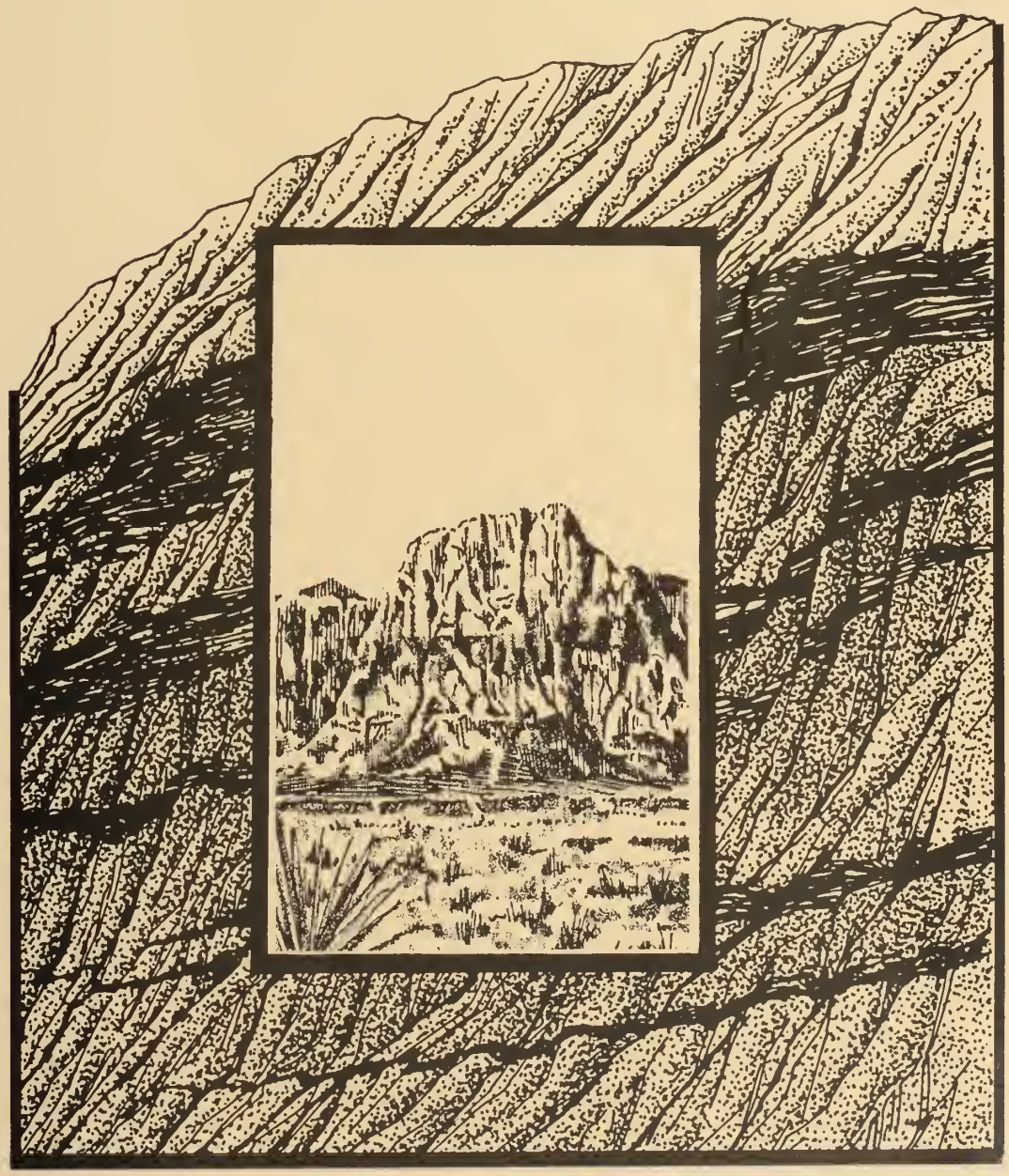
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Las Vegas District
4765 Vegas Drive,
Las Vegas, Nevada 89126

APRIL 1994

PROPOSED
General Management Plan and
Environmental Assessment for
Red Rock Canyon National Conservation Area



BLM Mission Statement

The BLM is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield of our Nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation; rangelands; timber; minerals; watersheds; fish and wildlife; wilderness; air; and scenic, scientific and cultural values.

BLM/LV/PL-94/007+8300

Reader Notices

This document is a combination of two documents - 1) the Proposed Red Rock Canyon National Conservation Area General Management Plan (GMP) and 2) an Environmental Analysis (EA) of the Proposed GMP and Alternatives. Following public review of the Proposed GMP, a Final GMP will be published for public and agency use. The EA will not be reprinted unless the Final GMP actions differ from those already analyzed in one of the alternatives requiring the preparation of a new EA. Because of the temporary nature of this document a decision was made to print it inexpensively on standard stock without color photos. Please recycle this document when you are done with it.

Congress is currently considering a Red Rock Canyon NCA expansion proposal introduced as H.R. 3050 by Congressman Bilbray. A hearing on this bill was held by the House Subcommittee on National Parks, Forests and Public Lands on March 8, 1994. Should this legislation become law, the added lands would need to be included in the GMP also. Should this occur prior to approval of this document as the Final GMP, this document will be completed as an "Interim Final GMP" giving management direction for the lands currently in the NCA and a GMP Supplement prepared to provide direction for the added lands. Eventually both documents would be combined into a "Final" GMP.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Red Rock Canyon National Conservation Area
4765 Vegas Drive
P.O. Box 26569
Las Vegas, Nevada 89126

TAKE PRIDE IN AMERICA

In Reply Refer To:
GMP (RRCNCA)
(NV-056)

Dear Reader,

This document contains the Red Rock Canyon National Conservation Area (NCA) Proposed General Management Plan (GMP) and the Environmental Analysis of the Proposed Plan and Alternatives. The Proposed GMP has been developed in accordance with the provisions of Public Law 101-621 which designated Red Rock Canyon as a National Conservation Area and required the preparation of a General Management Plan for the area. This plan replaces the Red Rock Canyon Recreation Lands Master Plan of 1976.

A 60 day comment period is being held from May 1, 1994 to June 30, 1994 to receive public comment on the Proposed Plan. During this period two open houses and one public hearing have been scheduled as follows:

Open houses	May 11, 1994	4 PM to 9 PM
	May 14, 1994	4 PM to 9 PM
Public Hearing	May 25, 1994	7 PM to 9 PM

The open houses will be informal sessions allowing the public to discuss the Proposed Plan with NCA staff specialists and receive clarification on issues of concern. The hearing will be a formal process with each individual afforded 3 minutes to testify and all testimony will be recorded by a court reporter. Written comments will also be included as part of the hearing record if received within 30 days of the hearing. All sessions will be held at the BLM District Office located at 4765 Vegas Drive, Las Vegas, NV.

Individuals wishing to testify at the hearing are requested to notify Gene Arnesen (702-647-5000) prior to May 24, 1994.

Please contact Gene or myself at anytime for clarification of items in the Proposed Plan. We look forward to your comments on this plan.

Dave Wolf
Conservation Area Manager

Manager's Introduction

The Red Rock Canyon National Conservation Area (NCA) is one of the "crown jewels" of the public lands managed by the Bureau of Land Management and it provides a wide variety of opportunities for residents of and visitors to Las Vegas.

In 1994 or 1995, for the first time, the NCA will welcome over a million visitors in a single year and visitor numbers continue to increase. Repeat visitors comment that the area looks better now than they remember it ten or fifteen years ago and having worked here in 1977 and 1978 I would agree with them. However, this level of management did not come without costs and lost opportunities including the need for a larger staff, additional Law Enforcement Rangers, construction of a Visitor Center and expanded Scenic Drive, and gating of the Scenic Drive to control access and to reduce vandalism and resource damage.

Increased visitor use has created challenges among which are under-designed parking lots, a Visitor Center with inadequate parking and old exhibits, a lack of developed trails resulting in numerous user-created paths, facilities not designed for visitors with disabilities and overuse of existing facilities. With increased visitation has come new or increased uses. The Scenic Drive has become even more popular with walkers, joggers and bicyclists as the city grows closer. Rock climbing, unknown in Red Rock until the late 1970s, is a major activity. Horse users and mountain bicyclists have discovered that the trails and old roads make great rides.

This General Management Plan (GMP) will update the planning decisions from the 1976 Red Rock Canyon Master Plan. This GMP does not signal a shift away from or reverse the management direction provided by the 1976 Master Plan. While some past decisions have been modified or eliminated, others have been embraced and carried forward into the new GMP.

This continuity of management is appropriate for three reasons: 1) the mission statements for the Recreation Lands and the NCA are very similar, 2) the NCA's geography and existing facilities limit many management options and 3) the public's varied uses of the area are, and will continue to be, the major use to be managed.

During a public workshop the comment was made that NCA designation ended the era of management emphasis on recreation use in favor of conservation. I do not believe that a major shift in emphasis should be expected nor that past management favored recreation over other values. Natural resources will continue to receive the protection they have always received and visitor numbers will continue to increase. Both can be accommodated.

In a broad sense nearly all visitor use to the NCA is "recreation" of one form or another. With national recognition now given to the area, visitor numbers may grow at an even greater rate. Although the NCA legislation promotes increased emphasis on cultural, scenic, wildlife and other resources, the primary focus of this GMP (and BLM's daily efforts) will be people management in order to protect natural resources.

The GMP is divided into three sections; 1) Planning Process, 2) the Plan, and 3) an Environmental Assessment of the Proposed Plan and Alternatives.

Section 1 - The Planning Process

This section describes the process of developing the plan and the plan's objectives. It contains a discussion of the Planning Issues which were developed using comments received during the scoping process, public meetings and workshops.

Section 2 - The Plan

This section is the proposed management plan for the NCA. It contains a description of proposed actions to be implemented in response to the Planning Issues. Also, this section provides direction for resource management and "administrative" activities such as cultural resources, interpretation, wildlife, fire, law enforcement and recreation. Actions in the proposed plan which could impact the NCA's natural resources are analyzed in Section 3, Alternative B.

Section 3 - Environmental Analysis of the Proposed Plan and Alternatives

This section analyzes the impacts of the proposed plan and three alternative plans. Alt. B is the Preferred Alternative/Proposed Plan. The other alternatives offer a range of choices from greater to lesser development and intensity of use.

A basic theme in the GMP is that if new developments are required to manage human use and/or protect resources, they should be located where developments already exist, and the least developed areas should remain undeveloped. The proposed plan divides the NCA into management zones with a description of the desired management conditions for each zone and describing what, if any, facilities should be provided to control, direct or facilitate human uses while providing continued protection to natural resources.

The GMP includes plans for interpretation, facilities, cultural, wildlife and recreation as required by the Act which established the Conservation Area. The treatment of each of these subjects varies due to the complexity of the subject and the interrelationship between program areas (see Background, page 2).

I appreciate your continued interest in Red Rock Canyon NCA and welcome your comments on this proposed plan. Following a review of comments received, the proposed actions will again be reviewed and changes made if necessary. A final plan will then be completed and forwarded to Congress as required.

David Wolf
NCA Manager

General Management Plan Table of Contents

THE PLANNING PROCESS

INTRODUCTION AND OBJECTIVES

This General Management Plan (GMP) is intended to provide overall management guidance for the Red Rock Canyon National Conservation Area (NCA) consistent with the Congressional intent included in the legislation designating the NCA (P.L. 101-621). The Congress's intent was expressed in the legislation as follows - "In order to conserve, protect and enhance for the benefit and enjoyment of present and future generations the area in southern Nevada containing and surrounding the Red Rock Canyon and the unique and nationally important geologic, archeological, ecological, cultural, scenic, scientific, wildlife, riparian, wilderness, endangered species and recreation resources of the public lands therein contained, there is established the Red Rock Canyon National Conservation Area.". This GMP updates the 1976 Red Rock Canyon Recreation Lands Master Plan and should have a life span of fifteen to twenty years before a major update and/or revision is necessary.

The objectives of this GMP are -

1. Protect and conserve the natural resources within the Red Rock Canyon National Conservation Area in order to maintain the unique scenery and fragile desert ecosystems.

2. Protect and enhance wildlife, vegetative and riparian resources, with particular emphasis on the habitat for desert bighorn sheep and threatened and endangered species such as the desert tortoise.

3. Protect cultural resources within the NCA. but also allow for visitor education and enjoyment of the historic and archaeologic sites.

4. Provide a variety of recreational opportunities, consistent with the legislation designating the NCA, to meet present and future needs.

5. Improve visitor services including interpretation, information and safety.

6. Manage wild horses and burros at a level compatible with the natural resources in the NCA, and provide for both visitor and burro safety along paved roads.

Readers will find a great similarity between this GMP and the 1976 Master Plan. Most of the major elements of the 1976 Plan are compatible with managing the area as an NCA and have been carried forward as valid existing management. A few items though, such as the campground at the mouth of Oak Creek, now seem inappropriate and have not been carried forward.

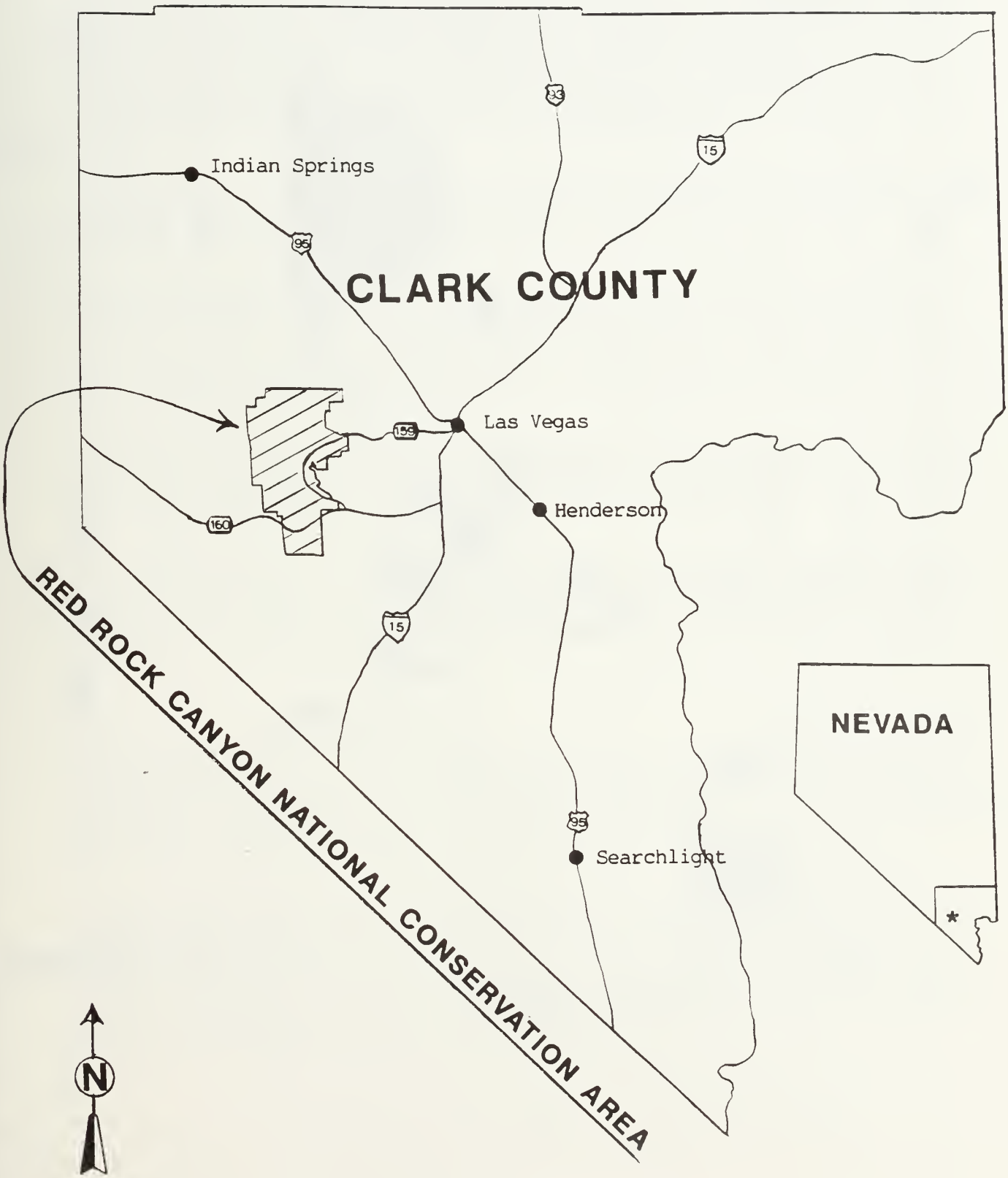
The GMP provides broad management guidance for the NCA. While decisions will be made for some issues, other items will be adopted in concept with further detailed plans prepared as actions and engineering designs are initiated (such as exact trail locations). This GMP provides the flexibility to add new actions not now envisioned or proposed and to adapt to changing conditions. This is the intent behind the use of a Management Emphasis Area (MEA) "zoning" system to provide a framework to reflect management intent. Since it is neither possible nor desirable to try to list every proposed action for the next twenty years, a zoning system which provides a description of the environmental conditions and managerial setting to be maintained provides the necessary flexibility to incorporate or reject new ideas or uses as environmental conditions change and new user demands arise.

This document is divided into two sections, 1) the Proposed General Management Plan and 2) an Environmental Analysis of actions included in the Proposed GMP and alternatives. Readers will find proposed actions listed in several sections. In the Proposed GMP, the sections on Standard Operating Procedures and program specifics (eg. Interpretation, Fire) also contain action items. In the Environmental Analysis, actions common to all alternatives are included in Management Common to All Alternatives while actions which differ by alternative are discussed under each alternative.

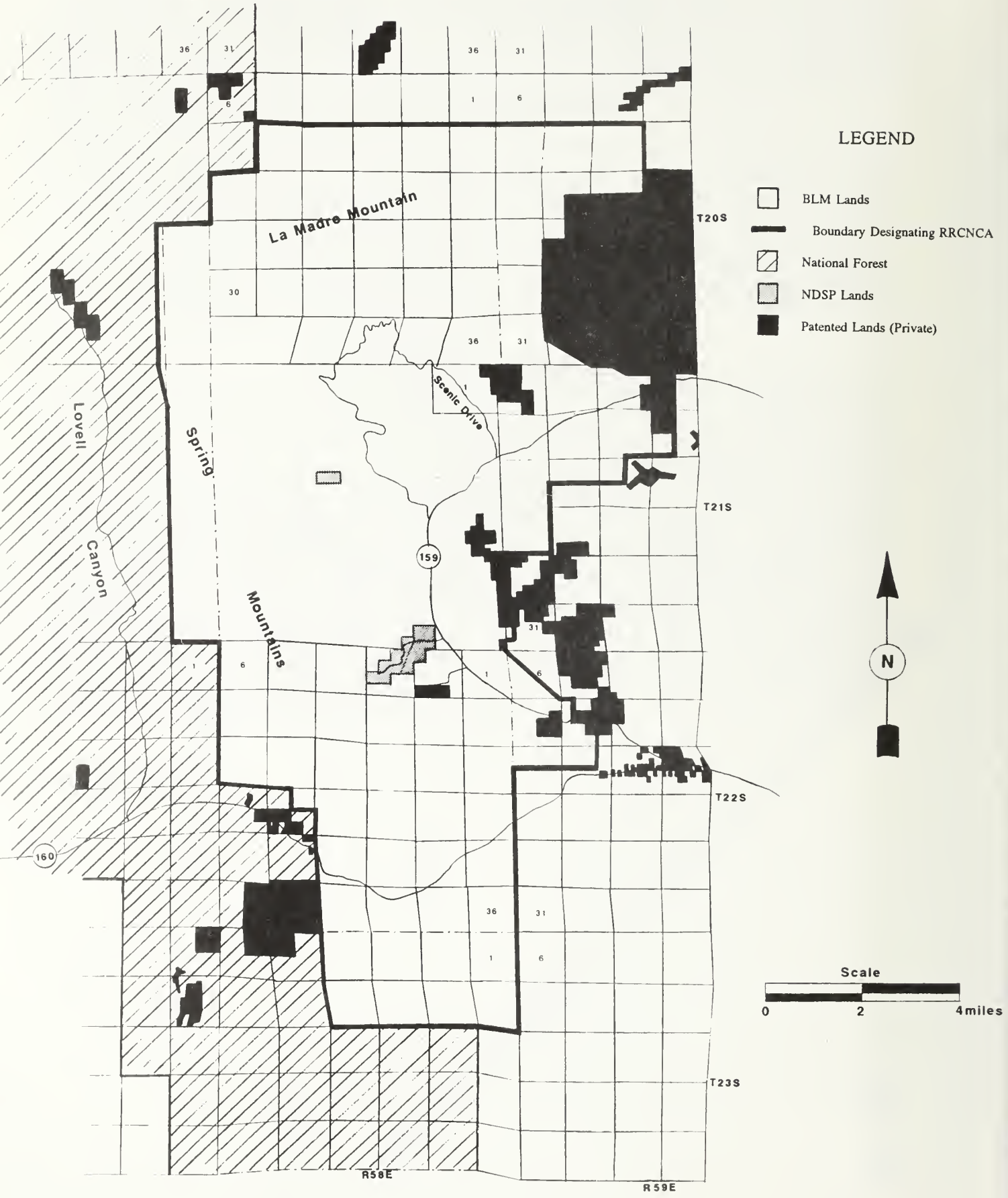
This document is in conformance with the Clark County Management Framework Plan (MFP) and the Federal Land Policy and Management Act (FLPMA). This document also satisfies the requirements set forth in the Red Rock Canyon National Conservation Area Establishment Act which requires plans for interpretation and public education, facilities, cultural resources, wildlife and recreation management. However, there has not been an individual plans prepared for each of these subjects. That would lead to confusion and the inability to analyze all proposed actions as a whole rather than in small disjointed pieces. Additionally, this kind of specific divisions would lead to the GMP becoming an umbrella sixth plan including all other resource issues (wild horses and burros, water and riparian management, mineral management, vegetation, land use permits, air quality, fire management).

The continuing program of interpretation and public education continues the program outlined in the 1986 Red Rock Canyon Interpretive Plan and was the easiest of the five listed subjects to separate out in an individual section although it relies heavily on cultural resources and wildlife for its subject matter. The other subject areas are so interrelated that separating them into individual sections (or plans) might confuse the reviewer and mask the total picture of the actions and decisions proposed. Camping decisions include both the management designations (Recreation Management) and facilities (Public Facilities). Recreation Management includes recreation use decisions and limits as well as facilities needs (roads, trails, buildings) and wildlife considerations. Wildlife was the hardest of the listed subjects to demonstrate a "plan" for. There are a number of things that are proposed to be done that will benefit wildlife but they are not specific wildlife management actions. Instead, they are people management, facility location, wild horse and burro removals, or riparian protection actions that also benefit wildlife. In trying to develop an action plan to address wildlife it became apparent that controlling people was the primary issue not a need for wildlife habitat improvements, transplants or other manipulative measures. The "traditional" wildlife issues/conflicts such as livestock grazing, mining or land disposal do not occur within the NCA. Where specific wildlife management actions have been listed, they focus primarily on special status species. This GMP has been prepared as an integrated multi-resource plan describing the appropriate uses and development of the conservation area consistent with the purposes of the Act.

VICINITY MAP



LAND STATUS


LEGEND
BLM Lands
Boundary Designating RRCNCA
National Forest
NDSP Lands
Patented Lands (Private)
La Madre Mountain
Scenic Drive
Spring
Mountains
Lovell
Canyon
159
160
T20S
T21S
T22S
T23S
R58E
R59E
N
Scale
0
2
4miles

BACKGROUND

History

The Red Rock Canyon (RRC) area has long been recognized for its scenic, scientific and recreational values. In 1964, as part of the Classification and Multiple Use process, the Bureau of Land Management (BLM) placed 10,000 acres in RRC in protective withdrawal status. The following year, the Nevada State Outdoor Recreation Master Plan recognized Red Rock Canyon as high priority for protection and development for recreational purposes. These two concepts have remained consistent throughout the planning and management of the area over the years, with the emphasis of this plan being conservation and protection of the natural resources and providing recreational opportunities consistent with the protection of natural resources.

In October of 1967, RRC was designated as a Class 1, High Density Recreation Area under the Bureau of Outdoor Recreation classification system. With this designation came the title Red Rock Canyon Recreation Lands (RRCRL). RRCRL consisted of 62,000 acres.

In 1968 the Nevada Division of State Parks (NDSP), in cooperation with the BLM, developed a Master Plan for RRCRL, and the two agencies signed a cooperative management agreement the following year. In 1972 a hold was put on any management actions until an Environmental Impact Statement (EIS) could be prepared. The final EIS was filed in 1975. With the completion of the EIS, another Master Plan was prepared adhering to the guidelines set forth in the EIS. The Plan was completed in 1976 and has been the governing document for RRC the last 17 years.

The NDSP and BLM entered into another cooperative agreement in 1981. With this agreement, the NDSP was responsible for managing recreation in the southern portion of RRCRL (17,000 acres) and the BLM managed the remaining resources. The agreement is still in effect today, although the 1700 acres has been reduced to the area in the immediate vicinity of Spring Mountain Ranch State Park.

In 1990, Congress passed the Red Rock Canyon National Conservation Area Establishment Act. With the passage of this Act, RRCRL became Red Rock Canyon National Conservation Area (RRCNCA) and the boundary expanded to 83,100 acres. The new legislation directed that a General Management Plan (GMP) be developed for RRCNCA, based on the guidelines set forth by the new legislation.

Setting

Red Rock Canyon is located in Clark County, Nevada approximately 15 miles west of the city of Las Vegas. It is bordered on the west by the Spring Mountain Range and by the La Madre Mountains to the north. Presently the Red Rock Canyon National Conservation Area consists of about 83,440 acres due to the acquisition of inholdings through exchanges, which increased the total size by an additional 340 acres. There is also a proposal before Congress to expand the NCA by an additional 93,090 acres.

RRC has long been a popular location for public recreation and leisure due to unique geological and ecological characteristics occurring in a natural setting so close to a major population center. The geologic features of the area includes an abundance of limestone and sandstone formations, including unique features such as older limestone covering and protecting younger and less weather resistant sandstone. The result is a 3,000 foot escarpment running north-south along the west side of RRC. Sandstone formations within RRC are colorful and include many shades of red, brown, buff and gray. Weathering has added form and texture, including potholes, domes and arches.

Water is not a plentiful resource, but due to the past geologic fault activity and the permeable strata, RRC contains over 40 springs as well as many tinajas (natural catchment basins). This creates a reliable source of water for wildlife, provides some unique ecological environments and allows for higher concentrations of plants and animals than can be found in the surrounding Mohave desert.

RRC also offers a wealth of cultural resources from both historic and prehistoric eras. To date, studies have shown the presence of human inhabitants as early as 3500 B.C. and possibly as early as 10,000 B.C. Some of the cultural resources include shelter caves, roasting pits, rock art (petroglyphs and pictographs) and a portion of the Spanish Trail.

Potential NCA Expansion

Legislation has been introduced in Congress to expand the NCA to include approximately 94,000 additional acres of BLM administered lands. Most of the proposed expansion lies north of the current NCA boundary and includes the lower reaches of Kyle, Lucky Strike and Lee Canyons. Smaller areas are proposed adjacent to the east and southeast boundaries to include lands now seen as necessary to round out the NCA and include areas subject to damage and misuse if not protected. One area of 880 acres includes the majority of the population of the rare and potentially threatened and endangered Blue Diamond cholla. A Congressional Hearing on the expansion proposal was held on March 8, 1994 in Washington D.C.

PLANNING ISSUES

DEVELOPMENT AND USE

Process

In January and February of 1992, the BLM held several public scoping meetings to gain input for the development of the GMP. Those unable to attend the meetings could send written comments to BLM. In addition to newspaper notices, letters were also mailed to individuals and organizations on the Red Rock Canyon mailing list. In March and April of 1993, several more public meetings were held to review several concepts and solicit comments and suggestions.

A list of preliminary issues developed by the RRC planning staff and BLM resource specialists was included in the mailing to allow for public review in advance of scheduled meetings. The purpose of scoping was to gather comments and concerns to help in narrowing the focus of the issues to be resolved in the GMP.

The public input from the scoping meetings and written comments was organized into a list of issues. This list was condensed and combined creating eight key issues. These key issues were used as a basis for the development of the preferred actions and alternatives.

Issue Statements

The following key issue statements were developed from the scoping process:

1. What kinds of recreational opportunity settings should be offered to visitors?

2. What road and trail systems should be developed to provide for hiking, bicycling, horse riding, and motor vehicle use?

3. What camping opportunities and facilities should be provided?

4. How should recreational and commercial technical rock climbing be managed?

5. What measures should be taken to promote biodiversity and protect threatened and endangered (T&E) species?

6. How should riparian areas be protected?

7. How should cultural and paleontological resources be managed?

8. How should wild horses and burros be managed?

DISCUSSION OF ISSUES

ISSUE 1

What kinds of recreational opportunity settings should be offered to visitors?

BACKGROUND

Red Rock Canyon currently offers recreational visitors a range of opportunities including a Visitor Center, a paved scenic drive, areas accessible only by off-highway vehicles (OHV's), areas accessible only by foot and a backcountry area. Over the last twenty years, some opportunities have expanded while some decreased. Opening the second half of the scenic drive in 1978 doubled the scenic driving opportunity but decreased the area accessed by OHV's. The closing of the First Creek Road also decreased OHV opportunities but significantly increased the opportunities for hiking in a nonmotorized setting. The 1976 Master Plan designates the land on top of the escarpment as "primitive" but does not provide direction on the management of recreational opportunity settings for the valley floor.

ISSUE DESCRIPTION

While Red Rock Canyon does and can continue to provide a wide range of recreational opportunity settings, some actions, if implemented, would provide certain opportunities at the expense of others (i.e. scenic roads vs primitive hiking areas). The division of the NCA into areas of defined recreational opportunity settings and activities consistent with these settings is necessary to ensure that Red Rock Canyon continues to provide the widest range of opportunity settings possible. These divisions form the baseline for guiding the selection of appropriate solutions for all other issues (i.e. building a campground for recreational vehicles in an area set aside for primitive uses would not be an appropriate solution for an issue related to the need for increased recreational vehicle campsites).

CONCERNS

1. Areas within the NCA need to provide an environment for recreation activities, consistent with visitor expectations, in order to offer a fulfilling experience.

   When a visitor participates in a recreational activity, he/she has certain expectations of what that experience should be like. Whether or not these expectations are met determines the degree of satisfaction with the experience. The criteria used to provide areas to enhance visitor experiences include the physical setting (remoteness, size of area and evidence of human use), the social setting (the number of other visitors encountered) and the managerial setting (facilities and personnel available to assist visitors).

2. Besides providing for recreational opportunities, the mission of the NCA is conservation of the resources and character of the land.

   The Red Rock Canyon National Conservation Area Establishment Act of 1990 has a primary objective of conserving, protecting and enhancing the NCA for the benefit of present and future generations. The Act empowers the Secretary of the Interior to limit visitation and use of the area if necessary to protect the resources.

OPPORTUNITIES

1. Devise a system based on the "Recreation Opportunity Spectrum" (ROS) to organize planning efforts.

   For the purpose of this plan, the NCA has been divided into zones which will be referred to as Management Emphasis Areas (MEAs). Each MEA would provide for recreation opportunities consistent with the environmental setting desired for that zone. Each zone would allow a different level and type of development to occur. (see "Management Emphasis Areas" page 29)

ISSUE 2

What road and trail systems should be developed to provide for hiking, and motor vehicle, horse and bicycle use?

BACKGROUND

Although the 1976 Red Rock Canyon Master Plan recognized the need to provide hiking trail systems and tour bike paths, not many of those plans have been implemented. Much of the present trail system consists of user developed routes, which have never been developed into a maintained trail system. Horse riding and bicycling have never been formally provided for. Bike riders use the Scenic Drive as a means of touring Red Rock and participating in their desired activity. Horse riding enthusiasts have developed their own routes since no trails have been designed for them. OHVs have also developed many of their own routes as they are not satisfied with what is presently available. A relatively new special interest to be provided for is mountain biking. Mountain biking has become very popular in the last several years, but was not significant when the Master Plan was developed. Consequently there are few opportunities provided at present and no overall management guidelines.

ISSUE DESCRIPTION

There is a need to meet the public demand for hiking, horse riding, tour and mountain biking, and motor vehicle use. All are appropriate activities to be provided for in the NCA. However, the activities must take place in the appropriate MEA zones and conservation of the resources is a higher priority.

CONCERNS

1. The road and trail systems are inadequate to meet current and future use levels, and they create unsafe conditions for cars and bicycles.

   The population of the Las Vegas area has increased by over 500,000 since the Red Rock Canyon Master Plan was completed in 1976. The Plan was not designed to meet today's needs and many of the trails the Plan calls for have not been constructed. The Scenic Drive was not designed to accommodate bicycles, but other options have not been provided. Consequently, bicycle accidents occur regularly and there is an unsafe condition created by bicycle riders deciding they cannot ride the entire Scenic Drive and returning against one way traffic.

2. Trail and road systems need to be designed to avoid conflict between different user groups.

   When different user groups share the same trail and road systems, there is the potential for conflicts to arise, such as bicycles riding against one-way traffic on the Scenic Drive.

3. Trail and road systems need to be designed in a manner which will avoid degradation of the natural resources.

   There is a significant amount of resource damage occurring due to surface disturbance from visitors straying from the designated routes. This causes erosion problems, damage to plants, and has a negative impact on scenic values. It occurs because users are not content with the opportunities currently being offered or because there are too few opportunities available. It may also occur because the public has not been well informed and they are not aware of the consequences of their actions on the fragile desert environment.

4. Organized events on the Scenic Drive are permitted in which speeds surpass the posted speed limit.

   The BLM has permitted bicycle racing events on the Scenic Drive in which the speeds attained surpass the posted legal limit. There have been several bicycle accidents during these events and prior to the events during preparatory training due to excess speed.

OPPORTUNITIES

1. Mountain biking is a relatively new recreational activity and is increasing rapidly in popularity. Mountain bike users have created their own trail network in Cottonwood Valley. There is an opportunity to develop a formal trail system for an activity that has not been provided for.

2. Trail systems can be designed to separate incompatible user groups and avoid potential conflicts.

   A separate trail system can be designed for horses so they are not confronted by vehicles or mountain bikes. Also, the Scenic Drive could include a separate lane for bicycles as well as alternate return routes to avoid bicycles riding against traffic. These are examples of some opportunities to avoid potential conflict.

3. Trail and back road systems can be designed and managed in a manner that will promote staying on designated routes, and in turn, reduce damage to the surrounding resources.

   If BLM works with the different user groups in developing trail system designs, there will be a shared ownership in the final design and a more acceptable system can be developed. This process, along with better signing and visitor education, will reduce damage to resources.

4. Evaluate and determine the appropriateness of allowing events on the Scenic Drive (or other areas) which do not adhere to the normal safety rules and regulations.

ISSUE 3

What camping opportunities and facilities should be provided?

BACKGROUND

The 1976 Master Plan envisioned the need for as many as three year-round campgrounds in Red Rock Canyon, but did not include the current primitive Oak Creek camping area. Primitive campgrounds at Oak Creek Canyon and Black Velvet Canyon do not have adequate facilities for the amount of use they experience. Users want both isolated and group camps and have differing needs for camp design and type of facilities, i.e. car campers, hikers, climbers, etc. Length of camp stay and camp trading have been a problem. Day users compete for space in or near the campsites when they venture into the canyons for hiking and rock climbing. Demand for camping areas causes Oak Creek Canyon to be overcrowded regularly. Resource damage, public safety hazards and user conflicts often result.

ISSUE DESCRIPTION

If camping is to be offered in the NCA, how many camping areas should be developed and what level of facilities, management and controls should be provided for each?

CONCERNS

1. It has not been determined what camping opportunities are needed and appropriate in the NCA.

   The problems presently occurring related to this issue along with the input gathered during the scoping process give a good idea of what the desire for camping is in the NCA. Other factors to be considered are whether camping should be provided with the city of Las Vegas so close, and is providing camping consistent with the NCA legislation.

2. Current Oak Creek camping area cannot meet the demand and has inadequate facilities.

   Resource damage has been occurring as a result of the inability of Oak Creek Campground to meet user demand. Permanent sanitation facilities have not been provided because a final decision has not been reached as to whether the campground will be improved and maintained or eliminated.

OPPORTUNITIES

1. Alleviate overuse and prevent further environmental damage to the Oak Creek area.

   Relief for the Oak Creek campground has been on hold until a plan of action is reached, including decisions about eliminating or keeping the campground, deciding who will manage it, and providing adequate facilities for whatever level of use is deemed appropriate.

2. Develop an adequate camping plan for the NCA.

   The 1976 Master Plan mapped potential camping areas, which have never been implemented. With the designation of Red Rock Canyon as a National Conservation Area, the subject needs to be revisited. The background information, scoping input and MEA zoning of the NCA can be used to develop a comprehensive camping plan within this GMP.

ISSUE 4

How should recreational and commercial technical rock climbing be managed?

BACKGROUND

In recent years, Red Rock Canyon (RRC) has increased in popularity to the point where it is presently international significance for rock climbing. The climbing season is year round, with the heaviest use in the spring and fall. During the heavy use periods, what limited camping that is presently offered in RRC is filled to capacity, so there is none available to other visitors. At this time, there is no management plan addressing climbing. The only restrictions are that no climbing is allowed within 50 feet of rock art (cultural resources) and no vehicles may be parked within the Scenic Drive after hours without a permit.

Six commercial permits have been issued to climbing schools that use RRC for training classes. No additional permits are being issued until this management plan is completed.

ISSUE DESCRIPTION

Rock climbing has become a very popular activity in RRC, but at present there is no plan for management of this activity. A plan needs to be developed in order to curb resource damage, balance the opportunities offered to climbers with those for other user groups so that all may enjoy positive experiences, and decide what aspects of climbing are/are not consistent with the overall management objectives for the NCA.

CONCERNS

1. It has not been determined which areas will be open for technical climbing.

   As stated in the issue description, there needs to be a balance between user groups. Unmanaged climbing could affect the quality of experience for other visitors. A particular detraction for scenic viewers is the presence of chalk marks and web gear left hanging on rock faces. Another conflict is the lack of facilities available for other users (parking places and camping spots) when the climbing season is in full swing.

   Damage to resources is another area of concern. When climbing occurs in areas where pictograph and petroglyph panels are located, climbers may inadvertently damage cultural resources. Also, accessing climbing areas can cause damage to vegetation when designated routes are not provided. Raptors, birds and other wildlife may be disturbed by climbing activities near important habitat and/or rearing areas.

2. Rock bolting may not be appropriate in the NCA, or may need to be restricted to certain areas.

   The primary purpose of designating RRC as an NCA is conservation of the resources. Therefore, the first determination to be made is the amount of alteration to natural rock surfaces when rock bolts are used. The use of wedge type anchors can reduce impacts to rock surfaces, but there is still the concern of aesthetics. Bolts left on certain rock faces may be an intrusion to scenic viewing. The Wilderness Study Areas (possible future wilderness areas) are of particular concern.

3. The current permit system for commercial technical climbing in the NCA does not specify how many permits are appropriate for the area and how many will be issued.

OPPORTUNITIES

1. Develop a comprehensive plan for technical rock climbing.

2. Design a program that will lessen impacts on vegetation, cultural resources, rock surfaces and sensitive wildlife species inhabiting the areas desirable for rock climbing.

ISSUE 5

What measures should be taken to promote biodiversity and protect threatened and endangered species?

BACKGROUND

The Red Rock Canyon National Conservation Area (RRCNCA) supports a wide variety of plant and animal species. Besides the lizards, snakes and other reptiles that usually come to mind when envisioning desert environments, there are various amphibian and numerous bird species. There are also approximately 45 species of mammals, ranging from the desert shrew to the desert bighorn sheep. In adapting to the desert environment, many of the animals have become nocturnal and are not often seen by visitors.

Vegetation is divided into nine major vegetation communities dependant on soil type, elevation, precipitation and other factors. Most of the desert flora is fragile and once disturbed, takes a very long time to completely recover. Some of the riparian areas along the base of the escarpment contain endemic species.

Also present in the NCA are some species listed as threatened or endangered, including the desert tortoise (Gopherus agassizii) and the American peregrine falcon (Falco peregrinus anatum). When these species are encountered or if projects are proposed in areas which provide suitable habitat, certain legal steps must be taken to measure and mitigate the effects that manipulating the environment might have on their welfare.

ISSUE DESCRIPTION

The NCA does not have a current plan for managing wildlife and vegetation. RRC provides habitat for an abundance of wildlife and plant communities, as discussed in the background information, including species classified as "threatened and endangered". A plan to manage these resources is needed before any actions can be initiated which will alter suitable habitat.

CONCERNS

1. Wildlife species and habitat need protection from encroaching development and recreational activities.

2. Endangered Species Act requirements must be met.

OPPORTUNITIES

1. Manage habitat for a full range of desert wildlife.

2. Protect and enhance special status species (i.e. desert tortoise, peregrine falcon and Gila monster) habitats.

3. Protect the Blue Diamond cholla cactus.

4. Protect sensitive habitats.

5. Utilize the "living classroom" concept to educate the public about desert environments.

6. Inventory and monitor special status species and their habitats.

ISSUE 6

What protection should be given to riparian and other sensitive areas?

BACKGROUND

Due to the geologic features of the RRC area, there are more springs and surface waters than in most desert environments. The water supports riparian vegetation as well as wildlife. Some of the riparian areas along the base of the escarpment support vegetative communities that are unique in desert areas.

ISSUE DESCRIPTION

Riparian areas support vegetation not found elsewhere in the NCA, including trees in some locations. These locations tend to be cooler than the ambient desert environment and offer settings that are attractive for public recreation. The result is higher use and more impact in a fragile environment. Wild horses and burros compound the impact, frequenting the riparian areas because of the water. Impacts to the riparian environment include damage to vegetation, disturbance of wildlife, soil compaction and soil erosion.

CONCERNS

1. Wild horses and burros concentrate their use in riparian areas.

2. Recreational use tends to concentrate in riparian areas.

3. The Pine Creek Resource Natural Area (PCRNA) is impacted by human use.

   The PCRNA was set aside for scientific study (under Public Land Order 3530, published in the Federal Register on February 4, 1965), of its botanical, zoological, geological and archeological values. The canyon supports a large number of plants endemic to the Spring Mountains and a unique fern population.

OPPORTUNITIES

1. Develop alternate water sources to attract wild horses and burros away from riparian areas.

2. Restrict visitor and wild horse and burro access to sensitive riparian areas.

3. Monitor the condition of the riparian areas to detect changes in plant and animal components and to support the Bureau's Riparian Initiative to have 75% of all riparian areas in a properly functioning condition by 1997.

4. Develop a user education program to reduce unnecessary impacts to riparian areas.

ISSUE 7

How should cultural and paleontological resources be managed?

BACKGROUND

RRC is rich with cultural resources left by Native American inhabitants. When the first Europeans entered southern Nevada, the Southern Paiutes were still in the area, so there are some written records of their presence and lifestyle. Other than that, all of our knowledge about ancient Native Americans is derived from the cultural resources they left behind.

The study of cultural resources enhances our present knowledge of plants and animals, and man's interaction with plants, animals and fellow man. It allows us to understand the process that has led us to where we are today, and can help us deal with future situations. The more intact a cultural site is, the more likely it is to yield valuable scientific information.

ISSUE DESCRIPTION

There are many cultural sites in the RRC area that offer important archeological information. The areas that are easily accessible have suffered significant damage from vandalism. Sites have been looted by collectors and damaged by graffiti and other means. Some of the damage is intentional, and some occurs from visitors not recognizing cultural sites/resources and not being aware of the consequences of their actions.

CONCERNS

1. Bringing cultural sites to the attention of the public may increase vandalism and damage to the resource.

2. Visitors inadvertently damage cultural resources.

OPPORTUNITIES

1. Develop an interpretive plan that displays actual on-site remnants of, and educates the public about past cultures in the area, and discourages destruction and vandalism of cultural and paleontological resources.

2. Manage cultural resources to avoid inadvertent damage.

ISSUE 8

How should wild horses and burros be managed?

BACKGROUND

Horses and burros were brought to this country by early explorers, and some were released or escaped to the desert areas of Mexico and the southwestern United States. The wild burro population was then added to when gold and silver were discovered in the 1800s and prospectors migrated to the area; the burros escaped or were released by the prospectors. Through the years, the wild horses and burros have increased in population. Mountain lions and coyotes are the only natural predators. The greatest known cause of horse and burro loss in RRC is from automobile accidents. To help control the population levels, the Bureau of Land Management occasionally rounds up excess horses and burros which are put up for public adoption.

ISSUE DESCRIPTION

Management of wild horses and burros focuses on protecting the natural resources and maintaining a thriving ecological balance. In recent years, numbers of animals have not been controlled and herd sizes have increased significantly. This situation is allowing damage to occur to natural resources. It also poses a safety hazard along Highways 159 and 160 for drivers as well as for horses and burros. Management strategies and herd size population targets need to be established.

CONCERNS

1. Determine what options are available for managing wild horses and burros in the NCA.

2. Burros approaching visitors and moving vehicles along Highway 159 create unsafe conditions for both visitors and burros.

   For the most part, horses are leery of humans, but they regularly cross back and forth over Highway 160. Burros have become accustomed to humans and readily approach cars along Highway 159 in quest of food. Both situations have resulted in accidents with injuries to the motorists and injuries or death to the animals. Burros also approach humans directly, and although they may appear docile, they are temperamental and have bitten and kicked visitors.

3. Burros are damaging private property and causing problems in Blue Diamond and at BLM recreation sites. They have also ventured into the subdivisions on the west side of Las Vegas outside of the Herd Management Area (HMA).

4. Construction of access control fencing to improve motorist safety along Highway 160 by the Nevada Dept. of Transportation (NDOT) would divide the Herd Management Area in half.

5. Wild horses and burros can negatively impact riparian areas and vegetative resources.

OPPORTUNITIES

1. Develop a plan allowing visitors to enjoy viewing wild burros without creating hazardous traffic situations.

2. Prevent additional damage to sensitive resource areas due to wild horses and burros.

3. Manage burro numbers and remove problem animals at a level which keeps the herd within the HMA.

4. Work with NDOT to provide for horse and burro crossing structures under the highway.

ISSUES AND ACTIONS NOT CARRIED FORWARD

Some issues raised during the scoping process have not been addressed or carried into the planning process. In some cases the issue may not be resolvable; for others legal restraints may not allow suggested mitigating actions. This section will address those issues and actions which are not covered in other portions of this document.

Most issues and concerns that were raised have been considered in development of the GMP. Some are dealt with as proposed actions, while others are included in other GMP sections. For example, concerns about patrolling the area and enforcing regulations would be in the "Law Enforcement" section and issues dealing with the Visitor Center would be in the "Interpretation" section.

Litter

Litter is an issue which was discussed at some length at one of the public scoping meetings. It has been an ongoing problem and has been dealt with as such. Much of it occurs with total disregard to current rules and regulations. An aggressive effort will be made continually by all staff to educate visitors on the need to take anything they bring into the area home with them when they leave. Methods of control are better left open than being directed through the plan.

Wild Horse and Burros

Throughout the scoping process, the subject of wild burros in the NCA surfaced repeatedly. Several comments alluded to their removal, due to the fact that burros are not native to the Red Rock Canyon area. However, the requirements and legal restraints contained within the "Wild and Free Roaming Horse and Burro Act", passed in 1971, do not allow the BLM the option of removing all of the burros. Therefore, the suggestion that all horses and/or burros be removed has not been adopted. Other wild horse and burro issues and proposed actions are discussed in the plan.

Acquisition of Additional and/or State of Nevada Water Rights

Acquisition of additional water also surfaced during the scoping process. The BLM does not have water rights to most of the areas in Red Rock where water is available. The State acquired most of the water rights when they purchased the properties now known as Spring Mountain Ranch State Park. Since the BLM and the State have an excellent cooperative relationship in managing the resources of the NCA and the State Park, and the State has no plans or proposals to change the use of their water rights, there is no reason for BLM to acquire the State's water rights. BLM will file on additional waters as the need arises and will attempt to acquire water rights attached to any private lands added to the NCA.

Additional Scenic Roads

Because the vast majority of visitors are sightseers, the idea of additional scenic roads in other parts of the NCA was considered to reduce use on the existing Scenic Drive and to meet the needs of this group. Comments at several public meetings held to review possible actions were overwhelmingly against the idea of new paved roads away from the area of influence of the existing Scenic Drive. This correlates with the comments made in the 1992 User Survey. New Scenic Drives will not be pursued further in the planning process. The proposals not being pursued further include the following:

Wildhorse Loop

The purpose of this proposed loop road off Highway 160 was to provide an easy opportunity to view wild horses. It would also alleviate heavy use of the Scenic Drive. The proposal received very little support due to the additional impact in an essentially undeveloped area. It was brought to the BLM's attention that an additional paved road would inhibit the free roaming nature of the horses, giving them two paved roads to cross in their preferred range. It was also pointed out that unlike the burros, horses are wary of humans, and the increased visitor use that a paved loop would attract would also drive the horses to migrate to areas that are more remote. Thus, the purpose for the improved access would no longer exist.

A paved road from the North Oak Creek Road to the Spring Mountain Ranch

The construction of this road would offer an additional loop route for scenic viewers and closer access to the escarpment. Public response was that it would provide too much development and impact, and it is not desirable to provide such easy access to the base of the escarpment, the boundary of an area being studied for potential wilderness designation.

Colored Chalk For Technical Climbing

Requiring the use of colored chalk was discussed at some of the public meetings. It was felt that colored chalk would blend with rock surfaces better than white chalk, and would be less noticeable to other visitors to the area. But colored chalk has been tried by several members of the local climbing community and has proven to be unsatisfactory. Colored chalk does not provide the same grip enhancing quality as white chalk and, although less visible on rock surfaces, may have more detrimental effects on the resource by causing permanent staining of the rock face. This proposed action has been dropped in favor of working with the climbing community to reduce their use of chalk by using equipment now available which reduces the amount of chalk used.

Open mountain bike use in the Cottonwood area south of Highway 160

This idea cannot be legally implemented. The legislation designating the NCA states that "... mechanized vehicles in the conservation area shall be allowed only on roads and trails specifically designated for such use...". The plan designates roads and trails as required but there are no "open" use areas.

RELATIONSHIP TO 1976 MASTER PLAN AND SUBSEQUENT DECISIONS

The Red Rock Canyon Master Plan has been in effect for 17 years. In 1976 when the Master Plan was written, the area had a BLM administrative designation as the Red Rock Canyon Recreation Lands. In 1990, Congress passed legislation enlarging the area and changing the status to a National Conservation Area. The RRCRL mission statement and the NCA legislation both stress conservation of the area's resources and values as a principal goal.

Many of the decisions made in the 1976 Master Plan are still valid, should be implemented and are included in the GMP. However, some decisions now seem inappropriate due to changing conditions and uses. Listed below are key Master Plan decisions and how they are proposed to be included in, modified by or deleted from the GMP. This is not a list of all actions included in the new plan, just those included in both plans.

Camping

The Master Plan included three camping areas, including one on then private lands and one on State lands. None of these campground decisions were implemented, but a campground was established at the Highway 159-Oak Creek junction. The new GMP does not include the Master Plan's Oak Creek or Spring Mt. Ranch camping areas, but does still include the Oliver Ranch campground now that the property has been acquired by the U.S. Government in a land exchange.

Roads

Red Rock Summit Road - The Master Plan decision was to close this road. That has not occurred. In 1979 Clark County submitted their claim of RS 2477 (Revised Statute) status for this road. Due to this RS 2477 status, BLM does not have the authority to close this road. Therefore, the GMP proposes that this road be maintained as a one-way travel (west) four-wheel drive backcountry trail. Should the County drop its claim or an inter-agency agreement reached, the road would be closed to motor vehicles, from Willow Springs to the Summit. Coordination with Clark County and the U.S. Forest Service will ensure coordinated management of this road.

Oak Creek - The (south) Oak Creek Road was designated as the access route to a camping area in the Master Plan. At that time, this road was a well maintained gravel road. Since then, the road has turned into a rough unmaintained 40' wide scar and the campground has been eliminated. As a result, this road has been closed and recovery can begin. A 3/4 mile section of the (north) Oak Creek Road off the Scenic Drive has been re-opened to provide alternative access to Oak Creek.

Viewpoints and Parking Areas

The Master Plan included ten viewing/parking areas on the Scenic Drive. Only three of these areas have been constructed, and a couple others are in the process. The proposed GMP includes constructing of some of the unbuilt overlooks, although the particular additions will depend on the alternative selected. Construction of the Calico I parking area in 1991 demonstrated that changes in the original viewing/parking area decisions needed to be made to meet changing use patterns. Calico I was not included in the 1976 Master Plan, but the demand for parking at that particular location became so overwhelming that a parking site was constructed. At present, the demand for parking along the Calico Hills is still overwhelming with the constantly increasing demand for the rock climbing, scenic viewing and photographing opportunities offered. Calico III, which is located between Calico II and Sandstone Quarry, is presently planned for construction to help alleviate the situation.

Five additional viewing/parking areas were to be constructed on Highways 159 and 160. None of these areas have been constructed. The GMP does not propose any overlooks along the two highways, other than the possibility of one in the Cottonwood Valley area along Highway 160 being included as an option in one alternative. There is the possibility of locating some burro viewing pull-offs along both roads.

Trails

The basic trail system adopted in the Master Plan has been incorporated into the GMP. Changes and additions have been made to reflect changing and new uses, particularly mountain bikes.

Bike Paths

The Master Plan's proposed separate bike path paralleling the Scenic Drive has not been included in the GMP proposed actions because both bikes and vehicles can be accommodated on the existing road and the environmental impacts and space constraints of constructing what would essentially be a second road adjacent to and parelleling the Scenic Drive.

SECTION 2 - THE PLAN

The following section includes the Proposed General Management Plan for Red Rock Canyon National Conservation Area. The Proposed Plan includes not only actions to resolve identified resource management issues but statements on how administrative programs such as interpretation, fire, law enforcement and recreation use permits would be administered.

STANDARD OPERATING PROCEDURES

The following management guidance applies to, and is a part of, the Proposed Management Prescription as well as all alternatives considered and is based on existing laws, regulations and policy.

Allowable Uses

Public lands will be managed under the principles of multiple use and sustained yield as required by the Federal Land Policy and Management Act (FLPMA), as well as direction set forth in the Red Rock Canyon National Conservation Area Establishment Act. Any authorized use, occupancy, or development of the public lands that conforms with the GMP will be considered. Those uses, including rights-of-way, leases, and permits, will be subject to environmental review and may require limitations or stipulations to protect and preserve natural resources. Limitations may also be imposed on either the type or intensity of use, or both, because of environmental values, hazards, or special management considerations. Some limitations have already been identified for specific areas, and are included in the management objectives in this plan.

Coordination With Other Agencies, State and Local Governments, and Native American Tribes

BLM will ensure that the detailed management plans and individual projects resulting from the GMP are consistent with officially adopted and approved plans, policies, and programs of other agencies, state and local governments, and Indian Tribes. Cooperative agreements and memoranda of understanding will be developed as needed to promote cooperation between BLM and other federal agencies, state and local governments, and Indian Tribes.

Air Quality

Under the Clean Air Act (as amended, 1977), BLM lands were given a Class II air quality classification, which allows moderate deterioration associated with moderate, well controlled industrial and population growth. BLM will manage all public lands as Class II unless they are reclassified by the State as prescribed in the Clean Air Act (as amended, 1977). Administrative actions on the public lands will comply with the air quality classification for that specific area.

Barrier Free Access

Access for and use by the physically impaired will be considered in all project planning.

Land Exchanges

The BLM will consider acquiring undeveloped inholdings within the NCA through exchange in order to:

1. Facilitate access to public lands and resources;

2. Maintain or enhance important public values and uses;

3. Maintain or enhance local social and economic values;

4. Improve management efficiency through the blocking up of public lands;

5. Facilitate implementation of other aspects of the GMP.

Developed inholdings will only be considered for acquisition if they would contribute to better management of the NCA.

Unauthorized Use

It is BLM policy to identify, abate and prevent unauthorized use of public land. Existing unauthorized uses will be resolved either through termination, temporary authorization by short-term permit, issuance of rights-of-way, leasing through the Recreation and Public Purposes Act, or other appropriate manner.

Utility/Rights-of-Way (ROW) Avoidance

Utility and transportation development are not normally compatible with the objectives of the NCA, but in rare cases, may be permitted based on consideration of the following criteria:

1. Type of and need for the proposed facility;

2. Conflicts with other existing or potential resource values and uses;

3. Availability of alternatives and/or mitigation measures.

Vegetative Management

There will be no sales of desert vegetation.

No firewood or Christmas tree cutting permits will be issued.

Wildlife

Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition with emphasis on special status species. Such projects are included within the Proposed GMP or would be identified in future habitat management plans or project plans. Wildlife habitat will be evaluated on a case-by-case basis as a part of future project-level planning. Such evaluations consider the significance of the proposed project, cumulative impacts and the sensitivity and importance of wildlife habitat in the affected area. Stipulations would be attached as appropriate to assure compatibility of projects with management objectives for wildlife habitat.

Threatened, Endangered and Sensitive Species Habitat

Whenever possible, actions occurring in habitat for threatened, endangered or sensitive species would be designed to maintain or benefit those species through habitat improvements.

Coordination with the Nevada Division of Wildlife and consultation with the U.S. Fish and Wildlife Service will be completed prior to implementing projects that may affect habitat for threatened and endangered species.

If a "may affect" determination is made by a qualified BLM wildlife biologist, consultation with the U.S. Fish and Wildlife Service will be initiated in accordance with Section 7 of the Endangered Species Act of 1973, as amended.

Soil, Water and Air

Soil, water and air resources will be evaluated on a case-by-case basis as a part of project level planning. Such an evaluation will consider the significance of the proposed projects and the sensitivity of the resources. Stipulations will be attached as appropriate to prevent adverse impacts to soil, water and air.

Water quality will be maintained or improved in accordance with state and federal standards. State agencies will be consulted on proposed projects that may significantly affect water quality. Management actions on public land within municipal watersheds will be designed to protect water quality and quantity.

The following apply to water resources and development:

1. Free water for use by wildlife shall be maintained at or within 1/4 mile of all spring developments;

2. Adequate water shall remain at spring developments to maintain any associated riparian zone;

3. Height of troughs or other water containers shall not exceed 20 inches above ground level;

4. Bird ladders or other wildlife escape devices will be installed and maintained in all water troughs.

All BLM initiated or authorized actions potentially affecting wetland-riparian areas will comply with the spirit and intent of Executive Order 11990 (Wetlands Act) and BLM Manual Section 6740.06. These directives stress the avoidance of (1) "...long and short-term adverse impacts associated with the destruction, loss, or degradation of wetland-riparian areas" and (2) the preservation and enhancement of "the natural and beneficial values of wetland-riparian areas which may include constraining or excluding those uses that cause significant, long-term ecological damage."

Recreation

A broad range of outdoor recreational opportunities will continue to be provided for the public. Trails and other means of public access will continue to be maintained and developed where necessary to enhance recreation opportunities and allow public use. Developed recreation facilities receiving the heaviest use will receive first priority for operation and maintenance funds. Sites that cannot be maintained to acceptable health and safety standards will be closed until deficiencies are corrected.

Recreation resources will be evaluated on a case-by-case basis as a part of project-level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of recreation resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with recreation management objectives.

Early Access - Entering the Scenic Drive by vehicle, before the normal gate opening time, will not normally be allowed. It may be possible in rare instances when application is made in advance, a law enforcement ranger or park staff ranger is available and payment to cover the overtime costs is made in advance.

After Hours Permits - Parking on the Scenic Drive after closing hours may be authorized by an after hours permit, which can be obtained at the Visitor Center. This permission will normally be only extended to climbers participating in multi-day climbs requiring an overnight bivouac.

Bivouacs - Camping at the base of the escarpment will not be allowed. The intention of "bivouac" is an overnight stay on a rock wall, above the base, as part of a multi-day climb.

Visual Resources

Visual resources will be evaluated as a part of activity and project planning. Such evaluation will consider the significance of the proposed project and the visual sensitivity of the affected area. Stipulations will be attached as appropriate to maintain visual resources. Existing Visual Resource Management inventory classes are discussed in the Environmental Analysis.

Wilderness Resources

The La Madre Mountains and Pine Creek Wilderness Study Areas (WSAs) will continue to be managed in compliance with the Interim Management Policy until acted upon by Congress. If all or part of these areas are designated as wilderness by Congress, they would be managed in accordance with the Wilderness Act of 1964, the enabling legislation and BLM's Wilderness Management Policy. A wilderness management plan would be developed to guide future management. The portions of the WSAs not designated as wilderness will be managed under the multiple use guidelines for adjacent lands set forth in this GMP.

Cultural Resources

BLM is required to identify, evaluate and protect cultural resources on public land under its jurisdiction and to ensure that Bureau authorized actions do not inadvertently harm or destroy non-federal cultural resources. These requirements are mandated by section 110 of the National Historic Preservation Act of 1966 and amendments, the National Environmental Policy Act of 1969, Executive Order 11593 (1971), and the Archeological Resources Protection Act of 1979, together with 36 CFR 800.

Prior to starting any Bureau initiated or authorized action that involves surface disturbing activities, the BLM will conduct, or cause to be conducted, a Class III (intensive) inventory as specified in BLM Manual Section 8111.4. This intensive inventory supplements previous surveys and will be done to locate, identify, and evaluate cultural resource properties in the affected areas. If properties that may be eligible for the National Register are discovered, the BLM will consult with the State Historic Preservation Officer (SHPO) and forward the documentation to the Keeper of the National Register to obtain a determination of eligibility.

Since any authorized or initiated action recognizes and accommodates cultural resources by complying with Federal law and standard operating procedures, the activity which places cultural resources most at risk is unplanned public use. Such activities include unauthorized recreational vehicle use, artifact collection, and illegal excavation for materials and antiquities. The location of these activities is impossible to predict and may occur in spite of measures designed to exclude or limit them.

Cultural resource values discovered in a proposed project or authorized action area will be protected by adhering to the following methods:

Avoidance - Cultural resources would be protected by redesigning or relocating the project or excluding significant cultural resource areas from development, use or disposal.

Mitigating - If a project cannot be redesigned or relocated, cultural resource values will be mitigated through controlled, scientific methods pursuant to the SHPO agreement.

Project/Action Abandonment - If the site is determined to be of significant value or the above mentioned methods are not considered adequate, the project will be abandoned.

All cultural sites identified as special management areas will be closed to off-road vehicle use, vegetation manipulation, and surface occupancy.

All cultural sites known to be eligible for National Register nomination or listed on the National Register will be protected from deterioration and be retained in federal ownership.

Paleontological Resources

Paleontological resources will be managed to protect specimens and maintain or enhance sites or areas for their scientific and educational values.

The potential impacts to the paleontologic resources of the NCA are unknown, as an inventory has not yet been completed. Once an inventory is completed and site clearances become standard practice, the resource will be adequately protected.

Cadastral Survey

Cadastral surveys are conducted in support of resource management programs. Survey requirements and priorities will be determined on a yearly bases as a part of the annual work planning process.

Site Specific Project Plans

The GMP provides general guidance for the NCA. More detailed management plans called "project plans" will be prepared for site specific resource projects. Project plans include a detailed plan for completion of a particular project and an environmental assessment to evaluate any potential resource impacts.

Economic and Social Considerations

BLM will ensure that any management action undertaken in connection with this plan is cost-effective and takes into account local social and economic factors.

Environmental Review

Prior to implementation of proposed projects, a review will be done to determine whether a prior analysis has been completed or if criteria is met for a categorical exclusion under NEPA. Projects not meeting the criteria will require an Environmental Analysis (EA) and finding of no significant impact. If the EA concludes that the action would significantly affect the environment, an environmental impact statement (EIS) will be prepared under the direction of the BLM Nevada State Director. Site specific clearances for cultural resources and threatened and endangered species will be conducted as part of the environmental review.

MANAGEMENT EMPHASIS AREAS

Management Emphasis Areas (MEAs) provide a framework for indicating the management intent for a particular geographic area and for evaluating the appropriateness of future actions and proposals. Because all future needs and proposals cannot now be predicted and a plan which did not allow for the consideration of new proposals would be so inflexible as to be quickly useless, the intent of using MEAs is to organize the NCA to simplify the planning process and to provide a structure for the analysis of future proposed actions and/or improvements. Using a modification of the Recreation Opportunity Spectrum (ROS) method of planning, the NCA has been divided into five MEAs. Each MEA has a set of guidelines which both describe its current setting and provide a standard for future management. Any actions or improvements must be consistent with what is normally expected in that particular setting so the visitor is provided a positive experience. For planning purposes the following settings and characteristics have been used.

Management Emphasis Areas

1. Developed
   - Substantial modification of natural environment
   - Intensified motorized use and parking available
   - Human interaction level moderate to high
   - On site controls obvious and facilities widely available
   - Law enforcement moderately visible

2. Roaded Developed
   - Recreation activities rely on and are consistent with the natural environment
   - May include paved roads and buildings, but the design should blend with the natural environment
   - Human interaction level moderate in more developed portions and low to moderate elsewhere
   - On site controls, facilities and law enforcement noticeable
   - Includes the Scenic Drive and Visitor Center

3. Roaded Natural
   - Developments limited to improved access and those consistent with the natural environment
   - The recreational experience is based on the natural setting
   - May include roads, trails and camping areas (new improvements for resource protection only)
   - Human interaction level would be low to moderate, more often on the low side
   - On site controls present, but subtle
   - Includes areas with existing dirt roads, many of which would remain open to use

4. Nonmotorized
   - Area(s) may not necessarily be remote and access may be easy, but human interaction level would be low
   - Opportunities provided could include trails for mountain bikers, horse riders and hikers
   - Existing roads closed and converted to trails, motorized use is prohibited
   - Off site controls preferred
   - Facilities are avoided, but may be provided for resource protection or user safety

5. Primitive
   - Remote areas not on primary travel routes or easily accessed
   - Access is by hiking and horseback; no mechanized vehicles (including mountain bikes) would be allowed
   - Human interaction would be rare to low and evidence of other users would be minimal
   - No on site controls or facilities provided except those required for resource protection

ACTIONS SELECTED TO ADDRESS KEY ISSUES

Proposed actions have been developed to address the issues generated during the scoping process. Many of the proposed actions were included in the 1976 Master Plan, but never implemented. The alternatives can be reviewed in the "Alternatives" chapter in the Environmental Assessment section. This chapter presents the actions included in the preferred alternative (Alternative B).

MANAGEMENT EMPHASIS AREAS

The NCA has been divided into the following Management Emphasis Areas (MEAs) as a planning tool for establishing desired conditions for proposed and future actions.

DEVELOPED

Oliver Ranch

ROADED DEVELOPED

Scenic Drive and surrounding area

ROADED NATURAL

Little Red Rocks and south to Brownstone Basin, and east of La Madre Mt. WSA boundary
North of Highway 159 and east of Calico Basin
South of Spring Mtn. Ranch, north of Hwy 160, east of Pine Creek WSA boundary and south and west of Hwy 159, excluding the "developed zone"
South of Hwy 160, excluding the steeper slopes to the east and west

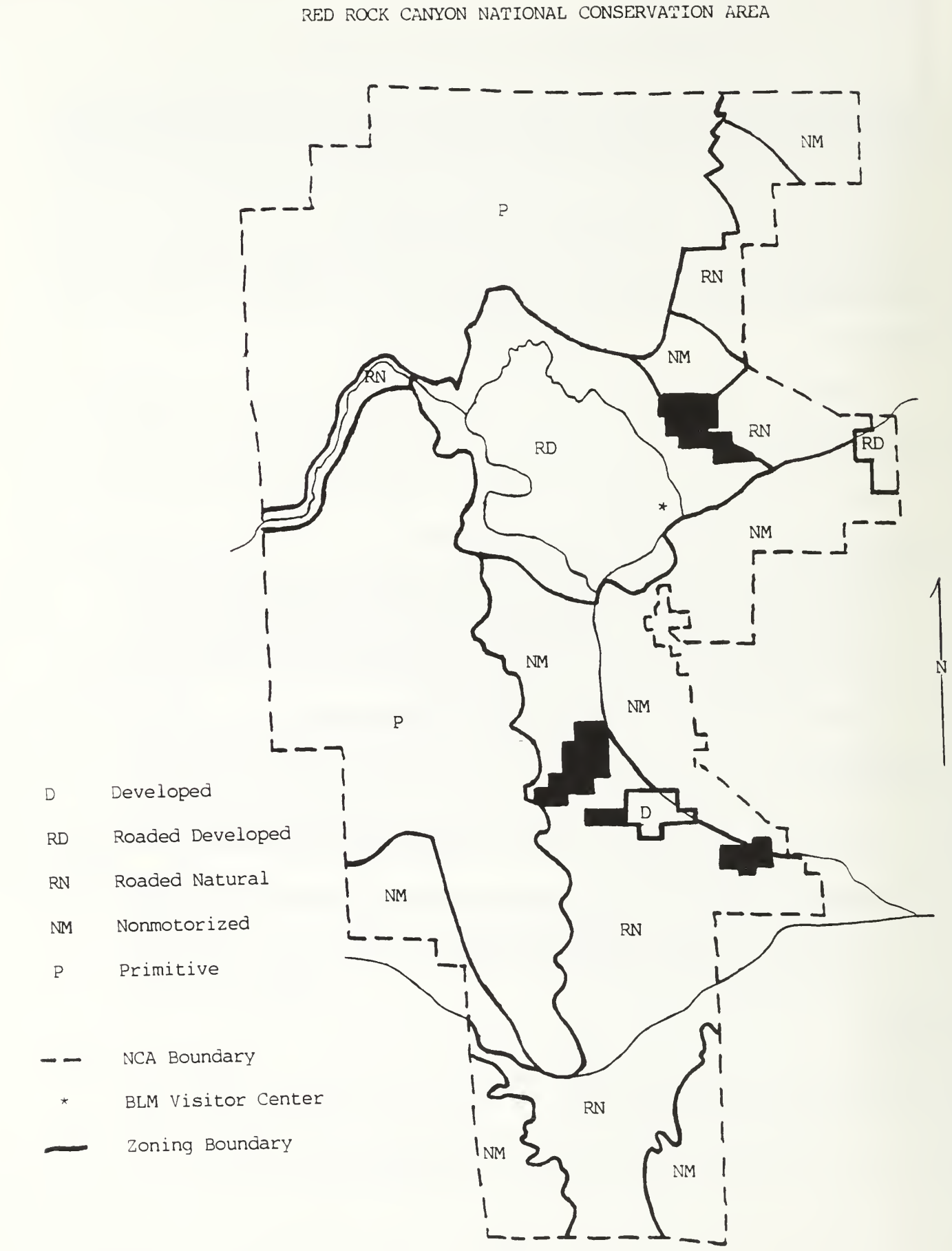
NONMOTORIZED

North of Calico Basin and south of Brownstone Basin
East of Highway 159 except for shooting range, cave area, 10 Mile Canyon campground site, and any developed zoning
South of Scenic Drive area, north of Spring Mountain Ranch and east of Pine Creek WSA
East and west sides of Cottonwood Valley area south of Hwy 160
North of Highway 160 and west of Pine Creek WSA
Rocky Gap Road

PRIMITIVE

Wilderness Study Areas (WSAs)

Alternative B



ECOSYSTEM MANAGEMENT AND BIODIVERSITY

The NCA will be managed in conjunction with adjacent State and Federal lands under the concept of ecosystem management. Actions will be considered through inter-agency cooperative planning rather than just in relation to administrative boundaries. The completion of inter-agency planning would be phased in over several years as agencies planning efforts are better coordinated and scheduled.

The NCA is part of a larger ecosystem which includes habitats ranging from the Mojave Desert in Red Rock Canyon up to the ponderosa forest of Mount Charleston. Due to the pattern of development in the Las Vegas Valley, this area no longer has a viable habitat connection to the ancient Las Vegas springs and Colorado River to the east. For this reason, particular emphasis must be paid to desert tortoise and Gila monster habitat since both of these species are on the edge of their normal range and population augmentation through addition of new individuals through migration from other areas is virtually impossible.

Plant and wildlife habitat will continue to be evaluated as part of project level planning. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for biodiversity. Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining habitat condition.

Coordination will be accomplished with the Nevada Division of Wildlife and the U.S. Fish and Wildlife Service prior to implementing projects that may affect habitat for threatened and endangered species. If a "may affect" determination is made, consultation with the U.S. Fish and Wildlife Service will be initiated in accordance with Section 7 of the Endangered Species Act of 1973, as amended.

RIPARIAN AREA MANAGEMENT

The proposed plan's emphasis for riparian area management is protection of water quality and habitat. The best method of protection from human degradation may be through education. The BLM will provide information to the public and NCA visitors about the fragile nature and the importance of riparian habitat. This will be done through the distribution of brochures at the BLM office in Las Vegas and the Red Rock Canyon Visitor Center, through interpretive programs and hikes and in mail packets sent to prospective visitors. Distribution of educational information can also be accomplished through interpretive presentations to school classes and others groups.

Monitoring of riparian resources is an ongoing process, and future actions will be taken as deemed necessary to prevent additional negative impacts. If monitoring detects degradation of riparian areas, actions would be taken to halt the damaging uses. Indirect methods such as trail rerouting and signs would be tried first. If indirect methods fail, then direct methods such as fencing or area closures may be required. Fencing may be the initial response to deter horses and burros. In areas where fences are built, water would be provided within 1/4 mile of the source for horses, burros and wildlife. Fencing has been proposed in the past for Mud Springs # 1 & 2 and Lone Grapevine Spring. Water right applications would be filed on unappropriated waters in the NCA.

WILD HORSES AND BURROS

Options for wild horse and burro management are limited in part due to the Wild and Free-Roaming Horse and Burro Act's requirement that these animals not be restricted from roaming freely within the historic herd management area(s). However, existing livestock, private and State Highway 159 right-of-way fences and Highway 160 have effectively divided the Red Rock Herd Management Area (HMA) into five pieces, restricted the animal's free roaming abilities and forced animals, particularly burros, onto Highway 159 where they have become tourist props, hazards and pests. The proposed fencing of Highway 160 by the Nevada Department of Transportation (NDOT) will modify the traditional horse and burro north-south routes. BLM and NDOT have worked cooperatively to solve this problem and four underpasses have been included in the preliminary design for the reconstruction of Highway 160. The planned underpasses are large enough to accommodate horses and burros passing under the highway. Fencing of the highway will improve driver safety and considerably reduce the risk of horse/vehicle collisions, which occur several times each year. BLM will continue to work closely with NDOT on this issue.

The management objective for wild horses and burros will be to maintain animals at a population level which provides a thriving ecological balance consistent with management objectives for riparian areas and the desert tortoise while providing for public safety and as free roaming an environment as possible.

Actions

1. The Appropriate Management Level (AML) for wild horses and burros will be 50 of each in the NCA portion of the HMA. (AML from Draft Stateline RMP and preliminary results from vegetation studies.)

2. Animals will be removed when monitoring indicates that damage to vegetative and/or riparian resources is occurring or will occur unless the population is reduced. Problem or nuisance animals will be removed as necessary.

3. For better public safety, the existing fence on the west side of Highway 159 (Visitor Center to State Park) will be extended north to the Calico Basin Road and south to the NCA boundary near the sewage lagoons. The intent will be to keep the burros on the west side of the fence and off the highway. Burros which cross the highway to the east will be allowed to remain there until they pose a hazard to highway users or are moved back to the west side of the highway.

4. BLM will work (primarily with the Spring Mt. Ranch State Park) to reduce burro movement impediments and to modify existing fences to provide a "corridor" along Highway 159 allowing burros to move north-south through the valley without entering onto Highway 159. Old, abandoned and unauthorized range fences within the NCA will be removed.

5. High use and congested areas will be fenced to eliminate human-burro problems. This includes sites such as the Visitor Center and the Red Spring Day Use Area. In addition, BLM will assist private landowners in Blue Diamond and Calico Basin in reducing or eliminating burro trespass onto private lands through cooperative fencing projects or removals.

CULTURAL RESOURCES

The management and protection of cultural resources has a high priority. There were many comments received on the importance of protecting these resources. There is also a need to allow visitors the opportunity to experience, enjoy and learn from cultural resources. It is an area of interest for many of the visitors and the staff at the Visitor Center are asked about site locations on a daily basis.

Interpretation and education will play an important role in the management of cultural resources. For additional information, see the "Interpretive Plan" chapter of this document. Also, for more information on the legal aspects of dealing with this issue, see the "Standard Operating Procedures" section. The following are the determinations included in the proposed plan.

Management Objectives for Cultural Resources

Manage for Information Potential

Cultural resources are capable of contributing useful scientific, historic, or management information.

Cultural resources which would be managed for their information potential include most agave roasting pits, the Sandstone Quarry area and the mining district in the southwest corner of the NCA.

Protection of these resources through administrative or physical means would be provided until the potential for information has been relaized through appropriate study and site management planning completed.

Manage for Public Values

Cultural resources possess identified sociocultural, educational, recreational, or other public values.

Cultural resources which would be managed for these values include all rock art; the Willow Springs, Lost Creek and Red Springs areas; the Old Spanish Trail; and the Oliver Ranch.

These resources would be managed in a manner that gives adequate consideration to the value possessed while affording the public the opportunity to experience and learn from them. Some areas may be restricted from use due to sensitive or fragile resources or to protect sites sacred to Native Americans.

Manage for Conservation

Cultural resources have overrding scientific or historic importance.

Cultural resources which would be managed for conservation include the rock art in Brownstone Canyon which would remain closed to vehicle use to limit access to this site.

Management Direction

1. Continue the process of determining site eligibility for nomination to the National Register of Historic Places under criteria in 36 CFR 60.4, including, but not limited to, the Red Spring, Sandstone Quarry, Willow Spring and Lost Creek areas.

2. Install interpretive signing at Brownstone Canyon, Lost Creek, Pine Creek, Red Spring, Sandstone Quarry, Willow Spring and on Highway 160 near the Spanish Trail in Cottonwood Valley, explaining the historic and cultural resources.

3. Construct a handicap accessible trail at Red Spring and Willow Spring to provide access to one representative rock art site and one agave roasting pit at each location.

4. Maintain the vehicle closure at the entrance to Brownstone Canyon. Protect sensitive rock art panel by placing a low level fence in front of the site along with an interpretive sign. If further protection is necessary, the entire panel will be covered with a chain link fence which will have viewing ports for photographic access.

5. Install Archeological Resource Protection Act (ARPA) signs in the immediate vicinity of all rock art sites in RRCNCA. Signs should be placed so as not to draw attention to the sites.

6. Consult with Native American groups and individuals prior to implementing actions which may impact areas of significance to Native Americans. Develop a cooperative agreement with the Las Vegas Paiute Tribe to assist BLM with the preparation of informational and interpretive signs, and brochures.

7. Cultural resources managed for information potential may be studied upon BLM and SHPO approval of a plan of study presented by an accredited institution. The proponent would be required to provide a report of the information gained for use by the NCA interpretive staff.

FACILITIES - BUILDINGS, ROADS AND TRAILS

Buildings

Visitor Center

After twelve years of use and increasing visitation, the Visitor Center is too small to handle current visitor loads, is suffering from aging facilities and exhibits and does not provide adequate space for staff and volunteer needs. Space compromises and minor redesigns over the years have tried to meet needs, but they are just not enough to compensate for the needs created by increased staff, volunteers and the success of the RRCIA bookstore.

No provision was made for a bookstore in the original design and the current bookstore is a major part of the visitor services being offered. Storage space for materials and supplies is both inadequate and hard to access. Staff has to crawl through displays to get to some areas and the stage above the pit was sacrificed to provide storage for RRCIA's books and materials

The exhibits still receive favorable comments from the public, but they are badly aged and out of date. Some of the principal problems are - None of the maps have been updated with the 1990 NCA boundary, the waterfall exhibit does not work, signs are cracked and peeling, the recreation exhibit is dated and an inefficient use of space, the wand system uses the original tape player and has no foreign language capability and the new mural cannot be easily viewed by handicap persons or persons who cannot climb stairs.

On a positive note, the completion of the office expansion has improved working conditions for BLM staff, volunteers and RRCIA greatly. It also showed that the building can be modified without altering its architectural integrity.

There is a real need for a meeting/classroom larger than the Joshua Room. The number of school groups visiting the Visitor Center continues to increase but the Joshua Room is too small to adequately hold these classes during videos and lectures. This room was not designed as a meeting room, but defaulted to one when the alternative energy exhibits were never installed. The room's capacity is about 25 to 30 persons in a lecture format and only about 20 if tables are necessary. Lighting and ventilation are poor. Suggestions have been made for many years that a separate meeting and conference facility be built near the Visitor Center. With acquisition of the Oliver Ranch (see below), part of this need has been met.

The current proposed action is to pursue an addition to the current Visitor Center providing for a small auditorium, meeting room(s) and increased storage. As part of this project, the Joshua Room and original desk area would be remodeled to provide a separate expanded sales area for the RRCIA bookstore and the exhibits would be updated and supplemented with increased wildlife and Native American themes.

Oliver Ranch

In August 1993 BLM acquired the 300 acre Oliver Ranch through a land exchange. Current plans call for the ranch to be used for NCA administrative functions such as wild horse corrals, a fire station, employee and volunteer housing and equipment storage. The ranch would also be developed as an environmental training and conference center. The original house is actually a small dwelling with large attached enclosed porch, which makes an excellent meeting room(s). The ranch offers a unique opportunity for outdoor classroom activities.

The ranch house is structurally sound, but needs a lot of time consuming cosmetic work (painting, caulking, floor levelling, window repairs). A heating unit needs to be added as the only current heat is a wood stove and small electric space heater.

There is also room for the construction of some bunkhouses and small apartments to be used by BLM staff and/or volunteers. College interns and volunteers (Student Conservation Association) could offer needed assistance to the NCA staff, but these programs require that housing be provided. Additional housing would also allow BLM to have a Law Enforcement Ranger or other staff person on-site within the NCA.

Existing Facilities

Existing facilities (picnic areas, overlooks, restrooms) have suffered from vandalism and lack of maintenance for many years. During 1992 and 1993, a program of increased maintenance resulted in improved restrooms, new tables and grills, and increased parking. A continuing program of repair and upgrading will include additional tables, benches, restrooms and new shade covers.

Road System and Vehicle Management

Road designations and vehicle limitations would be implemented as follows. New road improvements, primarily parking areas and trailheads, would be located adjacent to existing roads.

1. Existing dirt roads which serve no purpose or which are causing environmental damage would be closed or paved. For the existing 71.0 miles of dirt road this breaks down to -

   23.5 miles closed to use and rehabilitated
   26.3 miles closed to use, gated for administrative use only
   19.7 miles open for public use
   1.5 miles paved to reduce dust emissions and visual impact

2. All motorized vehicles would be required to stay on designated roads and trails.

3. The Rocky Gap Road would be managed as a one way (westward) four-wheel drive backcountry trail. The road would receive limited maintenance necessary to protect natural values, limit erosion and provide administrative access for BLM purposes.

   In 1979, Clark County submitted their claim of Revised Statute (RS) 2477 status for this road historically used as a commercial route to haul potatoes from Pahrump to Las Vegas. The road is no longer used as access to Pahrump and the county has indicated it is not planning on maintaining it. However, because of the County's claim, BLM is limited in its range of actions. If the county were to relinquish their claim, the preferred action would be to close the road to motorized vehicles.

   The County has indicated that it does not plan on maintaining this road. BLM does not have the resources or desire to maintain the road either. However, the lack of past maintenance has caused all water crossings on the road to fail resulting in significant erosion and loss of soil in some locations. In order to correct current erosions problems and to attempt to lessen future impacts, BLM will make limited repairs to water crossings and culverts.

4. La Madre Springs Road would be gated. (Use by permit only)

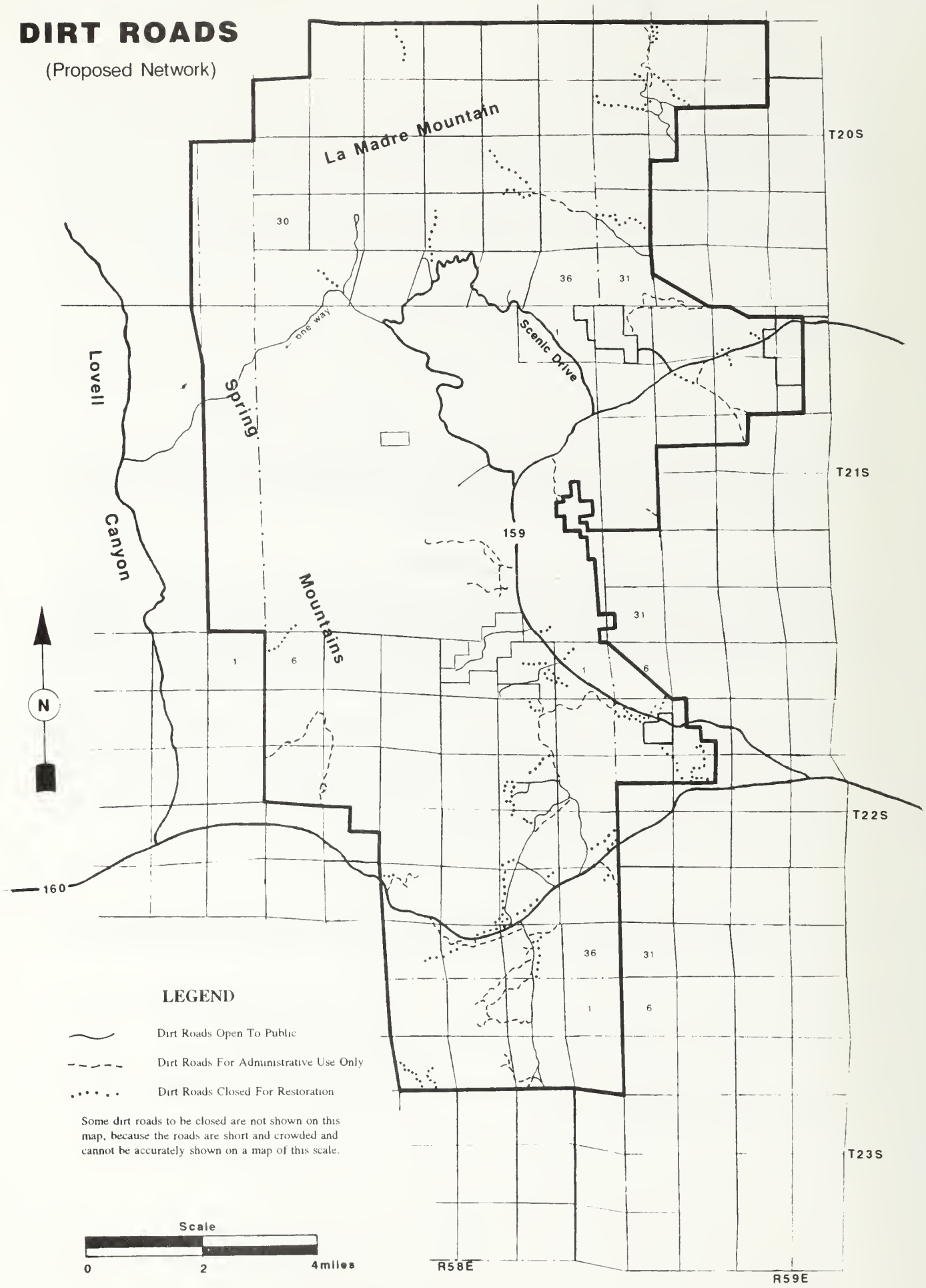
5. The area southwest of the Pine Creek WSA and north of Highway 160 would be closed to motor vehicles. This is the area directly north of Mountain Springs.

6. The north-south road in Cottonwood Valley, south of Highway 160 is designated for vehicle use. All other lands south of Highway 160 would be closed to motorized vehicles.

7. The dirt road leaving Highway 159, 1/2 mile east of the Calico Basin turn-off, would be closed and gated (Use by permit only)

DIRT ROADS

(Proposed Network)



8. No motorized vehicle events, involving speeds in excess of the posted speed limit, or competitive motorized vehicles events would be allowed in the NCA.

There are two road construction projects proposed for the Scenic Drive. These projects are designed to provide for improved visitor safety, reduce traffic and avoid potentially hazardous situations.

1. Create a "short loop" by constructing a 2.4 mile road from Sandstone Quarry to the Visitor Center (see map following page). This road would follow the old Sandstone/Willow and Willow Springs roads for 9/10 mile of its length. This would allow vehicles and bicycles to return to Highway 159 without travelling around the entire Scenic Drive.

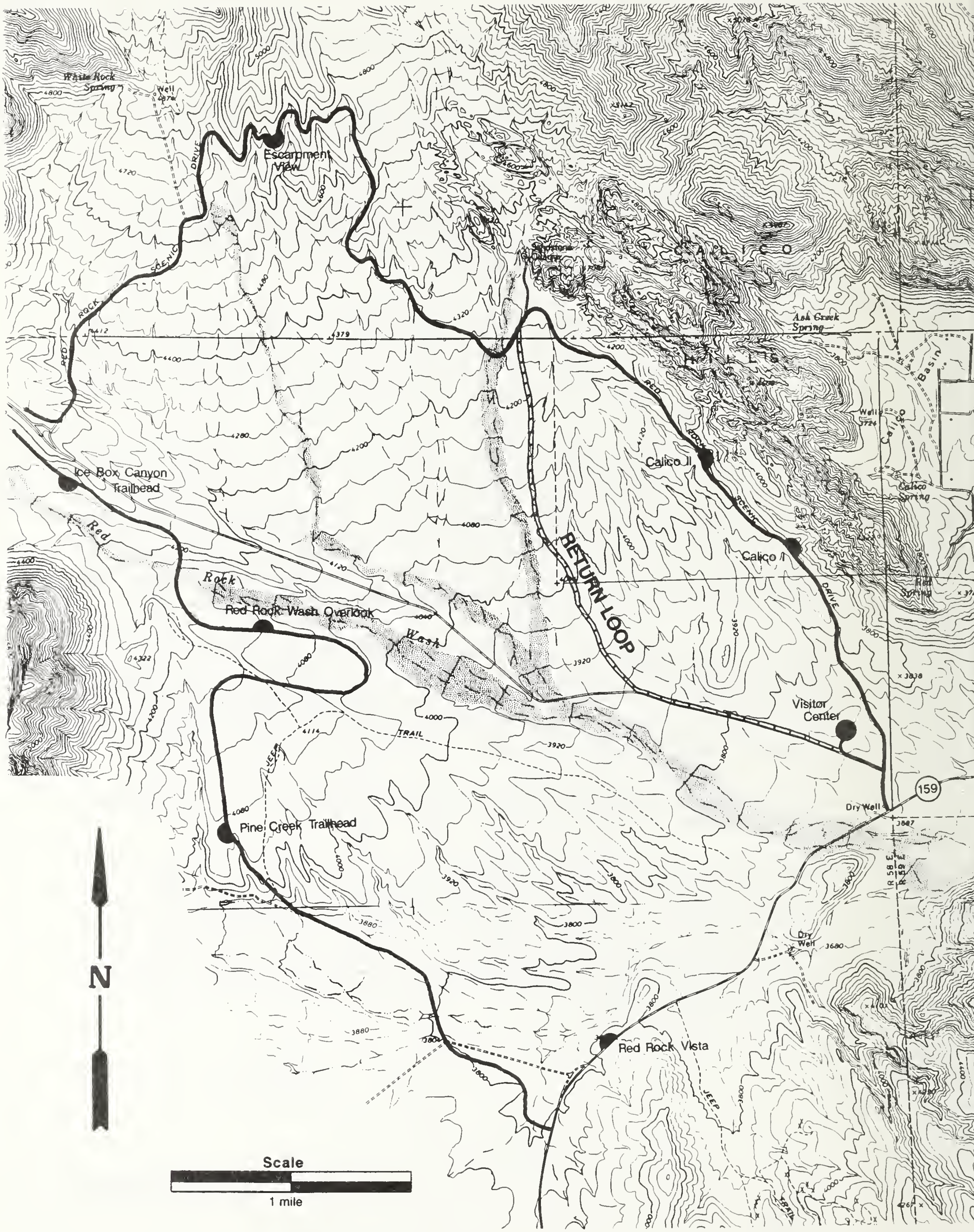
   When flash flooding blocks the wash just beyond the Sandstone Quarry turnoff, the Scenic Drive is closed, because as a one way road, there is nowhere to go. This denies access to the Calico Hills and the unique waterfall displays during rainstorms. A short loop, which returns to Highway 159 without crossing any washes, would allow use of a part of the Scenic Drive at all times.

   In addition, many visitors recreate at the Calico Hills and do not want to drive around the Scenic Drive when they are ready to leave. Most travel around the Scenic Drive as required, but a significant number travel the wrong way back to the entrance, creating a major safety and enforcement problem. There is a frequent occurrence of bicycle riders attempting the Scenic Drive, finding it too much of a challenge, and returning the wrong way to the entrance. Both situations lead to wrong-way traffic and both could be prevented with the return road. This project would reduce traffic on the center portion of the Scenic Drive where most accidents take place.

   Consideration has been given to converting the first three miles of the Scenic Drive back to two way traffic. This idea has been dropped in favor of the short loop in response to numerous comments on the safety aspects of two way car and bicycle traffic. The option of widening the existing road to accommodate two way traffic has also been dropped due to the significant visual impact which would be created versus the proposed road which is hidden behind the Moenkopi Ridge.

2. Provide access to the North Oak Creek Road by widening the last 7/10 mile of the Scenic Drive to allow two way traffic from the exit to the road junction.

   Because the Scenic Drive is one-way, visitors must travel all the way around it to access areas which are near the exit. This causes two dangerous situations - visitors drive at excess speeds to get to their destinations, or they enter the exit and drive against one way traffic. This project would reduce traffic on the Scenic Drive and provide more convenient access for users of Juniper and Oak Creek Canyons. Future consideration of extending the two way road to Pine Creek, as planned in the 1976 Master Plan is possible.



Escarpment View
Ice Box Canyon Trailhead
Red Rock Wash Overlook
Pine Creek Trailhead
Red Rock Vista
Calico II
Calico I
Visitor Center
RETURN LOOP
RED ROCK SCENIC DRIVE
CALICO HILLS
Red Rock Wash
TRAIL
JEEP
Dry Well
159
N
Scale
1 mile

A third road project could be constructed as part of implementing a shuttle system if such a system is desired in the future. This would be a road paralleling Highway 159 from near the Scenic Drive exit back to the Visitor Center. The purpose of this road would be to allow safer operation of shuttles by allowing them to return to the Visitor Center on a closed loop rather than having to re-enter Highway 159 and conflict with the faster moving highway traffic. This road could be of minimal width probably not exceeding 14 feet. It could also function as a bicycle lane from the Visitor Center to the exit instead of using Highway 159.

Improvements proposed for existing roads and parking areas are:

1. Pave the Red Spring, White Rock, Sandstone Quarry and North Oak Creek roads and the Willow Springs, Lost Creek and Ice Box parking areas.

   The benefits of the above action include improved access and reduced maintenance. It would also reduce particulate matter in the atmosphere, which is an ongoing concern of Clark County.

2. Improve maintenance of the dirt roads accessing the Mud Springs and Black Velvet areas from Highway 160 (do not pave). Gate the access road north from the Mud Springs/Black Velvet junction to Bonnie Springs.

3. Expand the Pine Creek parking area to meet existing and future needs.

4. Upgrade and modernize the Dedication Site parking area and overlook to adequately handle existing and future use. Replace or repair existing signing and install a gate to limit access after dark.

The Scenic Drive's parking areas were not designed to handle current demands. Between technical rock climbers, hikers, scenic viewers and others, the 264 parking spaces available along the Scenic Drive are not always adequate to provide for everyone during the heaviest use periods. To provide additional parking as well as scenic viewing areas, the following improvements are proposed:

1. Develop Upper Sandstone Overlook/Trailhead.

   This parking area would serve as both a trailhead for the Turtlehead Mountain trail and as an alternate to or overflow area for the existing Sandstone Quarry parking area. Expansion of the existing Sandstone Quarry area is not feasible due to location of the site and cultural resources.

2. Construct Ranger's Choice Overlook and Picnic Area on the bench above Red Rock Wash Overlook, one-half mile before the entrance to the Pine Creek parking area.

Trail System

The following trails are proposed for construction or upgrading. Exact trail locations will be selected after site specific design studies and considerations for riparian resources, wildlife and other sensitive resources.

Foot trails

1. Bridge Mountain Trail - Improve and maintain the existing trail for easier following and public safety.

2. Great Circle Trail - This trail would begin at the Visitor Center and go to Calico I, II & III, Sandstone Quarry, White Rock and Willow Springs. Return to the Visitor Center on the old Willow Springs Road. (Horses would be allowed on the existing trail from White Rock to Willow Springs and back to the Visitor Center.)

Foot and/or horse trails (proposed trails)

1. Base of the Escarpment - The trail would run from Willow Springs south to Highway 160 along the base of the escarpment.

2. Upper Escarpment Trail - Along the crest of the escarpment, from the Forest Service boundary north of Red Rock Summit, south to Highway 160 at Mountain Springs. Because of the very low use this area receives, this trail would not be constructed until resource monitoring found that multiple trailing was occurring and a single path was necessary for resource management.

Foot, horse and/or mountain bike trails (located on old roads)

1. Rocky Gap Road (also used by motor vehicles) - This trail is the route across the NCA to Lovell Canyon. It also affords a connection with the upper escarpment and Bridge Mountain trails.

2. Old roadway east of SH 159 from the Calico Basin road to the Scenic Drive exit and Oak Creek - A series of old roadbeds allows travel between Calico Basin and the Scenic Drive Exit and/or Oak Creek. This trail connects several areas along SH 159 and creates several large loop trails in conjunction with the old Willow Springs and Oak Creek Roads.

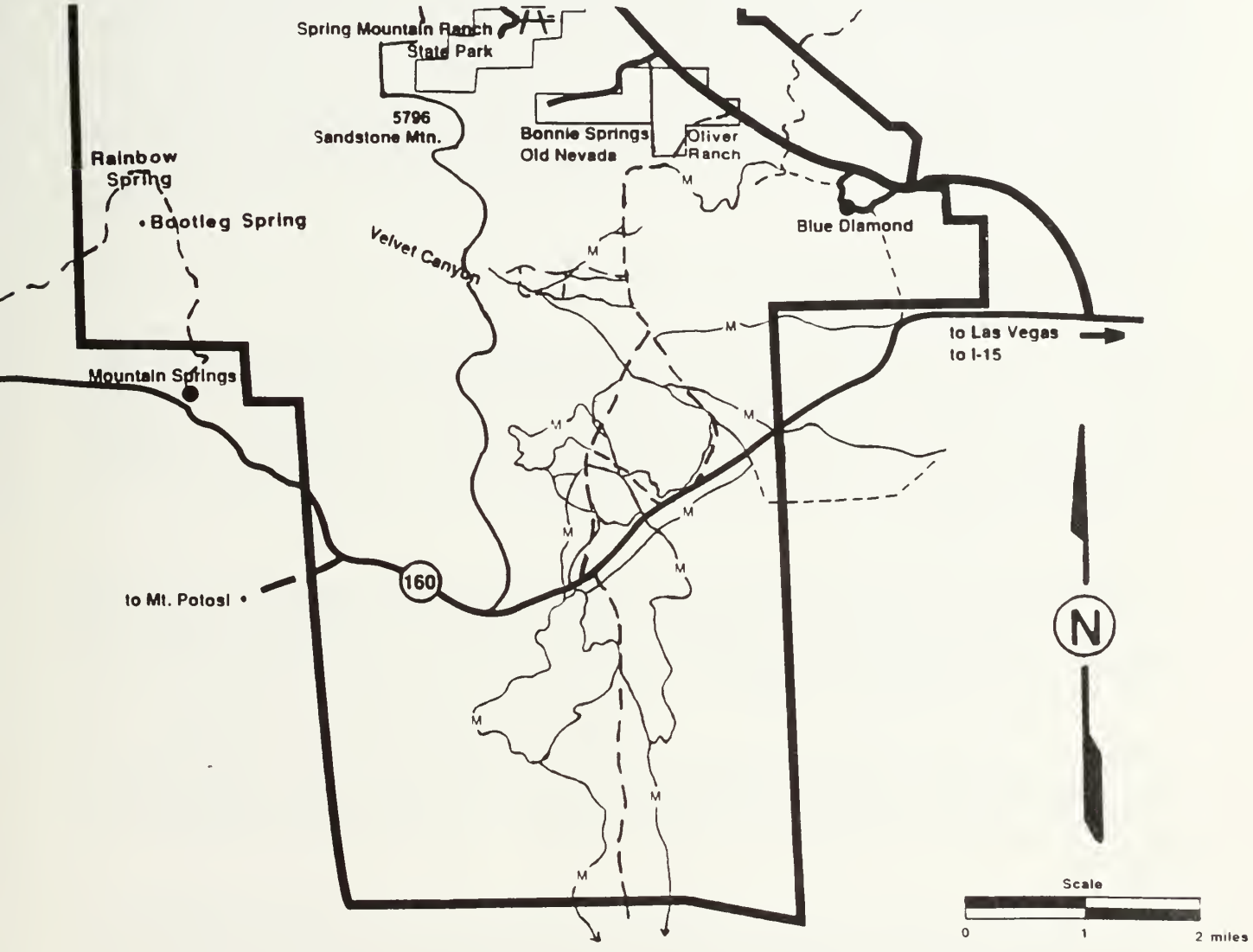
3. Willow Springs to the Visitor Center - This trail is the lower portion of the old Rocky Gap Road replaced by the Scenic Drive in 1978.

4. Oak Creek Loop - This trail begins at them N. Oak Creek Road trailhead and goes to the mouth of Oak Creek, continue south on the closed (South) Oak Creek Road and return to Scenic Drive/N Oak Creek Road on Hwy 159

5. Mid Valley Trail - From Oliver Ranch entrance south on an old dirt road (closed) to the proposed gate at the Mud Springs/Black Velvet Road junction (continue south on dirt road to Highway 160).

Mountain Bike Trails

The map below indicates the mountain bike trails used in the Cottonwood Valley area. These are most of the major routes, although there are others, that for the most part have been derived from horse trails and combine with many of the dirt roads in the area to provide a series of loops and destination rides. The routes shown on the map, along with some other possible routes in the Cottonwood area will be designated as trails. After the trail system has been determined, mountain bikes must stay on the designated trails.



-Mountain bike trails are indicated with the "M"
-Dashed lines indicate dirt roads

CAMPING FACILITIES AND DESIGNATIONS

There is a demand for backcountry camping opportunities and developed camping facilities in the NCA. The proposed plan allows backcountry camping in designated areas and provides developed facilities but in a location(s) other than the current camping areas. The proposed plan calls for the closure of both the Oak Creek and Black Velvet camping areas and the re-location of all camping to Oliver Ranch site (or alternative) with proper sanitation facilities and a larger capacity.

Primitive camping facilities exist at the junction of State Highway 159 and the Oak Creek Road, with overflow being directed to Black Velvet Canyon and Cottonwood Valley. The Oak Creek Campground has not been fully developed and lacks toilet facilities. The number of campers regularly exceeds the site's capacity and the location makes expansion or re-design infeasible. The site suffers from continuing overuse and resource damage. Public comments received during scoping were almost unanimous in their call for the closure and relocation of this camping area. Access to the Black Velvet area is by a rough dirt road and requires 4-wheel drive or a vehicle with high ground clearance. Due to the area's remoteness, no facilities have been provided.

Proposed replacement camping area

Oliver Ranch - The preferred site for the replacement campground is the Oliver Ranch (map pg. 50). This would be a fee campground designed for tent campers providing individual sites, water, toilets and garbage pickup. No facilities for recreational vehicles would be provided since these are provided in abundance within Las Vegas. The campground would initially include 50 sites with a future capacity of 100 if needed.

Alternative camping areas

10 Mile Canyon - (an area adjacent to the Desert Cave area). The 10 Mile Campground would have designated campsites, toilets and trash receptacles, but no running water unless a well can be drilled. The location provides easy access from Highway 159. 10 Mile may be developed in addition to Oliver Ranch to provide a location for group camping and to accommodate overflow from Oliver Ranch.

Calico Basin - Two large parcels of private land on the west edge of Calico Basin may be acquired by BLM through land exchange. Access to these lands is good, some roads already exist and water is available. A camping area and administrative site is one of the options to be considered should these lands be acquired.

Camping outside of the developed campground(s) would be limited to the top of the sandstone escarpment (by permit), the old La Madre Springs building site (by permit) and the area west of the north-south limestone ridge crest (open use). No camping would be allowed on the valley floor or in the canyons.

TECHNICAL ROCK CLIMBING

At present there is no plan to guide the management of technical rock climbing. When the Red Rock Canyon Master Plan was developed in 1976, climbing was at a low participation level and was not even discussed. The sport has grown over the years to the point where RRC is internationally known. The local climate is conducive to climbing year round. It is important to develop climbing policy as part of the integrated plan for the NCA, with input from the climbing community, so that actions developed can be in a proactive manner and not in reaction to a crisis situation in the future. Use will be monitored and adjustments to the plan made as necessary. It is the BLM's desire to work with the climbing community in a manner that will preserve the nature of the NCA's resources and require a minimum of restrictive measures.

The following actions constitute the proposed actions for managing technical rock climbing.

1. Establish a Climbing "Advisory Council" (AC)

This committee would be composed of 3-4 local climbers, permittees and/or sports shop representatives interested in representing the climbing community in information exchange and issue resolution. Anyone is welcome to contact BLM with questions and concerns, but the AC would offer climbers an alternate method of communication with the NCA staff.

Some of the coordination between the AC and the BLM would include:

- Proposals for bolt replacement on wilderness climbing routes would be reviewed by the AC and a recommendation passed on to BLM. BLM would consider issuing a bolting permit;

- Working together to organize resource protection projects, such as designated approach routes to avoid trail braiding, or removing chalk, ropes and slings from climbing surfaces;

- Joint efforts to inform non-local climbers of NCA policies and regulations and keep local climbers updated on any new and relevant information;

- Maintaining communications, keeping each other up to date on pertinent information and constituent concerns.

2. Climbing Restrictions

The BLM will be studying and monitoring wildlife and plants in the NCA on an ongoing basis. If raptor nesting sites are found, climbing restrictions will be imposed during critical nesting periods. Should any "T&E" species become an issue, appropriate actions will be taken as needed.

No alteration of the rock surfaces by gluing, chipping or chiseling will be allowed.

There will also be restrictions based on cultural resources as follows:

- No climbing will be allowed within 50 feet of rock art or other documented cultural resources;

- Known cultural sites, such as Sandstone, Willow Spring and Red Spring, will be signed to alert climbers about site specific restrictions.

3. Climbing Equipment

No permanent fixed ropes or cables will be left for climbing or belaying purposes.

Bolting will not be allowed in the following locations:

1. Sandstone Quarry area within 1/4 mile of the parking area

   The Sandstone Quarry area has an abundance of cultural resources and is considered a historic area because of the quarry and related artifacts. To avoid detracting from the visual experience of scenic viewers and because of the abundance of cultural resources, no new bolting will be allowed.

2. Within Wilderness Areas/Wilderness Study Areas

   The placement of new bolts utilizing electric battery powered drills will not be allowed in wilderness or wilderness study areas. The Pine Creek and La Madre Mt. Wilderness Study Areas are recommended for wilderness designation. Should the Congressionally designated boundaries be different from those proposed by BLM, NCA policy will adjust accordingly.

3. Replacement of existing bolts in the aforementioned locations should be presented to the Advisory Council for review and on to the BLM to request a permit.

BLM strongly encourages the use of the following equipment:

- the "Bison Ball", "X-Factor" or the like, as opposed to an open chalk bag;

- tinted hangers designed to blend with the rock face;

- drab colored web gear, especially when used for a rappel anchor.

4. Commercial Climbing

In meetings with local climbing enthusiasts, and in comments received, there was concern with large numbers of trainees causing climbing areas to become overcrowded. The following policies are designed to avoid overcrowding while maintaining the maximum access for commercial climbing.

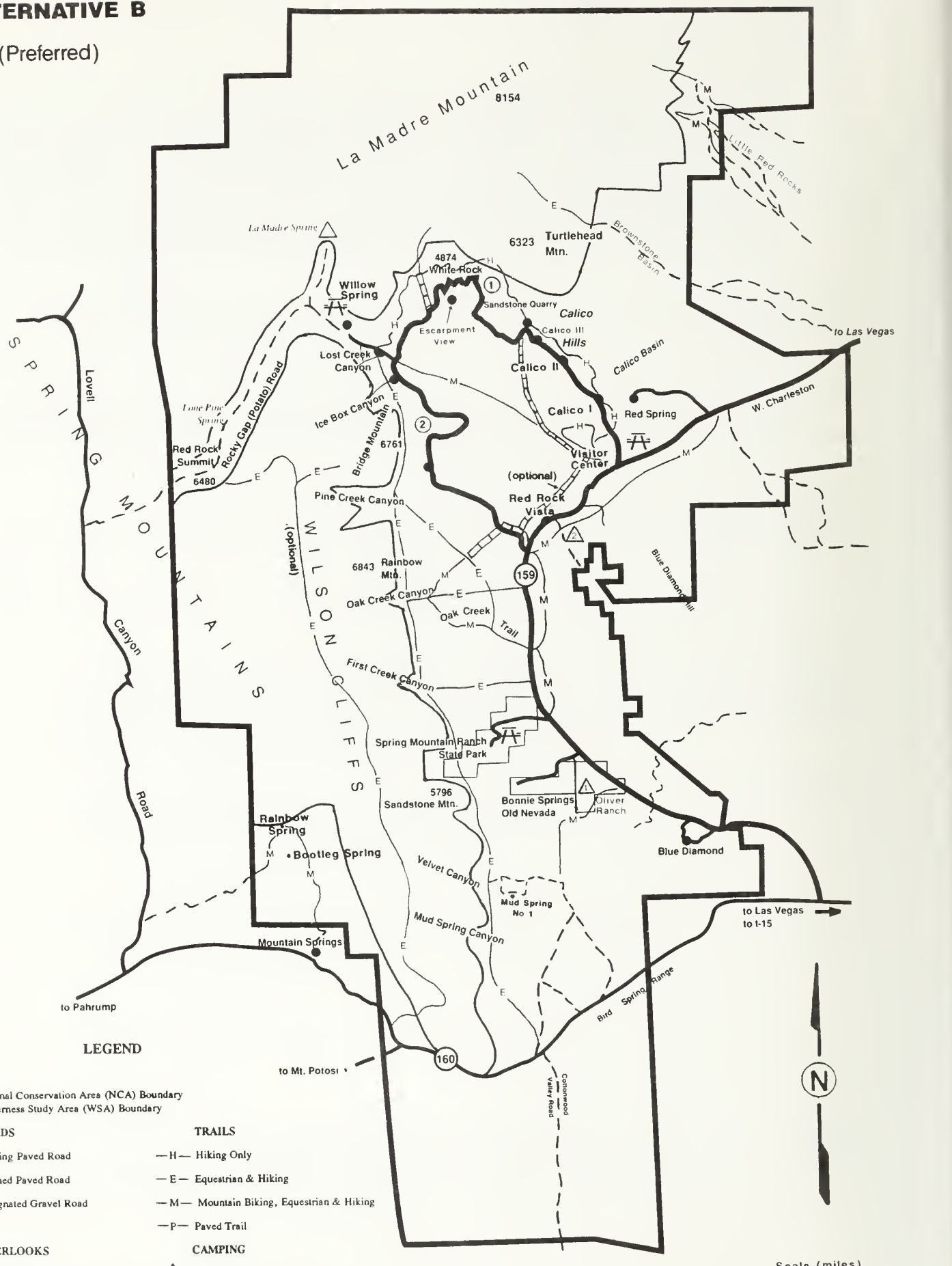
1. The number of commercial rock climbing permits authorizing year-round use in the NCA will be limited to six as at present. An additional five "guest" permits will be available for commercial users who wish to use the NCA only once each year. These permits will be limited to a one time only three day visit per year. This combination of permits will allow the flexibility to meet both the needs of commercial climbing schools who regularly use the NCA as well as the occasional user while keeping use levels at approximately the levels authorized in 1993. Permits not used for two consecutive years will be cancelled.

2. Commercial group size in any one area or on a specific route is limited to 10 students plus instructors.

3. No more than two different commercial groups may use the Sandstone area, the Gallery, Kraft Rock, Calico I, Willow Springs/Lost Creek or Pine Creek at any one time. The two groups may not be operating under the same permit.

ALTERNATIVE B

(Preferred)



*See Management Common to All Alternatives for mountain bike trails in Cottonwood Valley

ADDITIONAL MANAGEMENT CONSIDERATIONS

SHUTTLE BUS AS ALTERNATE TRANSPORTATION

On March 21, 1993, the number of parked vehicles, 436, so far outnumbered the existing parking spaces, 250, that the Rangers felt both natural resources and visitor safety were threatened and, for the first time ever, closed the Scenic Drive to entry. Closure has not been necessary since, but is probably inevitable in the future unless additional parking is provided or vehicles are reduced.

As a result of the closure the suggestion has been made that a shuttle bus system be implemented to solve the parking and congestion problem. This idea was included in the 1976 Master Plan for future study.

The Red Rock Canyon Scenic Drive is a thirteen mile one-way recreational road completed in 1978. Use of the Scenic Drive has increased yearly to a point where in 1993 estimated visitation included about 400,000 vehicles.

Completion of the Scenic Drive was one of the improvements in the 1976 Red Rock Canyon Master Plan. Also included were 10 new parking, picnic and overlook areas along the Scenic Drive. Of these 10 areas, only three were constructed leaving the Scenic Drive far short of the number of parking spaces necessary to meet the needs of an expanded scenic route. This shortage has only worsened as visitation has increased over the last 10 years.

A preliminary analysis of the cost of operating a shuttle system vs. increasing the number of parking spaces was conducted in June of 1993. Several options were not analyzed because they did not solve the problem, were in excess of needs, or were not practical or affordable. These included - 1) taking no action, 2) shuttle service on demand (bus waits around to see if anyone wants to use it), 3) seven day-a-week shuttle service during high use periods and 4) year-round shuttle service.

The most common suggestion for shuttle operations is a system which would operate weekends and holidays during the spring and fall high use periods. All visitors would be required to use the shuttle, which would depart from and return to the Visitor Center. Tour busses and handicapped visitors could be exempted from using the shuttle.

Staffing implications

Any system requiring control of vehicles at the entrance will require a minimum of four new permanent positions. Any shuttle system would require the addition of a contracting specialist to the staff.

Shuttle hours

During the hours the Scenic Drive is normally open plus one hour (usually 7 AM to 9 PM).

Shuttle vehicle ownership, operation and maintenance

If a shuttle system was implemented, it would be a service contract with contractor provided shuttle vehicles, drivers and maintenance.

Handicap Access

Shuttle vehicles would be required to be equipped to transport handicapped individuals.

Conclusions

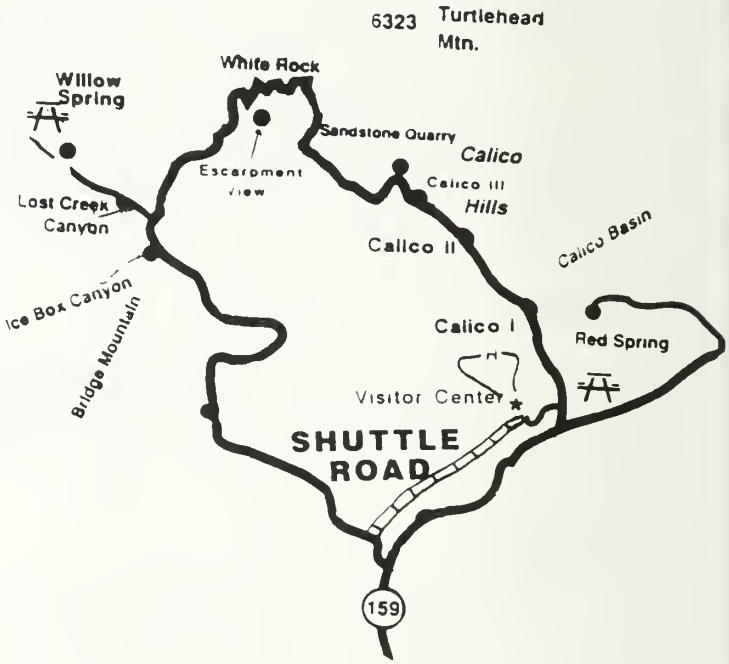
1) A weekend shuttle system would not solve the overcrowding at Calico I, II and Sandstone which occurs on weekdays as well as weekends during climbing season.

2) Visitor freedom would be significantly restricted, especially for those visitors planning on picnicking at Willow Springs.

3) The large parking area, which would be required at the shuttle boarding area near the Visitor Center, would be far more intrusive than expanding the existing areas and adding some new parking areas.

4) The cost of increasing parking from 250 to 500 spaces would require an initial investment of approximately $ 700,000, and yearly costs of less than $ 5,000. The cost of implementing a weekend/holiday shuttle would require an initial investment of $ 2,850,000, yearly costs of $ 250,000 and a contract guarantee of approximately $ 1,300,000 yearly.

While the idea of a shuttle system is attractive in terms of reduced vehicle use and congestion on the Scenic Drive, it would not solve the overcrowding problem if operated on a weekend/ holiday only schedule. The cost of operating a weekend/holiday shuttle is not within the ability of BLM to fund and the cost of a seven day a week shuttle would be prohibitive. While it might be possible to pay for the cost of a shuttle by charging each rider, the very likely implementing of an entrance fee for Red Rock in the near future would mean an entrance cost of around $ 5.00 per person. This is not an acceptable solution. Therefore, no shuttle system will be implemented as part of this GMP, but future consideration may be given if a cost effective way can be found to operate it.



DESIGNATION OF AREAS OF CRITICAL ENVIRONMENTAL CONCERN

An Area of Critical Environmental Concern (ACEC) is an area which requires special management emphasis or attention. This administrative designation, created with the passage of the Federal Land Policy and Management Act of 1976, may be made for a variety of reasons, including protection of rare, endemic or threatened species, protection of unique areas, and public safety. Designating an area as an ACEC commits the BLM to prepare a management plan for the ACEC, but does not provide any form of statutory protection or withdrawal.

During the scoping process for the Stateline Resource Management Plan (RMP being prepared concurrently with this GMP), a large area including and surrounding the Red Rock Canyon NCA was nominated for ACEC status. An analysis of the pros and cons of designating the Red Rock Canyon NCA as an ACEC has not been included in this GMP, because the protective measures provided to the NCA through the Act creating the NCA already exceed any protective measures which could be implemented through an ACEC plan. Designation as an ACEC would be redundant. Lands outside the NCA nominated for ACEC status will be evaluated as part of the Stateline RMP.

CAVE RESOURCE MANAGEMENT

There are a limited number of known caves in the NCA. The most well known cave is Desert Cave. Unfortunately, the once superb features in this cave have been destroyed by vandalism and careless users.

Caves will be managed to protect their fragile resources. BLM will continue to work cooperatively with local cavers and organizations to compile information on cave resources. Because of the fragile nature of cave resources, information on cave locations will not be included in this plan or be generally available. Persons interested in cave resources will usually be referred to one of the local cavers. BLM will not sponsor or conduct cave tours other than in conjunction with local caving organizations. Gating of cave entrances will be considered if necessary to protect cave resources.

DESCRIPTION OF ALTERNATIVES

Alternative A

Alternative A is the "no action" alternative, which implies continuing to follow the principles of the 1976 Master Plan. Many of the actions proposed in the 1976 Master Plan were never implemented. Some of those actions are still valid and would be carried out, while others are no longer viable due to the changing situation since the Plan's development. New situations have developed since 1976 that require new actions and management direction. In effect, there would be no plan to follow and situations would be dealt with on a case-by-case basis.

Facilities

Buildings

Visitor Center - The process of modernizing and upgrading will continue to enable the Visitor Center to meet current and future visitor and administrative needs. Emphasis will be placed on exhibit upgrading and provision of expanded meeting/auditorium space.

Oliver Ranch - The ranch buildings will be maintained with the goal being the use of the area as a conference and environmental training center. A site on the northwest corner of the ranch property will be developed for camping if an acceptable design can be developed.

Roads and Overlooks

Roads will be managed much as they have been. Those mentioned in the 1976 Master Plan will be maintained and some improvements will be made. The majority of dirt roads will be left open (designated), but will not be maintained. Some of the unplanned dirt roads that have developed through continued vehicle passage will be closed to motor vehicles. Motor vehicle use is limited to designated roads. Two additional overlooks would be constructed, which would still be shy of the number called for in the 1976 Master Plan.

Trails

Trails in the 1976 Master Plan would be constructed, including along the top of the escarpment and along the base. At present, there is no plan to manage mountain bikes. Alternative A would respond by designating many of the old dirt roads for mountain bikes that will be closed to motor vehicles, by including mountain bike use on some of the trails designated for hiking and horse riding, and by designating some of the trails presently used in the Cottonwood Valley area which were originally formed from wild horse use.

Camping Facilities

One full service campground (toilets, water and possibly showers) and two primitive campgrounds would be included in this alternative. One of the primitive campgrounds would be developed for group camping

by permit. Overnight campsites would be designated for use by permit.

Other Issues

See Alternative C

The National Environmental Policy Act (NEPA) requires that the planning process consider a "no action" alternative in plan development. For the purposes of Red Rock Canyon, "no action" is not a viable alternative for selection, because the 1976 Master Plan is outdated and does not provide direction for many current needs. Also, in 1990, RRC changed designations from "Recreation Lands" to "National Conservation Area" (NCA). The Congressional legislation designating the NCA states that a new general management plan will be developed for RRCNCA.

Alternative B - the Proposed GMP

Alternative C

Alternative C responds to public demand with a higher level of development than is found in the other alternatives. Most of the facility development occurs in the "Roaded Developed" Management Emphasis Area, although some occurs elsewhere, such as a visitor contact station at the entrance of Brownstone Canyon. Many of the improvements are carried forward from the 1976 Master Plan.

Facilities

Buildings

Visitor Center - The process of modernizing and upgrading will continue to enable the Visitor Center to meet current and future visitor and administrative needs. Emphasis will be placed on exhibit upgrading and provision of expanded meeting/auditorium space.

Oliver Ranch - The ranch buildings will be maintained with the goal being the use of the area as a conference and environmental training center. A site on the northwest corner of the ranch property will be developed for camping if an acceptable design can be developed.

Roads and Overlooks

All of the roads and overlooks included in the Preferred Alternative are also included here. In addition, Alternative C would upgrade several dirt roads which are closed or not maintained in other alternatives. It is the only alternative which proposes an overlook outside of the Scenic Drive "Roaded Developed" zone. This overlook would be in Cottonwood Valley north of Highway 160.

Trails

A variety of trails for hiking, horse riding and mountain biking are provided in each alternative with a few variations. Alternative C offers several paved trails to accommodate tour bikes.

Camping Facilities

Alternative C offers the widest range of camping opportunities, with a full service campground, three primitive campgrounds (one for groups by permit), and several overnight campsites which require a permit. Also included is the option of an additional campground to be constructed if needed.

The full service campground location is proposed at Oliver Ranch. An alternative site is proposed as an option if the Oliver Ranch location is not implemented after an on site study (environmental assessment) is completed. The alternate location would be at either Cottonwood Valley or Calico Basin. One of these sites may be developed in the future if additional camping is needed in the NCA, even with the Oliver Ranch site.

Other Issues

Other issues include Threatened and Endangered Species, Biodiversity, Riparian, Cultural Resources and Wild Horses and Burros. They are all important issues and do not allow much leeway in management or actions taken. The issues involving natural resources are governed, for the most part, by federal laws and Bureau policy, and take precedence over other issues when conflict arises. See "Management Common to All Alternatives".

Alternative D

Alternative D proposes the least amount of new development. It is the most restrictive in meeting user demand and responding to increasing needs, but also allows for the lowest level of resource disturbance.

Facilities

Buildings

Visitor Center - The process of modernizing and upgrading will continue to enable the Visitor Center to meet current and future visitor and administrative needs. Emphasis will be placed on exhibit upgrading and provision of expanded meeting/auditorium space.

Oliver Ranch - The ranch buildings will be maintained with the goal being the use of the area as a conference and environmental training center. A campground would not be developed.

Roads and Overlooks

Access by motor vehicle is limited in most areas. Many of the dirt roads presently existing will be closed, leaving 5 or 6 which will be designated for motor vehicle use. The fewest improvements to existing overlooks would be made, and no new overlooks would be constructed.

This is the only alternative in which a shuttle bus system would be implemented as a planned action not a future option. Included in the shuttle system plan would be a 1,000 vehicle parking lot below the Visitor Center and a service road from near the Scenic Drive exit to the Visitor Center. The service road would be twelve feet wide and allow shuttles to return to the Visitor Center without using Highway 159.

Trails

A few less trails are offered, but there would still be an abundance of opportunities for hiking, mountain biking and horse riding. The only major new construction (not on an old road or existing route) would be along the base of the escarpment, which detours around Spring Mountain Ranch State Park and Bonnie Springs.

Camping Facilities

This alternative does not provide any camping facilities in the NCA. The only camping allowed would be at higher elevations as designated by the BLM.

Other Issues

See Alternative C.

INTERPRETIVE PLAN

Interpretive Theme

The major theme of Red Rock Canyon National Conservation Area is its outstanding biotic diversity. Red Rock Canyon is an excellent example of geologic, flora, fauna and cultural resources found in the Mohave Desert. Interpretive programs, signs, trails and exhibits will interpret the various ecosystems at Red Rock Canyon NCA. Only through such an understanding of the geological, ecological and cultural resources characteristic of Red Rock Canyon, will the cooperation of visitors be obtained in maintaining and conserving these fragile resources. Interpretive development of Red Rock Canyon NCA will consist of an updated version of the existing 1986 "Proposed Interpretive Development for Red Rock Canyon Recreation Lands" and elements from the 1976 Red Rock Canyon Master Plan.

Interpretive Program Goals

The main interpretive goal is to enhance the visitor's experience at Red Rock Canyon. Tourism plays an important part in southern Nevada's economy. A concurrent interpretive goal by the Bureau while enhancing the visitor's tour, will be to determine topics to interpret, why and what will be accrued environmentally because of interpretation. The 1986 "Proposed Interpretive Development for Red Rock Canyon Recreation Lands" plan satisfies the NCA legislation's call for an interpretive plan for the area. The interpretive program will be flexible to meet changing needs and updated as necessary.

Additional interpretive goals would include, but not be limited to:

Strengthen ties with and support from continuing volunteer and other agency partnerships with interpretive projects;

Promote the interpretive experience through resource access to the physically disabled;

Diversify the activities and opportunities for visitors;

Further the Bureau's identity and management goals to the public at the NCA;

Focus public attention on and increase knowledge of significant natural or cultural events, resources, projects or people;

Expand the present natural resource education programs centered around Clark County School District elementary children and educators to acquaint the casual visitor at Red Rock Canyon with ecosystem concepts.

Standard Operating Procedures for Interpretive Development

Interpretive programs should be directed at the casual visitor as well as for the serious observer of the desert, and for both the short term and long term visitor. All interpretive statements should be simple in message and presentation. The Visitor Center shall remain the focal point for information, natural resource education and interpretation. Programs in the forms of guided walks or self-guided walks can be given at each pull off and trail. Areas heavily used by visitors should receive the most development with facilities, signs and interpretive messages. This focus allows for more of an interpretive outreach by the Bureau, quantity of benefits/programs received by the public and conservation of natural resources and finances. Topics covering cultural resources, geologic and ecosystem concepts will be expressed in a variety of medias to reach the casual visitor. Where appropriate, other languages besides english will be used to express information and interpretive concepts.

The greatest challenges interpretive planning and programs will face at Red Rock Canyon will consist of how to manage large numbers of visitors with a limited number of facilities, natural resources and personnel available, and project funding. These challenges can be met with a flexible plan allowing for changes that occur with quantities of use and visitor interests over time. The current use of volunteer and hosted worker assistance must continue and increase. Natural resource education projects such as the Junior Ranger and Children's Discovery Trail brochures, workshops, guided public activities and volunteer resource protection projects would continue to assist Bureau staff with management of natural resources and visitor use.

Interpretation's Mission

The main purpose of interpretation is to create topical awareness to an audience through various medias. All interpretation should be accurate, truthful and present the facts of a given subject matter. How an interpreter presents the message is part of the "art" of interpretation. There are six basic principles of interpretation (Freeman Tilden, Interpreting Our Heritage) -

1. Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.

2. Information, as such, is not Interpretation. Interpretation is revelation based upon information.

3. Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.

4. The chief aim of Interpretation is not instruction, but provocation.

5. Interpretation should aim to present a whole rather than a part.

6. Interpretation addressed to children should not be a dilution of the presentation to adults, but should follow a fundamentally different approach.

Interpretation can not guarantee that visitors will receive a better experience. The awareness each individual experiences depends on many factors which are frequently out of the control of the interpretive device. The interpretive encounter should elevate the experience even if it just informs the public of what is in Red Rock Canyon National Conservation Area.

Natural and Cultural History of Red Rock Canyon NCA

The majority of the 600 million year history of what is now Red Rock Canyon NCA was spent at the bottom of a deep ocean basin. A rich variety of marine life flourished in these waters and left behind deposits of shells and skeletons more than 9,000 feet thick which were eventually compressed into limestone and similar carbonate rocks that now comprise the La Madre and Spring Mountains. Beginning approximately 225 million years ago crustal movements caused the seabed to slowly rise and evaporate. The arid land became covered by giant sand dunes more than a half mile deep in places. These shifting sands were buried by other sediments, and eventually cemented into sandstone by iron oxide with some calcium carbonates. This formation is known locally as Aztec Sandstone and makes up the Calico Hills and Escarpment of Red Rock Canyon NCA. The most significant geologic feature of Red Rock Canyon is the Keystone Thrust Fault. This fault and other smaller local faults created the dramatic landscape people view today.

The unique geologic features of Red Rock Canyon allowed for the abundant plant and wildlife development of the NCA. An area that supports vegetation and has one or more dominant species is identified as a vegetation type. Red Rock Canyon has nine different plant communities that support a variety of flora and fauna species. This abundance of life and water attracted early man into the area. The resources of Red Rock Canyon were utilized by various indigenous groups of Native Americans as early as 5,500 before present. Evidence of their occupation can be found in the many cultural resources consisting of pictographs, petroglyphs, agave roasting pits and tools residing in the NCA.

The first visitors of European ancestry that passed through Red Rock Canyon were explores, traders and trappers in the early 1800s. The Spanish Trail was active between 1824 and 1849 and the first permanent settlement was the Sandstone Ranch, presently known as Spring Mountain Ranch State Park, established in 1867. Las Vegas citizens early on knew of the recreational importance of Red Rock Canyon. In 1967 they helped the Bureau of Land Management acquire special land status for Red Rock Canyon in the formation of Red Rock Canyon Recreation Lands. On November 16, 1990, Red Rock Canyon National Conservation Area was designated, creating an even larger area of resources and recreational opportunities for the nation.

Interpretive Development of Themes by Site Location

Visitor Center

The Visitor Center is the focal point for visitor orientation. Located at the entrance of the Scenic Drive adjacent to Charleston Boulevard, visitors can receive educational, informational and interpretive materials, partake in scheduled public activities, and view the overall Conservation Area. The interior exhibits will continue to be upgraded to support increased use and changing information. Major cooperative agreements with not-for-profit organizations providing interpretive

services for both the Bureau and public at Red Rock Canyon will continue to center their activities at the Visitor Center.

Moenkopi Trail

The Moenkopi limestone formation is the best example of the ancient seabed which covered the NCA. Fossilized mud, marine life and sand dunes would be interpreted along this trail. The Moenkopi Trail with its adjacent access to the Visitor Center, can become an additional environmental education trail. Promoting the Moenkopi Trail for educational purposes would reduce the resource damage and use restrictions occurring on the Children's Discovery Trail.

Calico I, II and III

The geology of the Calico Hills presents a variety of topics. This petrified Aztec sandstone formation is a fine example of cross-bedding, mineral leeching, faulting, and erosional actions. Interpretive signs explaining different geological processes should be located both at Calico I and II.

Sandstone Quarry

Interpretation at Sandstone Quarry would focus on cultural resources and wash ecosystems. The early mining history would be the major historic theme with prehistoric Native American use a sub-theme. The geologic processes that affect a wash environment would also be explained by self-guided tours or interpretive signs.

White Rock

The entire ecosystem of Red Rock Canyon can be interpreted here. Sub-themes on geology, springs, flora, fauna and cultural resources can be explained at different White Rock sites. The expansive view from the White Rock pull off is the best place in the NCA to talk about the famous Keystone Thrust. All the faulting and thrusting action that gives the unique escarpment its importance can be seen from this spot. Other geologic sub-themes could be included at White Rock Spring explaining how springs form at the base of sandstone outcrops. In addition, the cultural resources associated near spring development and the unique flora and fauna associated with riparian sites are also possible themes.

Willow Spring

Cultural resources is the main theme here. The largest concentration of resources of historic and prehistoric use occurs here. Interpretive activities should be concentrated here as this is the most heavily visited picnic site in the NCA. Trails and signs will interpret the various periods of Native American occupation, and the early ranching and transportation developments in the canyon. The existing interpretive trail, which has fallen into disrepair, would be repaired and new signing installed.

Red Rock Summit Road (Rocky Gap/Old Potato Road)

The major theme here will be the importance of transportation through this pass for the Las Vegas and Pahrump Valleys. Historic Civilian Conservation Corps road work and the importance of early transportation of goods would be highlighted. Additional interpretation should reveal this road as the portal for hiking to the top of the escarpment, adjacent proposed wilderness areas and entrance into the Spring Mountain National Recreation Area.

La Madre Spring

This is a great place to promote the "Watchable Wildlife" program. The spring brings in a variety of wildlife which can be viewed a short distance away from the small dam.

Lost Creek

The unique flora and its biotic relationship with water will be the main theme here. The concept of a riparian environment will be the main topic.

Children's Discovery Trail

The current use for school and youth groups will continue to be the major focus here. All major ecosystem themes are incorporated at this site and an additional on site brochure for the public will be developed for the Children's Discovery Trail.

Ice Box Canyon

The theme of plant succession due to past and recent fires at the mouth of the canyon should be the major interpretive thrust here. A sign at the parking area would reach all visitors to Ice Box Canyon.

Pine Creek

The interpretive recommendation from the previous Master Plan that the riparian habitat, rare plant species and the natural succession of plant communities should be the major topics of interpretation. An interpretive sign(s) at the parking lot would reach both the casual visitor and the climbing/hiking visitors to Pine Creek. Sub-themes on historic homesteading and Native American use of this area should be interpreted at the meadow site. The fire ecology trail off the main Pine Creek trail should be continued in its present form.

First Creek

Interpreting the wild burros in Red Rock Canyon NCA near the trail entrance would serve a practical purposed in educating the public about burro behavior.

Oak Creek

Interpreting the different geologic strata should be the main theme at Oak Creek. The Chinle formation is best observed at Oak Creek and other wash and Moenkopi formations can be interpreted here.

Oliver Ranch

The Oliver Ranch has existing facilities that will facilitate a small center focused on environmental programs and the historic past of the area. This facility will be used more for training classes and scheduled activities. It will not function as a second Visitor Center. A detailed management plan for the Ranch will be developed.

Highway 160/Spanish Trail

The Spanish Trail opened the Las Vegas Valley to the east and west. The importance of this trail to early Mexican commerce through-out the southwest and the later migrations of Mormon pioneers into southern California should be the main theme. Other interpretive activities can focus on the cultural resources, wild horse herds and the climbing, equestrian and mountain biking opportunities in the area.

Bootleg/Rainbow Springs

The south-western end of Red Rock Canyon is a surprise of springs and cultural resources. Signing shall be installed as necessary to protect cultural resources, otherwise the area would be left undeveloped. No attempt would be made to provide on-site interpretation.

Bridge Mountain/Escarpment

The increase usage by hikers and backpackers atop the escarpment shows the need install a trail system that interprets the unique geology and fragile ecosystem found here. Low impact interpretation in the forms of signing and information acquired at the Visitor Center, plus the occasional guided activity should continue the solitude and wilderness experience most visitors desire when hiking to Bridge Mountain and surrounding peaks.

Scenic Drive

The Scenic Drive will continue to be the primary recreational activity for the majority of visitors to Red Rock Canyon. Vista pull offs along the 13 mile drive can be used to interpret every ecosystem found at the NCA, cultural resources, and the impact of human use. Installing a radio tour along the Scenic Drive would further increase the interpretive outreach media available. The biggest challenge for interpretation around the Scenic Drive is attracting the attention of visitors at given sites and communicating the desired message during their visit.

Brownstone Canyon

The prehistoric cultural resources of Brownstone Canyon would be the focal point of interpretation. Sub-themes on geology and wildlife would be tied into the cultural resource theme. A cooperative agreement with the local Native Americans, and continuation of current volunteer activities would increase accuracy of site interpretation, enhance protection of special world class features and increase guided activities. In order to protect resources within the basin, the road closure will remain in effect, requiring visits through Brownstone to be made on foot.

The Cave

The "Cave" adjacent to west Charleston is the most accessible cave in Red Rock Canyon. This cave should be the only cave in the area used to interpret the speleology of Red Rock Canyon, thus furthering its own protection and preventing resource damage to other caves in the area. An appropriate sub-theme would be the interpretation of bats and other fauna that use caves. The Kaibab formation surrounding the area is the best place to study coral fossils in the area. The parking lot area would be a good place to interpret the ancient marine life of Red Rock Canyon.

Blue Diamond Hill

A cooperative agreement with the James Hardy Gypsum Plant would allow for interpretation of the geologic features that allow for mining in the area and the formation of the town of Blue Diamond. A brochure on the above material for a self guided tour along Highway 159 would interpret the importance of mining in southern Nevada.

Red Spring

The picnic area nestled at the foot of Red Spring would be a great location to interpret how water creates an oasis in the desert. The geologic and cultural resources found in the area can be tied together with a water theme. Many interpretive medias exist in this area.

Red Rock Overlook (Dedication Site)

As this parking area is modernized, interpretive signs explaining who the Bureau of Land Management is and the basic concepts of the Red Rock Canyon National Conservation Area should be added. This area is a major short term pull off for a variety of users.

ADMINISTRATION OF ENTRANCE FEES, PERMITS AND LEASES

Entrance Fees

The use of entrance fees to control visitation and cover some of the costs of operating the NCA has been discussed many times in the past, but until August 10, 1993, BLM was not authorized to collect entrance fees. On August 10, 1993 Congress passed the Omnibus Budget Reconciliation Act of 1993 (Public Law 103-66) which, in part, amended the Land and Water Conservation Fund Act of 1965 (LWCFA) and named Red Rock Canyon NCA as one of eight BLM National Conservation Areas now authorized to collect entrance fees. As enacted by Congress, 15 % of the collected fees would be retained by the NCA, while the remaining 85 % would be placed in an account which could be reallocated by Congress as part of the appropriations process (We currently received a return on fees generated by Recreation Use Permits under a similar process).

BLM is currently studying the feasibility, costs, staffing, appropriate fees, entrance station designs and other issues in order to implement the collection of entrance fees. It is assumed that the NCA would be approved for fee collections and that they would begin in late 1994. Golden Eagle, Golden Age and Golden Access Passports would be honored (and sold) and a Red Rock Canyon NCA season pass is a possibility similar to many Park Service areas.

Recreation Use Permits - Commercial and Competitive Uses

Recreation Use permits for commercial and competitive activities such as filming, trail rides, bicycle events, rock climbing schools and outfitters and guides will continue to managed under the BLM's permit guidelines and fee schedule and must comply with the Supplemental Stipulations for Red Rock Canyon NCA subject to the following limitations -

1) Proposed activities must be compatible with the General Management Plan management decisions and guidelines.

2) Permits will not be granted for any activity (vehicle or bicycle) in which speeds would exceed the posted speed limits of either the State Highways, County Roads or BLM Scenic Drive and other roads.

3) Permits for competitive vehicle or bicycle events on the Scenic Drive would no longer be granted.

4) The number of year-round commercial rock climbing permits will be limited to six (6). An additional five (5) "guest" permits for commercial rock climbing will be allowed. These guest permits are designed to accommodate, on a one-time basis, commercial users who do not regularly use the NCA. Each of these permits will be limited to three days maximum use per year with a maximum of ten (10) students and three (3) instructors.

5) Outfitters and guides must comply with all State of Nevada licensing and hunting regulations.

6) Recreation Use Permits will be used to authorize use in "use by permit only" areas.

7) Fee payments may not be required for activities sponsored by charitable organizations if - entrance fees are a donation to the organization, there is no element of competition, no prizes are awarded and no commercial sales are involved (see Special Area Status below).

8) Permittee may, at the authorized officer's discretion, be required to pay for the expense of providing additional staffing to monitor activities or protect resources or for costs not normally associated with the processing of permits.

Recreation Use Permits - Special Area status, group use

A significant number of groups use the NCA, particularly the Scenic Drive, for their activities. Because some of these groups do not contact BLM in advance but potentially involve large numbers of people or the use of already crowded areas, public safety and resource management issues are raised due to the congested nature of the Scenic Drive. Additionally, conflicts may arise with previously scheduled permitted activities. The NCA may be designated as a Special Area under the fee provisions of 43 CFR 8372. As such permits and fees would be required of groups using the NCA who do not now fall under the definition of commercial or competitive.

Recreation Use Permits - Noncompetitive and Noncommercial Uses

Activities such as weddings, family gatherings, club functions, walk-a-thons, Metro Search and Rescue training and scientific research occur year-round within the NCA. These activities do not require a Recreation Use Permit or the payment of fees. As both a public service and a early warning for BLM, Use Authorizations (UA) have been issued for these uses upon request. The UA does not reserve an area for use but it does prevent scheduling conflicts and provide a way for otherwise prohibited uses to be authorized (such as after hours use of the Scenic Drive for reptile and bat research).

Use Authorizations will continue to be issued upon request. Use Authorizations will continue to be issued for authorized studies of the NCA's resources. Permits for studies requiring State or Federal permits or clearances will not be issued until such permits and clearances have been obtained.

Recreation Concession Leases and Land Use Permits

Recreation concession leases are long-term authorizations (20+ years) to possess and use public lands to provide recreation facilities and services for a fixed period of time. Land Use Permits are long-term authorizations to possess and use public lands, usually also with facilities provided, for other uses. No recreation concessions now exist in the NCA. Consideration of future recreation concession lease and land use permit applications will be guided by BLM regulations and the following -

1) No facilities would be allowed within the Non-motorized and Primitive MEAs. Services, such as trail rides, originating at areas outside of these MEAs could be allowed to use the areas.

2) No recreation concessions would be authorized at the Visitor Center or on the Scenic Drive.

3) Land Use Permits would be used to authorize uses which pre-date the NCA but which have never been formally permitted. Where possible, land exchanges would be completed to dispose of lands permanently altered by pre-NCA facility developments.

4) Applications for recreation concession leases and/or land use permits oriented to food service, automotive supplies and repair, general merchandising and camping facilities or uses involving vehicle and bicycle rentals and on-site guided services will usually be denied. These services are either presently provided close to or within the NCA on private lands, are more appropriately sited on private lands, are more appropriately considered as vendor permits or are not compatible with NCA management guidelines. Exceptions to this general policy may be made if BLM determines that certain services or facilities, such as a campground, are more efficiently run by a concessionaire than by BLM.

Vendor Permits

Vendor permits are temporary, short-term (not to exceed 3 year), nonexclusive, revocable authorizations without construction of permanent facilities which are authorized as Recreation Use Permits under 43 CFR 8372. Typical vendor permits are issued for food, beverage or T-shirt sales associated with recreational activities. Other types of vendor permits include firewood sales, groceries, supplies, equipment rentals, horse rentals and minor vehicle repairs. Sales and services provided by the Friends of Red Rock Canyon or the Red Rock Canyon Interpretive Association under BLM Cooperative Agreements are not considered vendor activities.

Vendor permits will be considered on a case-by-case basis subject to BLM regulations and the following -

1) Vendor permits will not usually be issued for services already provided by existing businesses within a reasonable distance of the NCA.

2) No real property improvements may be made. Continuous occupancy or use, including overnight accommodations for the vendor, is not authorized.

3) Vendors must remain mobile and capable of moving on notice.

4) Vendors may only occupy locations approved by the authorized officer and may not interfere with public access, use or traffic.

5) Vendor permits for sales of merchandise or provision of services not directly related to the NCA's resources or primary uses will be denied.

FIRE MANAGEMENT

OBJECTIVES

Acknowledging fire's dual-role in the Red Rock Canyon environment, National Conservation Area management direction places equal value on the two contrasting objectives of wildfire protection and fire use.

Fire Protection Objectives

Defined as the unplanned and unwanted ignition of an area's plant cover, wildfire represents an uncontrolled and potentially harmful event. The primary objective is to suppress all wildfires occurring on BLM lands, with operational priority assigned to preserving human life, protecting property, and safeguarding natural resources.

Bureau of Land Management policy further stipulates that all fire suppression actions meet the objective to "put the fire out with minimum suppression cost plus resource losses (damage), consistent with management objectives". In effect, this policy requires that firefighting expenditures reflect the relative value of the resources that are being protected at a given site.

Consequently, RRCNCA fire protection will be achieved through a wide variety of appropriate actions, ranging from simple visual monitoring to aggressive all-out firefighting based on the resource objectives provided in this GMP and the operational objectives provided in the Fire Management Activity Plan.

Fire Use Objectives

Unlike wildfire, prescribed fire is both intentional and planned. In this role, fire is used as a resource management tool.

Specific fire use objectives are as numerous and diverse as the complex interrelationships of flora, fauna, terrain, elevation, weather, smoke management and other factors that determine the outcome of each individual prescribed fire operation. General fire use objectives fall under two categories: vegetative manipulation and hazard reduction.

FIRE MANAGEMENT PROGRAM DESCRIPTION

Wildland Fire Protection

Introduction

The value and uniqueness of Red Rock Canyon was dramatized by its recent Congressional designation as a National Conservation Area. With this change from Recreation Lands status, management philosophy places a heightened emphasis on natural systems and ecological processes, as opposed to individual resources. This ecosystem-management approach treats fire as a natural process that is crucial to the long-term ecological health of numerous portions of the Red Rocks environment. Accordingly, all fire suppression operations will be planned, conducted, and evaluated cooperatively, by both District fire and NCA resource specialists.

Red Rock Canyon fire suppression is under the program authority of the Las Vegas District, Operations Division. District fire plans and procedures predate the NCA and thus fail to adequately address the intensified resource management objectives for Red Rock lands. This section of the RRCNCA General Management Plan discusses those Las Vegas District fire program elements that will be revised in order to conform with NCA management needs and requirements.

Data Collection

In most cases, Red Rock Canyon staff will be responsible for fire-related data collection activities, as such monitoring and research is key to identifying and evaluating resource management objectives. One such goal is to determine the effects of wildfire on various plant species and natural vegetative communities. Periodic plant inventories and photo monitoring can identify changes in species compositional patterns on fire-disturbed sites.

Data collection can also be designed to help ensure public safety, which is the paramount NCA management objective. For example, under extreme wildfire danger conditions certain locations would pose an unacceptably high risk to the visiting public, due to volatile vegetation, difficult terrain or other factors. Plant flammability measurements (Great Basin Fuel Moisture Project) coupled with daily local weather indices (RAWS) will enable NCA personnel to tailor visitor restrictions to site-specific hazard severities and coordinate with District Fire Management personnel.

Fire Training/Readiness

As first recommended in the Red Rock Canyon Master Plan (1976), BLM rangers and other interested NCA personnel will receive wildland firefighter training, subject to national qualification standards. Qualified resource personnel will be made available for emergency firefighting duties.

To minimize fire response times, one or more District fire engine crews will be assigned to the proposed Oliver Ranch Fire Station. Additionally, an unmanned surplus engine, used primarily for resource

management project work, may be positioned at the Visitor Center, to be operated by fire-qualified NCA personnel on an as-needed basis.

Helicopter landing sites (helispots) will be constructed, in order to facilitate both aerial-firefighting operations and search and rescue activities.

Water sources at the Oliver Ranch facility will be developed and/or modified to accommodate fire engine filling and helicopter bucket loading operations.

Fire Dispatch

District fire mobilization and coordination is the responsibility of the Las Vegas Interagency Communication Center. Reporting procedures have been revised to stipulate NCA Manager notification of all NCA fires. Mobilization plans and procedures will be similarly revised to require dispatch of an NCA Resource Advisor to all Red Rocks fires at the time of first response.

Fire Planning

Bureau policy (Manual 9211) directs all District fire management operations to conform with the Fire Management Activity Planning system. The existing Las Vegas District Fire Management Activity Plan (FMAP) is not optimal for NCA management purposes, as it over-emphasizes fire protection considerations at the expense of natural resource needs. In future, NCA personnel will participate in programmatic FMAP revisions by identifying site-specific resource management objectives for all Red Rock Canyon lands.

A critical element of the FMAP system is the use of Fire Management Zones (FMZ's) which group lands with similar dominant vegetative types and fire-related characteristics. Nationally, BLM-managed lands are so vast that the myriad of naturally occurring vegetative communities must be condensed into a workable small number of plant models (zones) based on generalized fire behavior traits. The four fire management zones applicable to southern Nevada are grass, low brush (and brush/grass mix), high brush, and timber.

Each of these vegetative models are represented extensively at Red Rocks. However, current fire planning places the entire NCA into one fire management zone, the low brush/grassland model. Revision of the current zoning (FMAP revision) will be completed as a key first step in revising Las Vegas District fire plans to conform with National Conservation Area management direction.

Finally, because the NCA shares its entire western boundary with the newly-created U.S. Forest Service Spring Mountain National Recreation Area, re-zoning efforts will be coordinated with the U.S. Forest Service.

Fire Suppression

As already stated, BLM managers are responsible for tailoring fire suppression actions on a case-by-case basis. The high degree of operational flexibility necessary to achieve this objective is made possible by the

proper design and use of fire management zones. Lacking zones, most fires would be fought with similar manpower, equipment, and tactics; with the result that only one of the three Bureau fire protection criteria would be met. In other words, the fires would be put out, but not at minimum suppression cost, nor in compliance with management objectives.

Well-planned and implemented fire zoning is particularly important to the successful ecosystem-based management of Red Rock Canyon. The area's uniquely diverse variety of plant and animal species, vegetative communities, and habitat types was a chief reason for it's designation as an NCA. The management priority to preserve and enhance biotic diversity cannot be served by a single-zone fire plan. For this reason, fire zoning of the Red Rock Canyon NCA will be revised to include four vegetative models (zones), each with specific fire protection objectives and operational constraints. For example, Zone FMZ-1 covers those areas having a mixed low brush and grass vegetative cover. At Red Rocks, FMZ-1 will consist of the desert basin east of the escarpment, south of the La Madre Mountains, and north of State Route 160. This zone represents an unavoidable compromise between ecological correctness and operational feasibility, grouping such disparate vegetative types as Mojave desert shrub (Joshua tree, creosote bush, yucca); Great Basin shrub (big sagebrush, rabbit-brush); blackbrush scrub; and riparian communities (desert willow, acacia, mesquite).

The level of suppression response for this zone is designed to keep all fires under 10-acres in size, at an annual success rate of 95% for all incidents. This is the most intensive fire planning level in the Fire Management Activity Planning System. The strict, "zero tolerance" fire suppression objective partly reflects the fact that this portion of the NCA receives frequent, heavy, and year-round visitor use. Likewise, the majority of all structures and improvements (property) found at Red Rocks are also located in this relatively flat and accessible portion of the NCA.

The chief resource management objective for this zone is aggressive protection of the area's desert vegetation. Species such as black-brush are severely fire-intolerant, to the extent of often being permanently displaced from fire-disturbed sites. A closely-related goal is to prevent the invasion of non-native annual grasses, such as red brome, which typically outcompete native perennial shrubs and grasses during post-fire regeneration. Worse still, red brome fires in the desert ecosystem usually result in the establishment of persistent, if not permanent, cycles of recurring wildfires, which further exacerbate the loss and/or displacement of native vegetation.

As a consequence of these strict protection requirements, all fires in this zone will be suppressed quickly and aggressively, utilizing state-of-the-art equipment and methods. The sole restraint will consist of possible mitigation measures to be requested by on-scene resource advisors.

The three pending Red Rock Canyon fire zones will be discussed briefly, describing their projected boundaries and representative vegetation. First, the red brome-invaded portion of Cottonwood Valley south of State Route 160 will be zoned on the pure grassland model. Second, the numerous canyons of the Red Rock escarpment will be collectively zoned on the FMAP high brush model, and will include chaparral-mountain shrub species such as turbinella oak, manzanita, and bitterbrush. Third, the pinyon-juniper woodlands of the Spring and La Madre Mountains will be zoned as timber, along with the scattered

Ponderosa pine gallery forests of the escarpment plateau.

It is not within the scope of this document to discuss the specific suppression methods, equipment, and tactics that will be employed on NCA fires. However, it is appropriate to briefly explain how the scope and intensity of firefighting efforts will vary between zones (FMZ-Z's), in relation to the contrasting protection objectives pre-planned for each zone.

The "zero tolerance" absolute fire protection objective for FMZ-1 lands has already been described. In contrast, each of the three proposed zones will have less stringent fire protection goals, thus broadening the range of suppression options. As an example, the fire suppression objective for the forested uplands will be to limit all fires to a maximum size of 100-acres, at a 90% annual success rate. Given this acceptable size limit, and knowledge of the area's historical trend of single-tree fires, in most cases the appropriate fire response will consist of visual monitoring of the fire's progress. Few fires in this woodland zone will necessitate or justify aggressive all-out firefighting, for a number of reasons.

First, the vegetative communities found in this zone are primarily composed of fire-tolerant or fire-neutral plant species, such as ponderosa pine, juniper, and pinyon pine. Since the likelihood of significant resource damage is diminished, so too is the resource value criterion of the Bureau's fire protection objective.

Second, the area's extreme terrain and lack of roads virtually insures that viable firefighting methods will incur manpower and equipment costs far in excess of the threatened resource values. The lack of access to ground-based personnel and the resultant extended response times would necessitate the use of highly expensive aerial firefighting equipment, such as helicopters and fire-retardant planes.

Thus by broadening the range of acceptable fire size (100-acres, as opposed to the 10-acres of FMZ-1), fire management practices can more accurately reflect the unique vegetation and terrain of the NCA uplands. The setting of such an acreage target does not mean that all fires will be managed liberally, however. For example, fires occurring in the general vicinity of the Mountain Springs township will be fought actively and aggressively, utilizing the best available firefighting resources.

As demonstrated in the timber zone example, proper fire zoning can effectively address management objectives relating to both natural resources and fiscal responsibility. The protection of firefighter health and safety is yet another management objective that can be achieved through fire zoning.

The prime Red Rock example is the mountain-shrub zone, where the characteristic terrain and vegetative conditions pose an unacceptably high risk to firefighter safety. The federal mandate to "fight fire aggressively but provide for safety first" prohibits ground-based firefighting in such vegetation-choked, steep, narrow "chute" canyons. Aggressive suppression efforts will be strictly limited to aerial methods.

In summary, RRCNCA fire suppression activities will vary greatly in scope, intensity, and methods; which will largely be determined by site-specific conditions. The proper design and use of fire zones will insure that fire management practices reflect the broadest possible range of Red Rock Canyon management goals, including fire protection, natural resource enhancement, ecosystem maintenance, budgetary restraint, and

firefighter safety.

Mitigation of Suppression Activities

Various activities involved in wildland firefighting operations are potentially harmful to the natural resources being protected. In the fragile desert ecosystem, truck-tire ruts and handtool-scraped fire control lines persist as surface disturbances long after the burned vegetation has naturally re-established itself. Therefore, the maximum design capability of equipment and techniques must be modified in order to mitigate such undesirable side-effects. Fire management in the Red Rock Canyon NCA is guided by the "light hand on the land" principle, and stipulates the following standard fire mitigation procedures.

First, the use of a resource advisor will be mandatory for all Red Rock wildfires. As previously discussed, this cooperation between suppression and resource specialists is absolutely necessary for the ecologically-sensitive management of NCA wildfires. In addition to advising on mitigation measures, resource personnel can also provide site-specific expertise on such factors as road access, special hazard conditions, and the presence of rare or endangered species.

Second, off-road operation of fire vehicles is prohibited on all Conservation Area lands, unless first approved by an on-scene resource advisor. Obviously, this restriction does not apply to fires posing an immediate or eminent threat to human life or property.

Third, the construction of cut or scraped fireline also requires on-scene resource advisor approval. The use of bulldozers and other bladed equipment will be permitted only under the most extreme emergencies, such as a wind-driven fire impinging on the Bonnie Springs Ranch, for example.

Fourth, whenever appropriate (in terms of cost versus value) aerial firefighting techniques will be selected over ground-based methods. Although aerial suppression typically involves minimal surface disturbance, potential resource impacts still exist. Mitigation measures include prohibiting the application of chemical fire retardants within 100-feet of all riparian corridors. Similarly, retardants may only be used if chemically formulated to biodegrade within fourteen days or less of application.

Fifth, as required by law, fires occurring in the two wilderness study areas will be managed at the lowest intensity possible, with the "lightest hand on the land". The abovementioned mitigations are of particular importance here, as excessive firefighting scars can actually impair the land's eventual suitability as wilderness. The aforementioned re-zoning (100-acres maximum) of the NCA uplands is in part based on wilderness preservation objectives.

Fire Information

Wildfire suppression operations in the Red Rock Canyon NCA are frequently covered by the Las Vegas news media. Reports typically focus on the destructive aspect of wildfires. Media access and exposure will be increased by increasing coordination with the Fire Management Officer, NCA resource specialists and Public Affairs, in order to promote news coverage that emphasizes both fire-ecology and the beneficial use of fire.

In turn, such balanced reporting may help to cultivate public awareness and acceptance of such potentially controversial activities as prescribed burning and low-intensity wildfire suppression (including monitoring).

Fire Education/Interpretation

Present educational efforts are geared to the Las Vegas District's fire prevention program. The future scope of this message will be expanded to include both the natural role of fire in the Red Rocks ecosystem and the numerous beneficial uses of prescribed fire (Fire Ecology Trail). Interpretative talks and visual displays will be designed for the Visitor Center. Fire-ecology interpretative exhibits will be installed on both wildfire and prescribed fire sites.

Prescribed Fire

The Red Rock Canyon NCA fire management program includes a second priority objective - the controlled use of fire for ecological or otherwise beneficial purposes. Such pre-planned, intentional burning is authorized only when conducted under extremely specific weather and fuel conditions. The acceptable range of values for these parameters is known as the fire prescription. For example, a given project's prescription may stipulate relative humidities ranging between 20% and 35%, with similar variations allowable for wind speed, air temperature and other factors. Prior to burning, each project requires the preparation and approval of a formal burn plan, which documents the fire prescription, the objective being sought, and the operational procedures and contingencies to be employed. Additional elements of a prescribed burn plan include site-specific public safety measures and a listing of agencies and individuals for which burn-day notification is required.

Once ignited, the fire is then allowed to continue burning only until such time as the objective has been achieved. Regardless of successful completion, all fires are immediately terminated (that is, suppressed as quickly as possible), whenever changing site conditions exceed the acceptable range specified in the burn plan prescription. One final descriptive comment pertains to the means of igniting such controlled fires, the majority of which are human-accomplished. The exception is lightning-caused ignition, which is authorized only for those sites for which a specific burn plan has already been written and approved.

The two categories of fire use objectives are vegetative manipulation and hazard reduction.

Vegetative manipulation employs fire as an ecologically-appropriate means of altering an area's plant cover. The diverse purposes for vegetative manipulation burns include the following: restoration of fire to fire-adapted ecosystems; removal of undesirable plant species and/or promotion of desirable species; invigorating vegetation that is overmature or decadent due to suppression of natural fire processes; and the enhancement of wildlife habitat.

A variety of vegetative manipulation opportunities are found in the Red Rock environment. The prime example pertains to the Ponderosa pine, a tree species which evolved with, and is dependent upon, the periodic occurrence of low intensity ground fires. With its characteristically thick, protective bark and tall

growth form, adult trees are rarely killed by fire. To the contrary, Ponderosa pine has poor reproductive success in the absence of fire, which serves to both prepare the soil surface as seedbed and also remove such competitive vegetation as turbinella oak. In fact, the long history of aggressively suppressing all Red Rock fires has likely contributed to this species' extremely low reproductive rate and overall population decline. Prescribed fire could restore the proper functioning of this important species' reproductive ecology, thus helping to insure its long-term survival in the Red Rock Canyon environment.

Wildlife habitat improvement is another potential benefit of NCA vegetative manipulation fires. The uplands portion of Red Rock is dominated by a monotypic canopy cover of pinyon pine and juniper trees. Small-scale fires produce forest openings that are then colonized by shrub species, thus creating an edge effect preferred by mule deer and other wildlife species. This mosaic vegetation pattern provides such key habitat elements as concealment cover, lengthened sight lines (predator detection), and increased browse.

There are also prescribed fire opportunities that would serve multiple purposes. For example, by periodically burning the mature turbinella oak which now dominates portions of nearly every escarpment canyon, two benefits would be achieved. Not only would Ponderosa pine reproduction be increased, but important wildlife browse would also be created. Turbinella oak is a prolific post-fire resprouter, producing succulent young plant shoots that are favored by mule deer, bighorn sheep, and other wildlife species.

Hazard reduction, the second category of fire use, is focused on reducing or eliminating vegetation that poses an unacceptably high risk of wildfire ignition or spread. These hazard reduction burns are often associated with fire prevention and pre-treatment of the so-called interface lands, where urban developments have become concentrated amid the wildland setting. Although no projects of this hazard reduction type are proposed at present, several Red Rock localities may warrant such actions in future. The township of Mountain Springs is built directly among the pinyon and juniper, in a location that has experienced prior significant wildfire activity. Another example is the Bonnie Springs Ranch resort. Although situated in a desert basin that is not normally fire prone, the resort could potentially be put at risk during years when unusually heavy precipitation results in the growth of a thick, continuous grass cover.

LAW ENFORCEMENT RESOURCE PROTECTION PLAN

General Overview

The current trend is that more people are using the NCA in more ways than ever, and this will continue to cause increasing pressure on finite resources, resource damage, and conflicts between users. The objective of the Law Enforcement Resource Protection function will be to minimize damage to resources, protect users, and minimize user conflicts. Other violations of federal, state and local regulations will be addressed as need, opportunity and jurisdiction allow.

Traffic Enforcement

In addition to the typical automobile tourist, the Scenic Drive is utilized by numerous walkers, runners, and bicyclists. Motorcyclists also use the Scenic Drive as a race course for illegal speed contests with speeds often in excess of 100 mph in the posted 35 mph zone. Strict enforcement of traffic regulations is necessary on the Scenic Drive in order to protect the safety of area users.

Area Closure and Closure Violations

The Scenic Drive and the Red Spring Picnic Area in Calico Basin are part of the designated day use area that is closed by special order. The purpose of this closure is to prevent public use at times when a patrol presence is not available to monitor and control that use, and thus limit resource damage and protect public safety. This closure is frequently violated by persons partying, illegally camping, engaging in speed contests on the Scenic Drive, or for other reasons attempting to conduct illegal activities where there will be a limited chance of detection.

Commercial Operations

With the growing popularity of the RRCNCA there is a growing number of entrepreneurs who use the area for commercial purposes. Several major transportation companies currently hold permits to conduct bus tours on the Scenic Drive. Other commercial operations in the area include guided mountaineering and climbing training, guided nature walks, rental and transportation of bicycles for riders from out-of-town, commercial still photography for fashion catalogues, professional portfolios, magazines, and local advertisement backgrounds, and video and film production. The law enforcement staff will monitor these activities to ensure that permit requirements and stipulations are complied with.

Visitor Services

The heavy visitor use creates a demand for assistance to visitors in terms of medical emergencies, vehicle emergencies, deliveries of emergency messages and attempts to locate. Response to these requests for services is usually incorporated into regular patrol activities.

Search and Rescue

The steep cliffs and remote canyons in the RRCNCA attract tens of thousands of hikers and climbers to the area each year. There are an average of over 100 search and rescue (SAR) incidents a year that range from simple stranding on steep rock faces to falls causing serious injury or death. While the legal responsibility for SAR lies with the Las Vegas Metropolitan Police Department, the Rangers have historically provided a first response and size-up of incidents, called METRO when necessary, and assumed a secondary assistance role upon arrival of METRO. An aspect of SAR not commonly considered by some is swift-water rescue operations. The Scenic Drive is crossed in three places by active washes subject to major flash flooding. Both State Route 159 (West Charleston) and State Route 160 (the Pahrump Highway) are also crossed by major active washes.

Public Events/SRP'S

RRCNCA is attractive as an area for bicycle races, charity walk-a-thons, fun runs, off-road vehicle caravans on backcountry roads, and other similar events ranging in size from less than 50 to more than 500 participants. Similar events held outside of RRCNCA also impact the area when participants attempt to camp in the NCA. Event organizers usually are required to cover the costs of Ranger overtime to supervise events for public safety.

Gang Activity

Numerous gangs are active in the Las Vegas metropolitan area. Recent evidence of vandalism in the form of gang graffiti show that these dangerous groups are becoming more active in the NCA, a problem that will only grow.

Law Enforcement Patrol Activities

The RRCNCA is broken down into thirteen (13) patrol sectors based on geographic area, and types of use. As opposed to other BLM areas these are relatively small and do not equate to 8-hour patrol units.

1. TARGET PATROL AREA: Calico Basin/Red Spring.

PROTECTION ISSUES: The Calico Basin/Red Spring area is a heavily used area that contains a developed picnic area designated for day use only, a separate popular boulder climbing area known as Kraft Rocks, a day camp operated by the Girl Scouts of America near Calico Spring, and a significant number of small tract private parcels of developed and undeveloped land.

The interface of heavily used recreational areas and private residences creates frequent conflicts between users and residents, and subsequent complaints to the Bureau. Such complaints frequently involve use of the recreational areas after hours by persons violating the area closure. Such violations usually include under-age drinking, public intoxication, illegal ground fires, possession, distribution and use of controlled substances, illegal fire arms discharge adjacent to residences, and violent assaults among violators and

against local residents. Search and rescue operations are often initiated to remove violators stranded or injured while climbing on the steep cliffs.

Other issues in the Calico Basin area are derived from the public/private land interface and include various types of trespass, dumping, animal violations, and attempts by local residents to exercise "proprietary" control over public lands resources that are "theirs" by reason of proximity.

Special resources of note in the Calico Basin area include significant cultural resources in the form of numerous rock art sites, middens, and rock shelters, and natural resources including a rare desert meadow environment, and several important springs with rare and fragile plant communities. The recently acquired Calico Spring area contains at least two plant species listed as threatened or endangered in the state of Nevada.

Natural and cultural resources are threatened by heavy public use, uses that are not compatible with the resources, as well as by vandalism and theft. The area is also a favorite destination for truants from local high schools. Such persons have frequently been involved in search and rescue incidents, traffic accidents, and alcohol violations.

2. TARGET PATROL AREA: Scenic Drive/Visitor Center.

PROTECTION ISSUES: The Scenic Drive and the Visitor Center represent the core of recreational development and the primary objective of most users of the area. On a recent weekend, over 2000 persons per day utilized the Visitor Center, and an estimated 10,000 persons used the Scenic Drive. These levels of use are unprecedented and will only increase.

3. TARGET PATROL AREA: FOOT TRAIL SYSTEM

GENERAL: The foot trail system currently consists of ten separate maintained trails: Calico I, Calico II, Sandstone Quarry, Keystone Thrust, White Rock Spring to Willow Spring/White Rock Spring spur, Lost Creek, Willow Spring Complex, Icebox Canyon, Pine Creek, and First Creek. Other unmaintained trails exist in the La Madre Spring, Red Rock Summit, Red Spring, Oak Creek, and Velvet Canyon areas. These trails provide access to climbing areas, recreational hiking opportunities, and environmental education facilities.

Some areas are more attractive to visitors due to the presence of seasonal streams and waterfalls, large rock shelters, or expansive areas of slickrock. Short easy trails with heavy brush or rock shelters are attractive to those who wish to engage in illegal activities while avoiding enforcement personnel.

4. TARGET PATROL AREA: OAK CREEK CAMPGROUND.

PROTECTION ISSUES: The Oak Creek Campground was never officially planned or constructed. The facility is chronically overcrowded with serious resource damage resulting from trampling, illegal ground fires, collection of wood, littering, off-road travel, cutting of green vegetation, and improper disposal of human wastes.

The area has a history of long-term occupancy violations, vehicle burglaries, larcenies of campground equipment, assaults, illegal firearms discharge, under-age drinking, disorderly conduct, fugitives from justice.

The facility is due to be relocated which should reduce some resource violations. Property and violent crimes can be expected to occur in any campground.

5. TARGET PATROL AREA: WEST CHARLESTON, S.R. 159, DEDICATION SITE, CAVE PARKING AREA, FIRST CREEK TRAILHEAD.

PROTECTION ISSUES: The primary focus of this sector is the traffic violations on the highway that exert a direct threat to resources and visitor safety. The primary violations include exceeding safe speed limits, and traffic congestion associated with visitor contact with wild burros. The primary objective of enforcement in this zone will be to encourage compliance with speed limits to reduce the number of serious accidents that occur, and to reduce the amount of traffic congestion associated with visitor contact with burros. Violations observed incidental to these major activities will be handled as need, resources and jurisdiction permit.

6. TARGET PATROL AREA: PAHRUMP HIGHWAY, S.R. 160

PROTECTION ISSUES: Primary jurisdiction for traffic enforcement lies with the Nevada Highway Patrol. Excess speed on the highway is responsible for the deaths of +/- 10 wild burros and +/- 5 wild horses per year. Driving behavior that represents a threat to visitor safety or resources will be dealt with on a case by case basis. It will not be the policy to engage in frequent stationary radar patrols, or other high profile traffic enforcement activities. There is a powerline access road just east of the USFS boundary near mile 20. This road leads back up onto the sandstone escarpment from the two-pole wooden powerline.

7. TARGET PATROL AREA: BACKCOUNTRY ROAD PATROL (ROCKY GAP, ETC)

PROTECTION ISSUES: The primary concerns in this area are off-road travel in the two wilderness study areas designated along the road. In the past there has been significant damage to vegetation from violators operating ORVs off-road, creating new roads, and turning foot trails into roads. As camping pressure increases in this area there will be increasing problems with litter, illegal ground fires, collection of wood, and cutting of green vegetation.

8. TARGET PATROL AREA: VELVET CANYON/COTTONWOOD VALLEY NORTH

PROTECTION ISSUES: The Velvet Canyon Campground absorbs most of the overflow from Oak Creek and receives heavy camper pressure in spring and fall. The area also contains significant cultural resources in the form of numerous rock art sites. The area contains several developed springs that are crucial for the wild horse herd that lives in the area. Some littering and household/construction waste dumping has occurred adjacent to S.R. 160.

9. TARGET PATROL AREA: COTTONWOOD VALLEY SOUTH

PROTECTION ISSUES: The primary resource at stake in the area is the wild horse herd. The area has been extensively burned and is mostly exotic grasses and Russian thistle. Common problems include target shooting, dumping, and occasional incidents involving the shooting of wild horses.

10. TARGET PATROL AREA: LOVELL CANYON/MOUNTAIN SPRINGS

PROTECTION ISSUES: There are several roads up into the RRCNCA from the Lovell Canyon road including the road to Bootleg and Rainbow Spring. Seasonal concerns include cutting of fuel wood in the burned area, cutting of Christmas trees, dumping, cultivation of marijuana near the springs, protection of cultural resources in the form of roasting pits, control of OHV's driving into the NCA from Mountain Springs, fireworks patrols in late June and early July, wildlife violations, and theft of sand and gravel.

11. TARGET PATROL AREA: ADJACENT PUBLIC LANDS:

RED ROCK WASH DETENTION BASIN
BLUE DIAMOND NDOT PIT
BLUE DIAMOND ROAD Mile 0.0 to 10.0.

PROTECTION ISSUES: The Red Rock Wash Detention Basin located at Mile 15 on S.R. 159 is the frequent site of illegal shooting, and has been the location for dumping and burning several stolen vehicles. The outlet tunnel is the favored site for local hate groups such as the SKINHEADS to hang out at night. The land ownership pattern is irregular so close attention must be paid to exact location in the basin to with respect to jurisdiction involved.

The NDOT pit on S.R. 159 at mile 1.0 has two entrances, one off of HICKEY ROAD, and the other off of Mile 1.5. Both areas are susceptible to dumping, and theft of mineral materials as well as illegal shooting.

12. TARGET PATROL AREA: BROWNSTONE CANYON

PROTECTION ISSUES: Brownstone Canyon contains significant cultural resources in the form of numerous rock art panels, roasting pits, rock shelters, and historic water development dams built by the Civilian Conservation Corps. (CCC). In addition there are several wildlife water developments in the upper portions of the canyon above the CCC impoundments. The area is an alternate trailhead for Turtlehead Peak. Violations commonly encountered are violations of vehicle closure, vandalism to gates, fences, and cultural resources, illegal shooting, illegal ground fires, under age drinking, possession and use of controlled substances, off-road travel. Stolen vehicles are occasionally dumped and burned on the road. On at least two occasions in the 1980's victims of homicides were also dumped on the road. The primary emphasis of patrols will be to enforce the vehicle closure which will prevent most of the other types of violations in the area.

13. TARGET PATROL AREA: LITTLE RED ROCKS.

PROTECTION ISSUES: The Little Red Rocks area is the first obvious outcrop of red sandstone visible from West Charleston Blvd. The area was added to the NCA with the enabling legislation. Prior to that it was undifferentiated public lands with few restrictions on use. All access is across private property owned by the Summa Corp. The area is severely impacted with numerous off-road vehicle trails resulting in major damage to vegetation, and soil erosion. The primary goals for this area will be to mark the boundary, establish one or two viable vehicle routes, close superfluous roads, control firearms discharge, littering, off-road travel, and other general public lands abuses.

COOPERATING ASSOCIATIONS AND FRIENDS GROUPS

It would be unrealistic to expect this plan to be implemented or current visitor services to be maintained without the continued assistance of the Friends of Red Rock Canyon (FORRC) and the Red Rock Canyon Interpretive Association (RRCIA). Both of these organizations contribute time and funds which make up for some of the shortages in BLM's funding, particularly for operation of the Visitor Center. FORRC, RRCIA and BLM are working on a joint venture to raise funds to renovate Visitor Center exhibits, add a small auditorium and meeting room(s) to the Visitor Center, fix up the Oliver Ranch buildings for use as an environmental training and conference center and provide improvements to existing trailheads and picnic areas.

The members of FORRC provide critically needed assistance to the Visitor Center desk staff and the public. Volunteers are also heavily involved in leading hikes, presenting interpretive programs and working on resource management projects. FORRC contributed funds and materials have supported many past resource management, interpretive, educational and facility improvement projects. BLM's use of contributed funding in 1994 and 1995 will be directed towards improved interpretive signing and brochures.

RRCIA operates a bookstore in the Visitor Center and provides paid staff support to BLM's interpretive and natural history efforts. RRCIA provides the public with a wealth of interpretive and informative media with a specific focus on Red Rock Canyon. The literature provided by RRCIA far exceeds the capability or funding resources of BLM. RRCIA has a major focus on and has contributed significantly to the upgrading of the Visitor Center exhibits. In 1993 a major new exhibit featuring a large mural of Red Rock Canyon was opened. RRCIA staff also answer many public questions since their staff uses the same public contact area as does BLM/FORRC. As part of the proposed Visitor Center remodeling, BLM and RRCIA are working on a re-designed sales area that would provide more room and better protection of RRCIA materials.

The Nevada Natural Resource Education Council (NNREC) is a not-for-profit organization whose goal is to develop and promote natural resource education in Nevada. Their cooperative agreement with the BLM allows them to assist the Bureau in promoting natural resource education programs and workshops in the Las Vegas District. NNREC accomplishes this by training volunteers and acting as a clearinghouse for information and resources in natural resource education.

Photographic Arts of Nevada (P.A.N.) is a not-for-profit organization dedicated to education and the promotion of the camera arts. Their cooperative agreement with the BLM allows them to assist the Bureau in providing interpretive opportunities within the RRCNCA. P.A.N. achieves their goal by accepting voluntary services from P.A.N. membership in the work of providing photographic workshops, tours and displaying interpretive exhibits at RRCNCA.

COOPERATING AGENCIES

The three principal cooperating agencies are the Nevada Division of State Parks, Spring Mountain Ranch State Park (NDSP), the U.S. Forest Service, Mt. Charleston Ranger District (USFS) and the Las Vegas Metropolitan Police Department (METRO).

The cooperative relationship with NDSP began in 1968 with the recognition by both BLM and NDSP of the uniqueness of Red Rock Canyon and the need to protect the area. BLM designated the area as the Red Rock Canyon Recreation Lands and shortly thereafter the State purchased, from private owners, the property now known as Spring Mountain Ranch State Park. During the past twenty years NDSP has provided both management support and law enforcement assistance to BLM. This relationship continues to date and is reviewed periodically and modified to meet changing agency missions, staffing and funding. Both agencies would like to add to existing efforts, especially in the areas of dual information desk staffing and cooperative interpretation and information efforts, if future funding allows.

As adjoining Federal agencies, the BLM/NCA has had an on-going but distant relationship with the USFS. Until some administrative boundary changes were made in 1989 and the NCA was enlarged in 1990, the NCA did not share a common boundary with the USFS administered lands. However, the 1993 designation of the Spring Mountain National Recreation Area as well as the need to deal with some long standing problems (like the Rocky Gap road) which cross jurisdictional lines has increased communication and cooperation between the agencies significantly. Future issues for joint resolution include wilderness area management and trail systems planning.

BLM Law Enforcement Rangers and the METRO officers cooperate most often on Search and Rescue (SAR) operations for lost, stranded or injured visitors. The County Sheriff has the responsibility and authority for SAR activities and the METRO SAR unit provides a quick highly trained response to the needs of NCA visitors. BLM Rangers and METRO officers also provide each other backup support for traffic accidents, DUI stops, arrest and transport of prisoners and other law enforcement activities as appropriate.

IMPLEMENTATION AND MONITORING

This plan is a "General Management Plan" (GMP). Its purpose is to determine the future management and development for RRCNCA for a number of years to come. The life of the plan depends on its ability to meet the continuing needs of the area and its flexibility to adapt to new demands.

The division of the NCA into the Management Emphasis Areas (MEAs) provides a structure to analyze future proposed actions. The MEAs simplify the planning process and provide a benchmark for use in determining the appropriateness of an action being proposed for the NCA, including actions not included in the GMP. For actions being considered in the NCA, the MEAs would provide desired condition parameters to use in determining in which zones the proposed action would be compatible and where it would not be acceptable (MEAs are discussed in more detail in a separate chapter).

The GMP is, as the name states, a "general" plan, which organizes, determines suitability, and sets the stage for future actions and improvements. The process of implementation of the GMP is gradual and takes place throughout the life of the Plan on a project by project basis, with priority based on need and available funding. Most actions will require a specific "Project Plan" and an Environmental Assessment (EA) to be completed before implementation. Project planning involves determining specific locations and a detailed plan of implementation. However, before the project development can take place on the ground, an on site analysis must be made to determine the potential effects on the natural resources, particularly when habitat for T&E species is involved. Administrative actions can be implemented at any time subject to budget and staffing realities.

Development and use of RRCNCA will be continually monitored to assure compatibility with the natural resources and consistency with GMP objectives.

Facilities

Public health and safety and natural resources are being endangered by the use of inadequate and/or under-designed facilities. Many of the existing facilities, primarily roads and parking areas, require reconstruction due to design capacities below current and future use levels. Parking areas which can reasonably hold thirty vehicles are filled with up to 100 at some times. Vehicles are parked up and down the edges of the Scenic Drive. Other facilities require reconstruction to meet the Americans with Disabilities Act requirements. Additional construction, particularly trails, is necessary to implement the Proposed GMP.

Listed on the following page are the major projects proposed to implement the GMP in a rough order of priority. Implementation of these projects would begin immediately upon approval of the GMP but substantial funding is required and it is not realistic to anticipate funding prior to Fiscal Year 1997 (Oct. 1, 1996). Lower priority or cost projects may jump ahead of high cost items if specific funding is received, total funds available are limited or donations are received. Maintenance and repair of existing facilities has the first priority for use of available funds.

Facility and Recreation related projects

1) Handicap toilets	$ 60,000
2) Highway 159 burro fencing	10,000
3) Fee Station & Entrance reconstruction	300,000
4) Visitor Center Additional Parking	200,000
5) Oliver Ranch Campground - construct initial facility	100,000
6) Pine Creek Trailhead Parking Expansion	75,000
7) Lower Escarpment Multi-Use Trail	60,000
8) Dedication site reconstruction	150,000
9) Meeting/auditorium room/Visitor Center remodel	500,000
10) Lost Creek Trailhead Parking Lot paving	40,000
11) Ice Box Trailhead Parking Lot paving	40,000
12) Red Spring Road paving	350,000
13) White Rock Road paving	400,000
14) Escarpment Overlook paving	120,000
15) Oak Creek Access Road Paving	250,000
16) Oliver Ranch Facilities and Housing	250,000
17) Sandstone/VC return road, Sandstone parking paving	1,400,000
18) Upper Sandstone/Turtlehead overlook/trailhead	600,000
19) Ranger's Choice Overlook and Picnic Area	300,000

Riparian Areas

Like most desert habitat, the riparian areas are fragile and slow to recover once disturbances occur. Wild horses and burros, as well as people, are attracted to these areas, because of the presence of water and its affect on the immediate surrounding environment, creating a cool, shaded and more lush setting. The health of the riparian areas need to be continually monitored, and if necessary, steps will be taken to limit use of the areas. Alternate water sources can be developed in the immediate vicinity for horses and burros, and herd sizes may need to be reduced since effects on riparian areas is a measure used to determine Long Term Management Levels (appropriate herd size). In an attempt to avoid careless degradation, people can be better educated about the fragile nature of the riparian resources. Trails will be located in a manner to avoid close proximity to springs and delicate riparian areas. Other mitigating measures can be considered dependent on the severity of the disturbance.

Vegetation

On-going monitoring which is being used for baseline data and to determine the Appropriate Management Levels for horses and burros will continue. Vegetation samples in support of the Great Basin Fuel Moisture Project will continue to be collected.

Most of the vegetation in RRCNCA is fragile by nature, so when disturbances are noted, appropriate actions must be taken to minimize damage to vegetative resources and soils. Areas of low use will require less monitoring, allowing a more concentrated effort in high use areas. Areas of particular interest include the base of cliffs where climbing and hiking occur, other popular hiking areas where designated trails have not been provided, and areas popular to the off road motor vehicle enthusiasts. Monitoring sites are being established within the NCA for riparian areas. Again, steps will be taken in these locations to control disturbance and damage to vegetation and soils. Hopefully, initial mitigation methods will limit resource damage. The inability to prevent excessive damage to resources could result in a closure of that particular area.

Another area of vegetative monitoring would be with natural disturbances, such as fires or floods. After such an event, the area would be monitored to better understand the effects of the disturbance and the recovery process and time involved.

Wild Horses and Burros

The primary concern with wild horses and burros is numbers of animals or "Appropriate Management Level" (AML) as it is referred to in determining the proper herd size for each "Herd Management Area" (HMA). AMLs are determined by studying the natural resources and determining at what level adverse impacts begin to take effect from disturbances. Other factors observed include expansion of range and safety. The Wild and Free Roaming Horse and Burro Act states that the animals will be able to roam freely. But when herd size surpasses a certain number, more animals frequent the vicinity of paved roads and conflict with motor vehicle traffic becomes a safety concern. Also, the burros tend to expand their range into the surrounding residential areas.

Wildlife

Monitoring of wildlife is an ongoing process, because the increase in the presence of humans and disturbance of habitat can cause adverse impacts. Analysis of impacts on wildlife is done for specific project plans before and after implementation. Of particular concern would be T&E species, where any alteration of habitat could have a major impact on species survival.

Inventory of raptor nesting areas is another ongoing study being jointly conducted by BLM, Friends of Red Rock Canyon and Dr. Bill Mader. There is potential for direct conflict, because some of the cliff areas that are potential nesting habitat for raptors are also desirable for technical rock climbing. If active nests are found in climbing areas, restrictions will be implemented to limit climbing during critical phases of the nesting cycle. Most climbing enthusiasts are appreciative of the raptor nesting issue and are very understanding and supportive of the seasonal restrictions.

Cultural Resources

The monitoring of cultural resources will be important as far as determining how best to manage them. Monitoring needs to be more intense than past efforts have been. Increased efforts will be made to improve photo documentation during monitoring, especially in Brownstone Canyon. The cultural resource actions proposed in this plan along with the measures called for in the interpretive section will increase public awareness and provide more on the ground interpretation of cultural resources. Selected sites will be available for public viewing and enjoyment. Close monitoring of these sites will determine if there is a decrease in the level of impacts. Results of the monitoring of these sites will determine the level of protective measures used and to what extent sites will be made available to the public in the future.

ENVIRONMENTAL ASSESSMENT NV-056-94-03

PROPOSED PLAN and ALTERNATIVES

RED ROCK CANYON NATIONAL CONSERVATION AREA GENERAL MANAGEMENT PLAN

PURPOSE AND NEED

The purpose of the General Management Plan is to update the management planning for the Red Rock Canyon National Conservation Area (RRCNCA). The RRCNCA is presently administered under the "Red Rock Canyon Master Plan" which was developed in 1976. Several changes have occurred since 1976 which require an updated plan to manage the RRCNCA and deal with current issues and use problems.

In November of 1990, Congress passed the Red Rock Canyon National Conservation Act designating RRC as a National Conservation Area (NCA). The legislation includes general management direction to be followed and requires the development of a new management plan. The legislation calls for providing recreation opportunities consistent with and for the enjoyment of Red Rock Canyon, with the primary direction being conservation and protection of the natural resources. The current management plan has the same emphasis.

Other concerns contributing to the need for a new management plan include visitor use that has increased at a faster rate than anticipated and the accelerated popularity of recreational activities that were not a factor when the 1976 Master Plan was developed. The population of Las Vegas was 371,260 in 1976, and has now surpassed 900,000. This growth is significantly more than projected and the City of Las Vegas has been expanding westward toward the NCA. In the future, the westward expansion may continue to the boundary of the NCA.

There has also been a tremendous growth In recreation activities including hiking, scenic viewing, mountain biking and technical rock climbing. In 1976, technical rock climbing and mountain biking were relatively insignificant as far as requiring special attention and thus no mention was made in the Master Plan. At present, both activities are very significant in the RRCNCA and management of both activities needs to be addressed.

PROPOSED ACTIONS AND ALTERNATIVES

Four alternatives (A thru D) have been developed to provide a range of potential actions to meet plan objectives. In order to indicate common actions and simplify the document, proposed actions which are the same in all four alternatives have been combined in "Management Common to All Alternatives" below. Following this section are individual sections listing the proposed actions for each of the four alternatives. Alternative B (pg. 98) is the Preferred Alternative and includes the actions discussed in the Proposed Plan.

MANAGEMENT COMMON TO ALL ALTERNATIVES

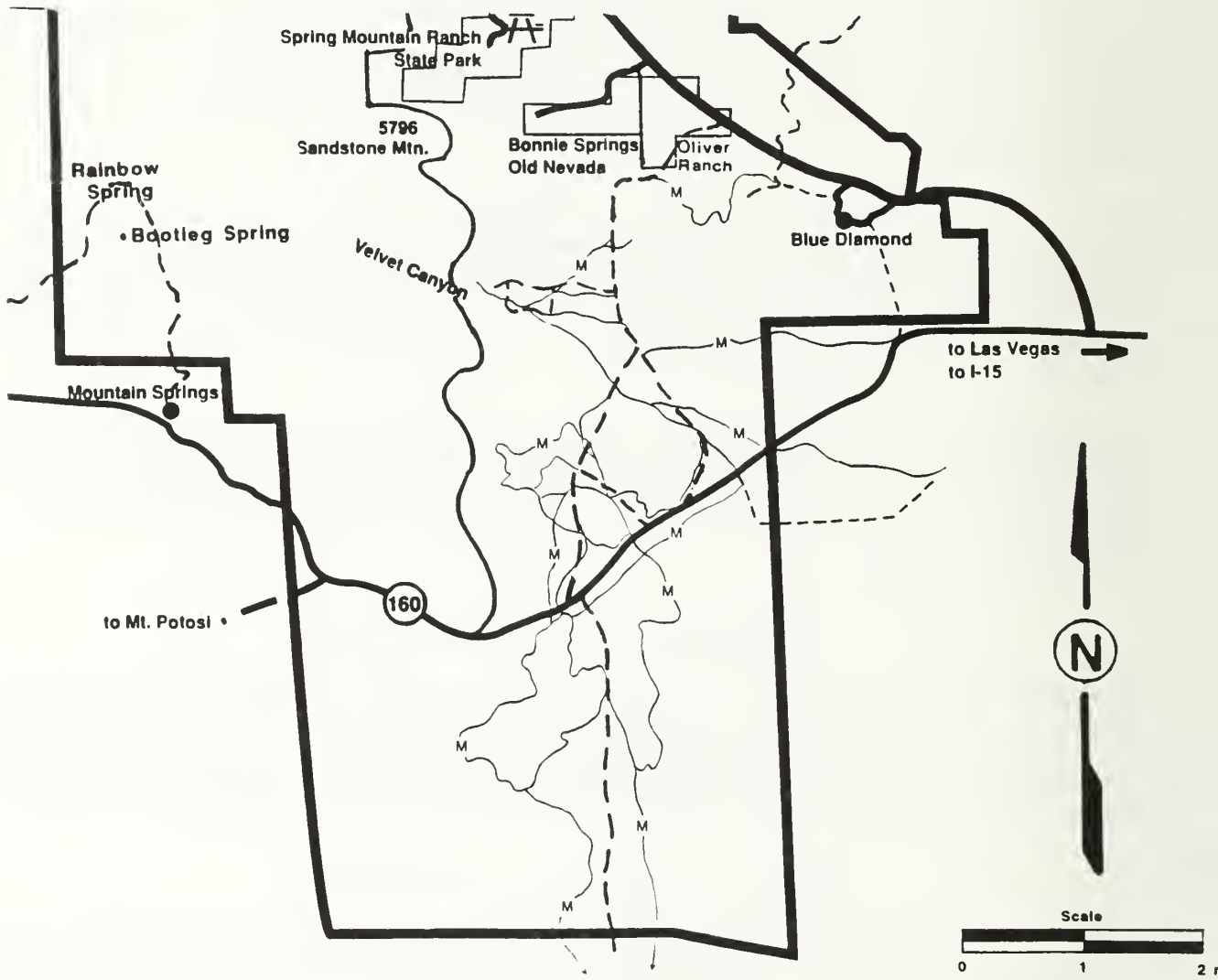
Each of the alternatives presented varies in its focus. One has little development and limits visitor choices while another proposes to provide whatever facilities public use requires. There are however, some actions which appear to be appropriate no matter which alternative strategy is selected. This section contains these actions. The following items are part of each alternative and are proposed for implementation. In order to reduce repetition, these proposed actions are presented once here rather than repeat them four times.

Roads and Trails (Issue 2)

All mechanized vehicles, including motorized vehicles and bicycles, must stay on designated roads and trails. Closed roads will be restored back to their natural state. No bicycle or motorized vehicle events, in which speeds will surpass the posted speed limit, will be allowed in the NCA.

Great Circle Trail - Complete construction of this trail planned in the 1976 Plan. Trail route is from the Visitor Center to Calico I, II & III, Sandstone Quarry, White Rock and Willow Springs. Return to the Visitor Center on the old Willow Springs Road. (Horses would be allowed on the section from White Rock to Willow Springs and back to the Visitor Center.)

A system of mountain bike trails would be designated based on current trails inventoried (see map below). New trails which meet the MEA criteria could be added south of Highway 160 following review and approval by BLM. New trails would not be authorized north of Highway 160.



-Mountain bike trails are indicated with the "M"
-Dashed lines indicate dirt roads

South (old) Oak Creek Road is closed to motor vehicles, and will be designated as a trail, in order to reduce resource damage.

Widen the last 7/10 mile of the Scenic Drive and make it two-way, which will allow people to access the N. Oak Creek Road without having to drive the entire loop.

The main north-south access road, in Cottonwood Valley south of Highway 160, will be the only designated road in that area.

The following are additional roads and trails available for hiking, horses and mountain bike use:

The Rocky Gap Road

Routes to be designated in Little Red Rocks on closed roads

Trail on the southeast side of Highway 159 from Calico Basin road to the Scenic Drive exit, Oak Creek Road and State Park entrance.

13 Mile Road (1/2 mile east of Calico Basin entrance, on south side of Highway 159

Five (5) horse load/unload areas would be designated at trail junctions on highways 159 and 160.

Of the 13 viewing/overlook sites planned for the Scenic Drive in the 1976 Master Plan, only 6 were constructed. Currently, 2 additional site plans are in the process of design and construction, Calico III, between Calico II and Sandstone Quarry, and Escarpment View, between Sandstone Quarry and White Rock at the highest elevation along the Scenic Drive. The construction of Calico III would provide parking for technical rock climbers and allow more parking at Calicos I and II for scenic viewers. Escarpment View Overlook provides an excellent overall view of the Scenic Drive area from the highest point along the Drive.

Other projects awaiting funding and final design work include expansion of the Pine Creek Overlook, redesign of the entrance road/Visitor Center road junction and expansion of the Visitor Center parking lot.

Camping (Issue 3)

Close the Oak Creek Campground.

Camping within 1/4 mile of the Rocky Gap Road would be managed under a permit system to limit impacts within this narrow road corridor.

Camping at the base of climbing routes along the escarpment will not be allowed. Bivouac camping, the overnight stay on the rock wall, above the base, on a multi-day climb, would be allowed.

Technical Rock Climbing (Issue 4)

Establish a climbing "Advisory Council" (AC) composed of 3-4 local climbers, permittees and/or sports shop representatives interested in representing the climbing community in information exchange and issue resolution with the NCA staff.

Work has been done in the NCA to inventory raptor nest sites. For nest sites that have been found, and for sites found through future studies and monitoring, climbing restrictions will be imposed during critical

nesting periods. Should climbing activities impact "T&E" species, appropriate actions will be taken as needed.

Because RRC is a National Conservation Area, there will be no alteration of the rock surfaces by gluing, chipping or chiseling allowed.

The existing restrictions based on cultural resources are as follows:

- No climbing is allowed within 50 feet of rock art.

- Known cultural sites, such as in Sandstone, Willow Spring and Red Spring, are signed to alert climbers about restrictions.

No permanent fixed ropes or cables will be left for climbing or belaying purposes.

Bolting will not be allowed in the following locations:

1. Sandstone Quarry area within 1/4 mile from each side of the parking area

   This area has an abundance of cultural resources and is considered a historic area because of the quarry and related artifacts. To avoid detracting from the visual experience of scenic viewers and because of the abundance of cultural resources, no new bolting will be allowed.

2. Within the Wilderness Study Areas/Wilderness Areas

   The placement of new bolts utilizing electric and/or battery operated drills will not be allowed in wilderness or wilderness study areas. The Pine Creek and La Madre Mt. Wilderness Study Areas are recommended for Wilderness designation. Should the boundaries end up different from those proposed, the NCA policy will adjust accordingly.

3. Replacement of existing bolts in the afore mentioned locations should be presented to the Advisory Council for review and on to the BLM to request a permit.

BLM strongly encourages the use of the following equipment:

- the "Bison Ball", "X-Factor" or the like, as opposed to an open chalk bag

- tinted bolts and hangers which blend with the rock face

- drab colored web gear, when used for a repel anchor

The following policies are designed to avoid overcrowding while maintaining the maximum access for commercial climbing.

1. Limit the number of commercial permits (for numbers, see individual alternatives in this chapter).

2. Limit the commercial group size in any one area to 10 students plus instructors.

3. No more than two different commercial groups may use the Sandstone area, the Gallery, Kraft Rock, Calico I, Willow Spring/Lost Creek or Pine Creek at any one time. The two groups may not be operating under the same permit.

Vehicles parked on the Scenic Drive after closing hours may in some circumstances be authorized by an after hours permit, which can be obtained at the Visitor Center. To avoid waiting for the Visitor Center to open, permits can be filled out prior to the day of the climb.

Biodiversity (Issue 5)

Plant and wildlife habitat will continue to be evaluated on a case-by-case basis as part of project level planning. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for biodiversity. Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining habitat condition.

The Nevada Division of Wildlife and the U.S. Fish and Wildlife Service will be consulted prior to implementing projects that may affect habitat for threatened and endangered species. If a "may affect" determination is made by a qualified BLM wildlife biologist, consultation with the U.S. Fish and Wildlife Service will be initiated in accordance with Section 7 of the Endangered Species Act of 1973, as amended.

Riparian (Issue 6)

Educate the public about the importance and fragile nature of riparian areas, through visitor contact, brochures at the main BLM office and the Visitor Center, and on site signing.

Fence riparian areas where needed to prevent degradation from wild horses and burros. In doing so, be sure a source of water is available in the immediate vicinity (within 1/4 mile).

Monitoring of riparian resources is an ongoing process, and future actions will be taken as deemed necessary to prevent additional negative impacts. BLM monitoring has indicated there is a need to consider fencing around Wheeler Camp Spring, Mud Springs 1 & 2 and Lone Grapevine Spring to protect these areas from damage caused by vehicles, horses and burros. Wheeler Camp Spring will be fenced in early 1994 to eliminate use by four wheel drive vehicles. The others will be fenced if the need for protection is required.

Cultural and Paleontological Resources (Issue 7)

Visitors to Brownstone Canyon will continue to be required to park motor vehicles at the entrance gate and walk to the sites.

Continue eligibility determinations for the nomination of Red Spring, Sandstone Quarry and Willow Spring/Lost Creek to the National Register of Historic Places under the criteria in 36 CFR 60.4.

Place ARPA signs in the immediate vicinity of all rock art sites in RRCNCA. The signs should specifically state "no climbing within 50 feet". Placement of signs shall not draw attention to the sites.

Trails must be located and constructed in such a manner that no degradation of cultural resources occurs.

Wild Horses and Burros (Issue 8)

Options for wild horse and burro management are limited in part due to the requirement in the Wild and Free-Roaming Horse and Burro Act of 1971 that these animals not be restricted from roaming freely within the historic herd management area(s). However, existing livestock, private and State Highway 159 right-of-

way fences and Highway 160 have effectively divided the Red Rock Herd Management Area (HMA) into five pieces, restricted the animals free roaming abilities and forced animals, particularly burros, onto Highway 159 where they have become tourist props and pests.

The management objective for wild horses and burros will be to maintain animals at a population level which provides a thriving ecological balance consistent with management objectives for riparian areas and the desert tortoise while providing for public safety and as free roaming an environment as possible.

Actions

1. The Appropriate Management Level (AML) for wild horses will be 50 and for burros will be 50 within the NCA portion of the HMA. (Studies still underway. AMLs may be adjusted in accordance with the results of future monitoring. AML numbers from Draft Stateline Resource Management Plan.)

2. Animals will be removed when resource monitoring indicates that damage to vegetative and/or riparian resources is occurring or when the AML is exceeded by more than 50%. Problem or nuisance animals will be removed as necessary.

3. For better public safety, the existing fence on the west side of Highway 159 (Visitor Center to State Park) will be extended north to the Calico Basin Road and south to the NCA boundary near the sewage lagoons. The intent will be to keep the burros on the west side of the fence and off the highway. Burros which cross the highway to the east will be allowed to remain there until they pose a hazard to highway users or move back to the west side of the highway.

4. BLM will work (with the Spring Mt. Ranch State Park) to reduce burro movement impediments and to modify existing fences to provide a "corridor" along Highway 159 allowing burros to move north-south through the valley without entering onto Highway 159. Old, abandoned and unauthorized range fences within the NCA will be removed.

5. High use and congested areas will be fenced to eliminate human-burro problems. This includes sites such as the Visitor Center and the Red Spring Day Use Area. In addition, BLM will assist private landowners in Blue Diamond and Calico Basin in reducing or eliminating burro trespass onto private lands through cooperative fencing projects.

6. A water guzzler for horses and burros would be built in Cottonwood Valley about two miles south of Highway 160. The initial purpose of this guzzler was to provide a water source so horses would not have to cross Highway 160. Now with the proposed fencing of Highway 160, providing an alternate source of water to replace the springs north of the highway becomes more important.

Mineral Resources

Locatable and Leasable Minerals and Geothermal Resources

Public Law 101-621 withdrew, subject to valid existing rights, all Federal lands within the NCA from location, entry, and patent under the mining laws and from operation under the mineral leasing and geothermal leasing laws. Claims and leases existing at the time of NCA designation are considered valid existing rights and will be afforded the rights of access and development provided by the mining laws.

Saleable Materials

The NCA would be closed to the sale of sand, gravel and other similar and common variety materials.

ALTERNATIVE A - PROPOSED ACTIONS

Alternative A is the "no action" alternative and the NCA management would continue under the guidance of the 1976 Master Plan. Some actions would still be initiated however, because some of the actions in the Master Plan still need to be implemented and other issues are were not addressed in the Plan have generated problems which need to be addressed. The actions listed in this alternative are a combination of items from the 1976 Plan and items which have surfaced since the Plan was completed.

FACILITIES - TRAILS AND ROADS (Issue 2)

Roads

The La Madre Spring Road will be closed to motor vehicles (use by permit only).

Pave Red Springs, Juniper Canyon and White Rock roads to improve access, reduce maintenance and cut back on particulate matter in the atmosphere.

The Rocky Gap Road will be managed as a minimal maintenance 4x4 road.

The Mud Springs/Black Velvet access roads and access north to Oliver Ranch will remain open, but will be minimally maintained.

Overlooks and Parking

Construct Upper Sandstone/Turtlehead Overlook to alleviate overcrowding at Sandstone Quarry and provide improved access to the Turtlehead Peak Trail.

Construct Ranger's Choice Overlook along the west side of the Scenic Drive between Red Rock Wash Overlook and Pine Creek Overlook and provide picnic facilities.

Trails

Construct a hiking trail along the top of the escarpment from Highway 160 north to Red Rock Summit if WSA nonimpairment criteria can be met.

Maintain current trail from Red Rock Summit to Bridge Mountain.

Designate the old Sandstone Quarry to Willow Springs road for mountain bikes.

Designate the old Willow Springs to Visitor Center road for mountain bikes.

Construct a trail along the base of the escarpment for hiking, horse riding and mountain biking. Consider a hiking trail separate from horse and bike trail.

Include a bike lane around the Scenic Drive that may be a combination of a separate path in certain locations and a striped lane (which could require some road widening) for the rest.

CAMPING FACILITIES and DESIGNATIONS (Issue 3)

The priority campground location will be at the Oliver Ranch. This will be a full service facility, but will not include provisions for motor homes. There will be a use fee. Initial capacity would be 50 sites.

10 Mile Canyon would be the second priority for campground location. It would be a primitive site with designated access and campsites, and toilets. It may also be used for group camping by permit and for overflow from Oliver Ranch. A second alternative campsite is in Calico Basin. There are two large parcels of private land on the west side of the subdivision whose owners have discussed land exchanges with BLM. Should an exchange occur, this property, which already has easy access to existing roads, power and water, would be considered for a camping area.

The Black Velvet area will be available (primitive camping), but no maintenance or improvements will occur, other than outhouse facilities.

Several campsites will be designated along the trail at the escarpment base (permit needed).

Allow group camping by permit at La Madre Spring at the old building site 1/2 mile below the reservoir.

Allow camping above the 5,000 foot elevation.

TECHNICAL ROCK CLIMBING (Issue 4)

Commercial Permits

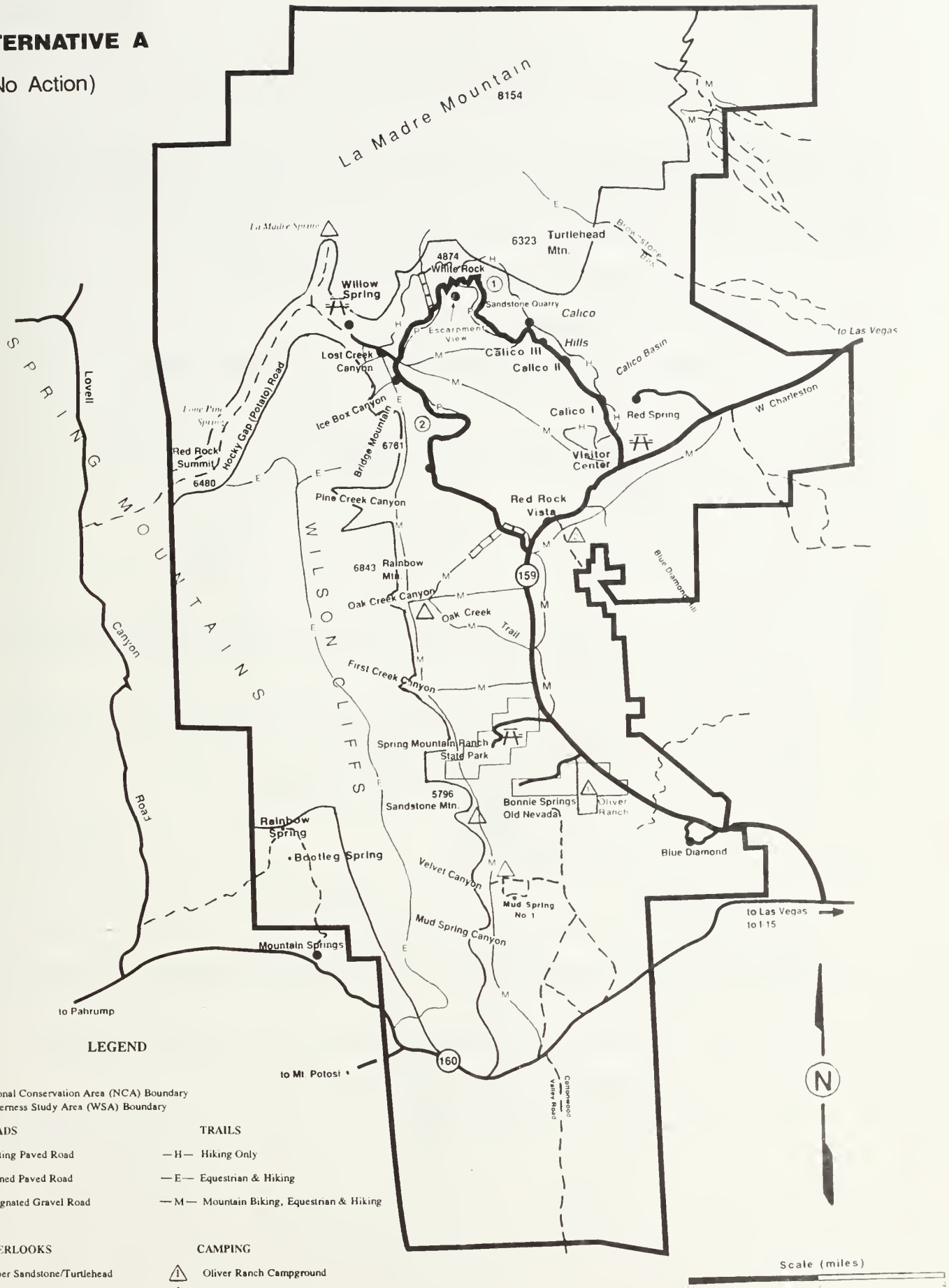
There would be no limit on the number of permits issued.

Other

For additional proposed actions and management of technical rock climbing, see "Management Common to All Alternatives" section of this chapter.

ALTERNATIVE A

(No Action)



LEGEND

National Conservation Area (NCA) Boundary
Wilderness Study Area (WSA) Boundary

ROADS

Existing Paved Road
Planned Paved Road
Designated Gravel Road

TRAILS

—H— Hiking Only
—E— Equestrian & Hiking
—M— Mountain Biking, Equestrian & Hiking

OVERLOOKS

(1) Upper Sandstone/Turtlehead
(2) Ranger's Choice

CAMPING

Oliver Ranch Campground
10 Mile Canyon Campground
Overnight Camp Sites

*See Management Common to All Alternatives for mountain bike trails in Cottonwood Valley

ALTERNATIVE B - PROPOSED ACTIONS (Preferred Alternative)

The theme of Alternative B is protecting the resources and the natural setting of RRC, while at the same time providing facilities and opportunities to meet the needs of the public. The focus will be to enhance existing facilities and place any new facilities in the portions of the NCA with a "Management Emphasis Area" (MEA) designation of "Developed or Roaded Developed" and avoid facilities other than existing dirt roads and designated trails in the less developed "Roaded Natural and Nonmotorized" MEAs.

MANAGEMENT EMPHASIS AREA DESIGNATIONS

Common to Alternatives B (preferred), C & D

Pine Creek and La Madre Mountains "Wilderness Study Areas" (WSA) designated Primitive

Oliver Ranch designated Developed

Desert Sportsman's Shooting Range designated Roaded Developed

ROADED DEVELOPED

Scenic Drive and surrounding area

ROADED NATURAL

Little Red Rocks and south to Brownstone Basin, and east of the La Madre Mtn. WSA boundary

North of SH 159 and east of Calico Basin

South of Spring Mountain Ranch, north of SH 160, east of the Pine Creek WSA boundary and south and west of SH 159, excluding the areas zoned "developed"

South of SH 160, excluding the steeper slopes to the east and west

The Rocky Gap Road

NONMOTORIZED

North of Calico Basin and south of Brownstone Basin

East of SH 159 except for the shooting range, the cave area and proposed 10 mile campground site, and any portions of developed zoning

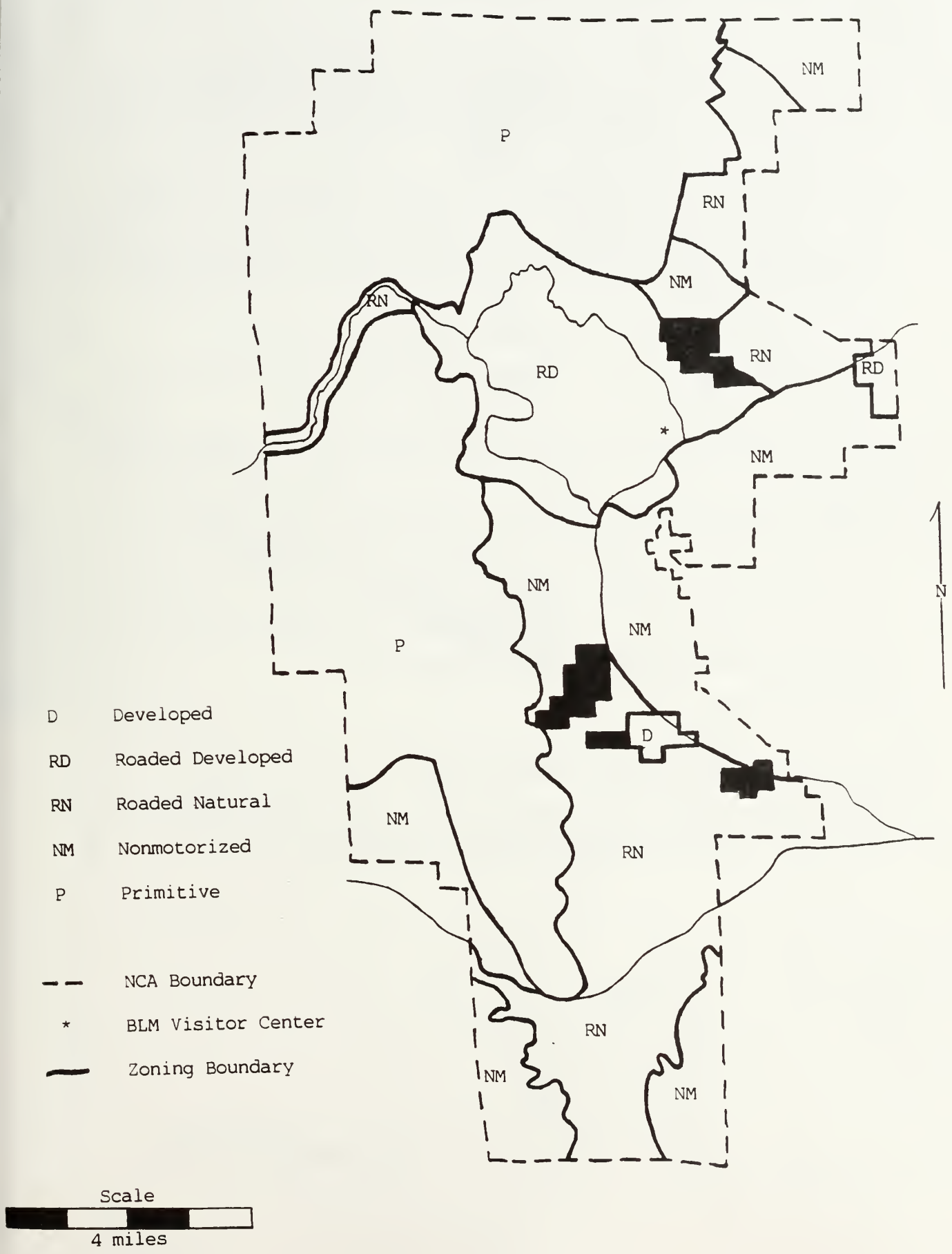
South of Scenic Drive area, north of Spring Mountain Ranch and east of the Pine Creek WSA

Steeper slopes to the east and west of the area south of SH 160

North of SH 160 and west of the Pine Creek WSA

Alternative B

RED ROCK CANYON NATIONAL CONSERVATION AREA



FACILITIES - TRAILS AND ROADS (Issue 2)

Roads

Create a shortened "return loop" by constructing a 2.4 mile road from Sandstone Quarry to the Visitor Center (see map following page). This road would follow the old Sandstone/Willow and Willow Springs roads for about .9 mile of its length. This would allow vehicles and bicycles to return to Highway 159 without travelling around the entire Scenic Drive or returning against one-way traffic.

This alternative does not include construction of a shuttle system, but does include the option of consideration if found necessary in the future. At that time, consideration would be given to constructing a shuttle return road from the Scenic Drive exit to the Visitor Center. This road would parallel Highway 159 and allow shuttle to return to the Visitor Center without re-entering the highway and conflicting with the faster moving traffic. This road would be of minimal width probably not exceeding 14 feet and could also function as a bicycle lane from the Visitor Center to the exit.

The La Madre Spring Road will be closed to motor vehicles (use by permit only).

Pave Red Springs, North Oak Creek, White Rock and Sandstone Quarry roads to improve access, reduce maintenance and cut back on particulate matter in the atmosphere.

The Rocky Gap Road will be designated as a one-way road heading west, unless the County chooses to relinquish its RS 2477 claim, in which case the road would be closed to motor vehicles.

Improve the Mud Springs/Black Velvet access roads while closing the section of road north to Oliver Ranch to motor vehicles.

Close the area north of Highway 160 and south and west of the Pine Creek WSA to motor vehicles.

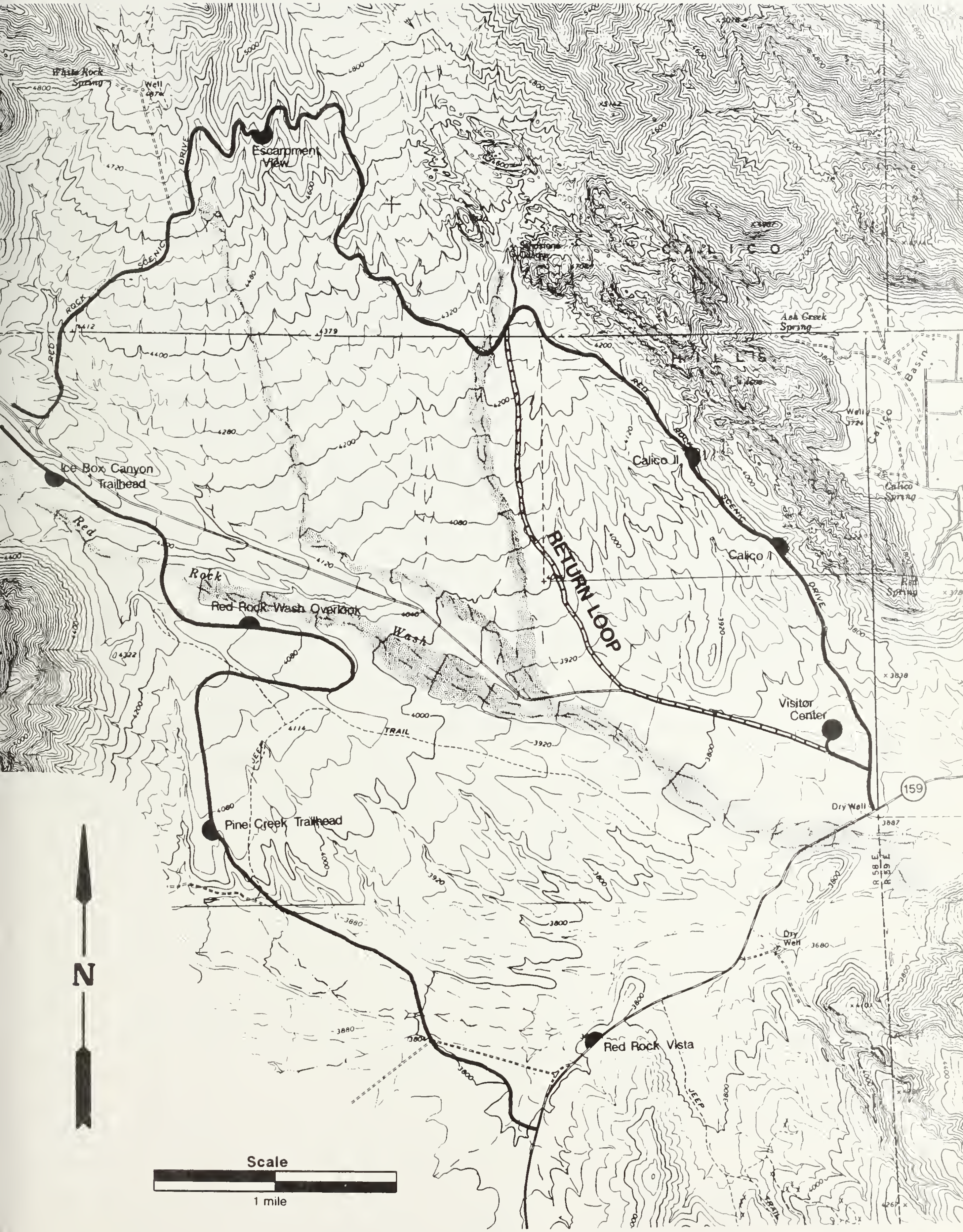
Gate the 13 Mile Road (1/2 mile east of the Calico Basin entrance) and allow use by permit only.

Develop horse and burro viewing areas off of heavy traffic roads.

Overlooks and Parking

Construct Upper Sandstone/Turtlehead Overlook, to alleviate overcrowding at Sandstone Quarry and provide improved access to the Turtlehead Peak Trail.

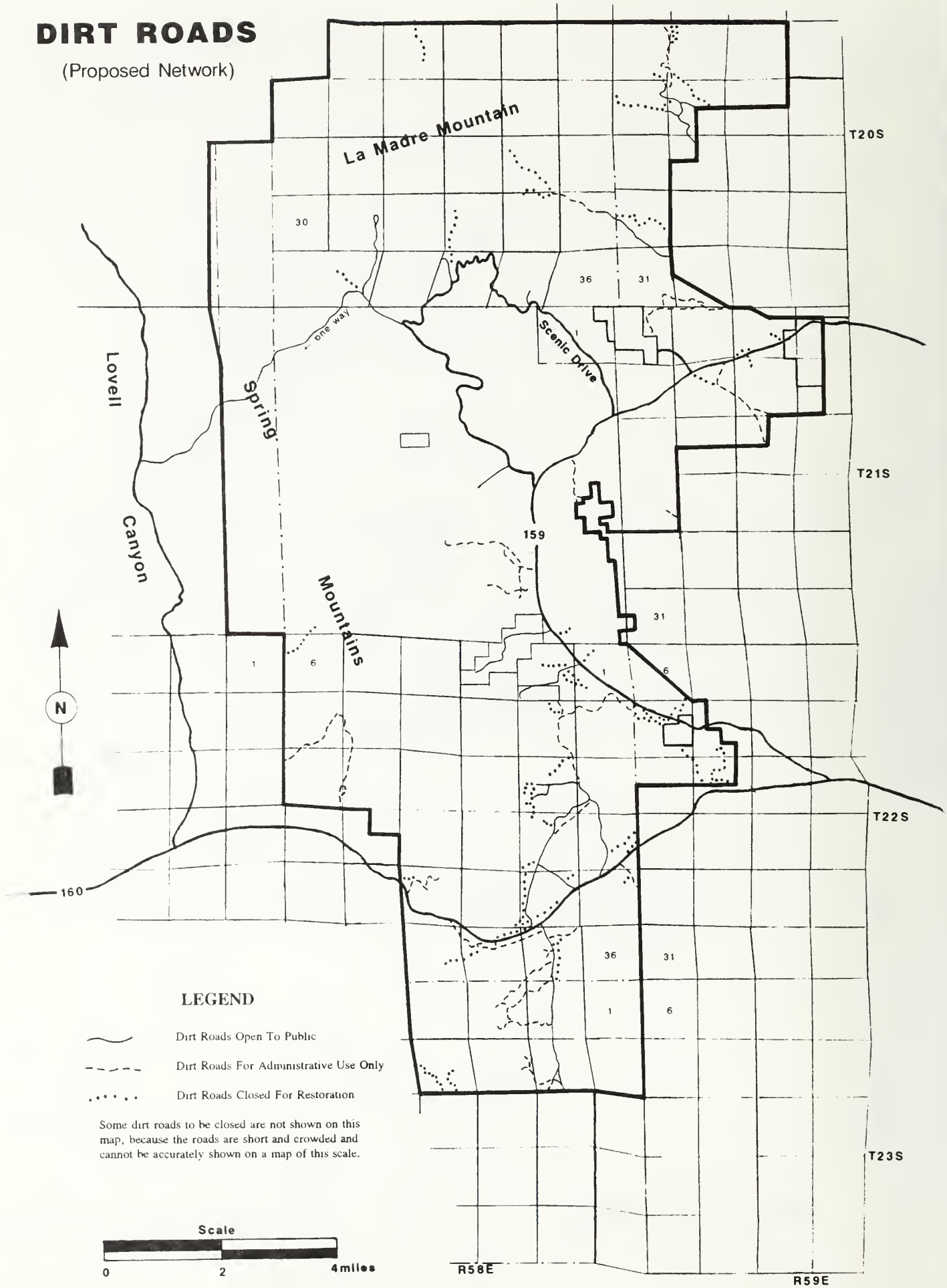
Construct Ranger's Choice Overlook along the west side of the Scenic Drive between Red Rock Wash Overlook and Pine Creek Overlook and provide picnic facilities.



White Rock Spring
Escarpment View
RED ROCK SCENIC DRIVE
Ice Box Canyon Trailhead
Red Rock Wash
Red Rock Wash Overlook
CALICO HILLS
Ash Creek Spring
Calico II
Calico I
RETURN LOOP
Calico Basin
Calico Spring
Red Spring
Visitor Center
159
Dry Well
Pine Creek Trailhead
TRAIL
JEEP TRAIL
Red Rock Vista
N
Scale
1 mile

DIRT ROADS

(Proposed Network)



LEGEND

Dirt Roads Open To Public

Dirt Roads For Administrative Use Only

Dirt Roads Closed For Restoration

Some dirt roads to be closed are not shown on this map, because the roads are short and crowded and cannot be accurately shown on a map of this scale.

Scale

0 2 4miles

Trails

Reconnaissance for a hiking trail along the top of the escarpment will be done, but a trail will not be built unless resource impacts would be lessened through a single trail and WSA (or wilderness) standards could be met.

Designate the old Sandstone Quarry to Willow Springs road for mountain bikes (may be paved to accommodate tour bikes).

Designate the old Willow Springs to Visitor Center road for mountain bikes.

Construct a trail along the base of the escarpment for hiking, horse riding. Alternate routes will be designated for mountain bikes (may not traverse the entire base of the escarpment).

Work in cooperation with the State Highway Department for a bike path or striped lane along Highway 159.

Improve the trail from Red Rock Summit to Bridge Mountain.

CAMPING FACILITIES and DESIGNATIONS (Issue 3)

The priority campground location will be at the Oliver Ranch. This will be a full service facility, but will not include provisions for motor homes. There will be a use fee. Initial design capacity would be 50 sites.

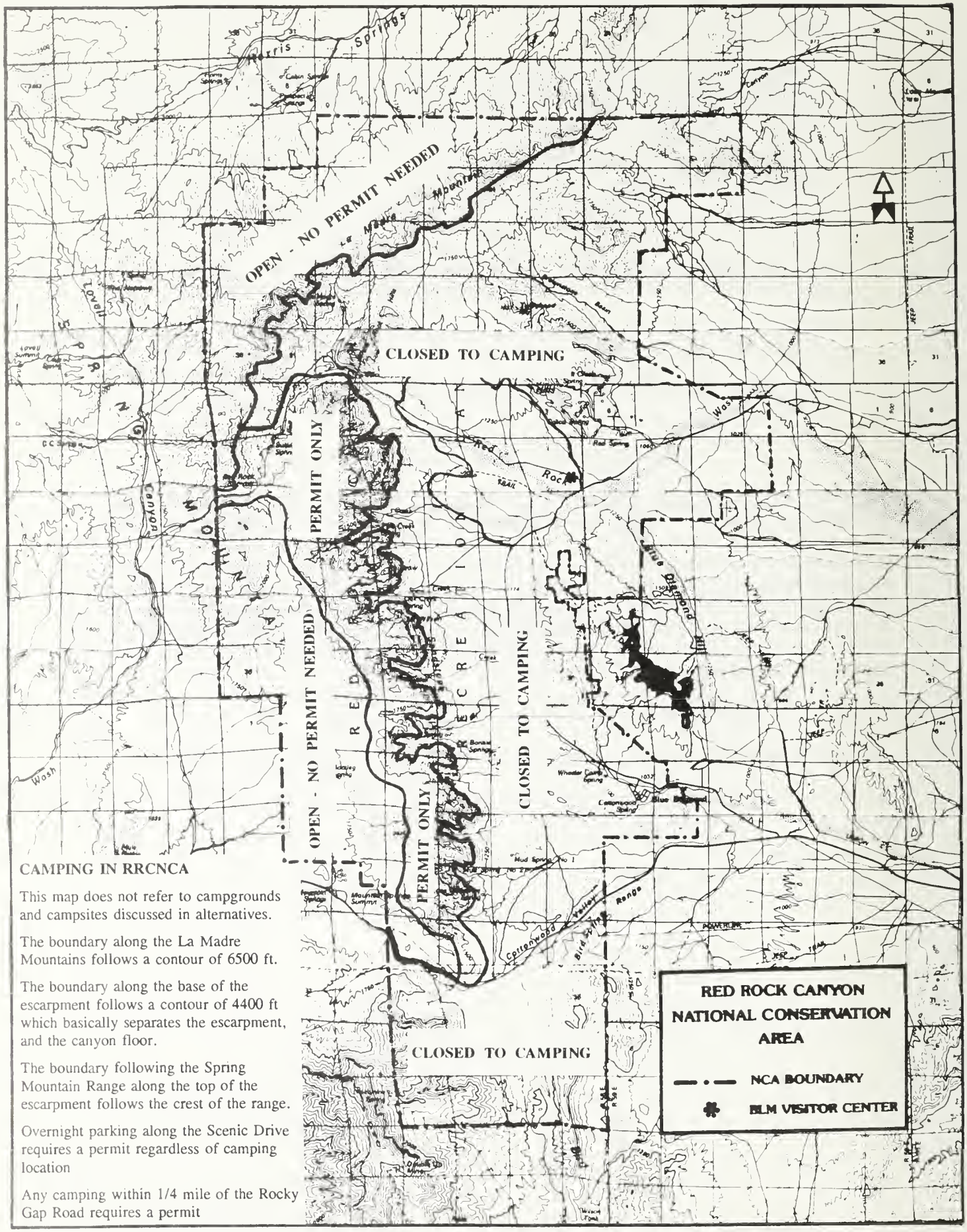
10 Mile Canyon would be the second priority for campground location. It would be a primitive site with designated access and campsites, and toilets. It may also be used for group camping by permit and for overflow from Oliver Ranch. A second alternative campsite is in Calico Basin. There are two large parcels of private land on the west side of the subdivision whose owners have discussed land exchanges with BLM. Should an exchange occur, this property, which already has easy access to existing roads, power and water, would be considered for a camping area.

The Black Velvet area will be closed to camping.

Allow group camping by permit at La Madre Spring at the old building site 1/2 mile below the reservoir.

See map on following page for camping area designations.

PROPOSED CAMPING DESIGNATIONS



CAMPING IN RRCNCA

This map does not refer to campgrounds and campsites discussed in alternatives.

The boundary along the La Madre Mountains follows a contour of 6500 ft.

The boundary along the base of the escarpment follows a contour of 4400 ft which basically separates the escarpment, and the canyon floor.

The boundary following the Spring Mountain Range along the top of the escarpment follows the crest of the range.

Overnight parking along the Scenic Drive requires a permit regardless of camping location

Any camping within 1/4 mile of the Rocky Gap Road requires a permit

TECHNICAL ROCK CLIMBING (Issue 4)

Commercial Permits

The number of year round commercial rock climbing permits would be limited to six (6). An additional five (5) "guest" permits for commercial rock climbing would be allowed. The permits are designed to accommodate, on a one-time basis, commercial users who do not regularly use the NCA. Each of these permits would be limited to three days maximum use per year with a maximum of ten (10) students and three (3) instructors.

Other

For additional proposed actions and management of technical rock climbing, See "Management Common to All Alternatives" section.

CULTURAL RESOURCES (Issue 7)

Install interpretive signing at the parking lots of Brownstone Canyon, Lost Creek, Pine Creek, Red Spring, Sandstone Quarry, Willow Spring and on Highway 160 near the Spanish Trail crossing of Cottonwood Valley, explaining the historic and cultural resources.

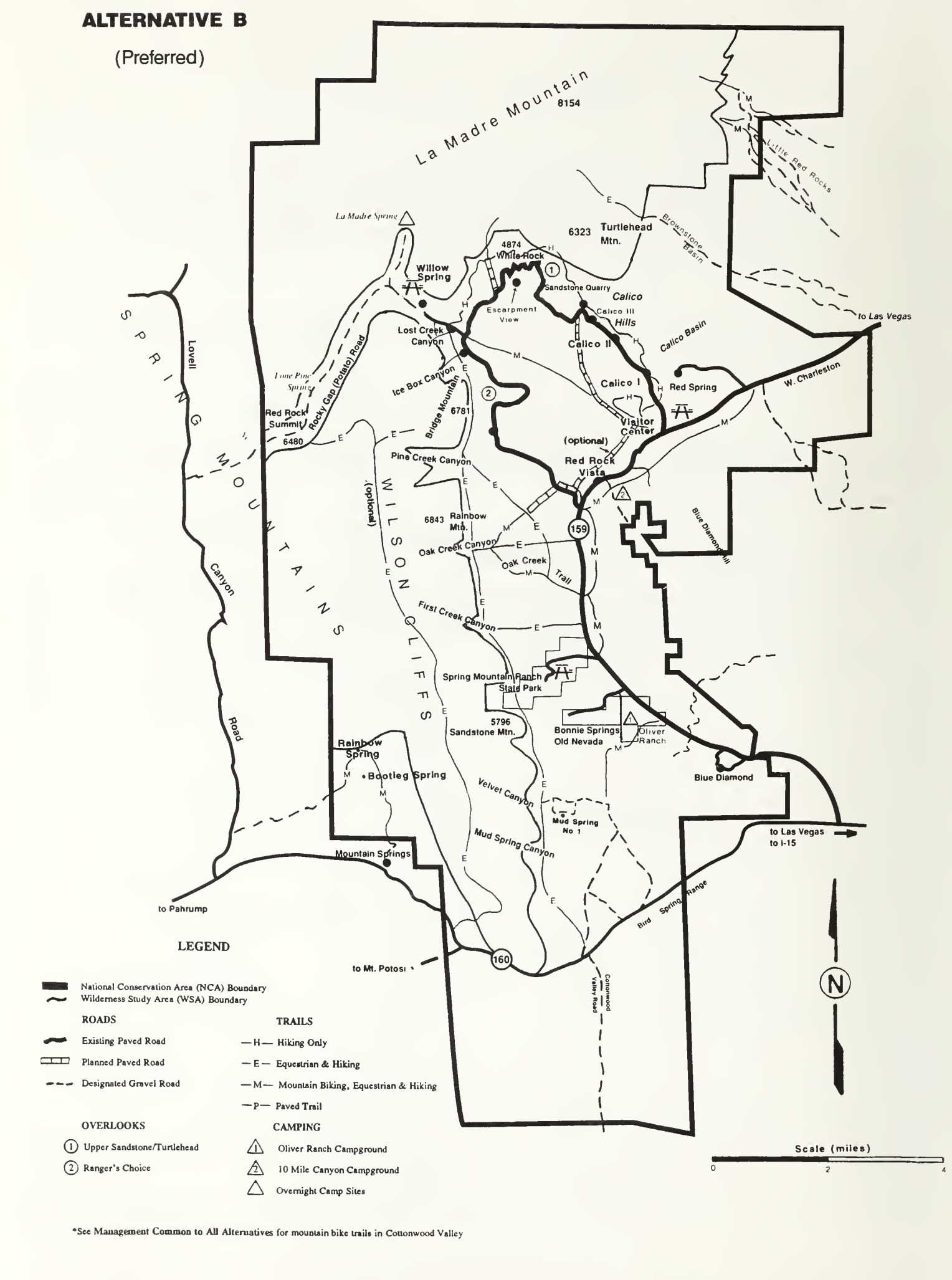
Construct a handicap accessible trail at Red Spring and Willow Spring to one representative rock art site and one agave roasting pit at each area (where available).

Protect sensitive rock art panel at Brownstone Canyon by placing a low level fence in front of the site along with an interpretive sign. Install additional protective measures if necessary.

See "Management Common to All Alternatives" section.

ALTERNATIVE B

(Preferred)



*See Management Common to All Alternatives for mountain bike trails in Cottonwood Valley

ALTERNATIVE C - PROPOSED ACTIONS

Alternative C proposes more development and provides more facilities than the other alternatives. The designation of the valley area as "Roaded Developed" indicates that additional facilities and roads would be considered appropriate based on user demand. Natural values and the environment would receive the same protection as in any of the alternatives but less emphasis would be placed on separating vehicle oriented activities from nonmotorized uses. Dirt roads would receive more maintenance and be more accessible to two wheel drive vehicles. This alternative includes many of the projects that are in the 1976 Master Plan, but have never been implemented.

MANAGEMENT EMPHASIS AREA DESIGNATIONS

(see map on following page)

Common to Alternatives B, C & D

Pine Creek and La Madre Mountains "Wilderness Study Areas" (WSA) designated Primitive

Oliver Ranch designated Developed

Desert Sportsman's Shooting Range designated Roaded Developed

ROADED DEVELOPED

All NCA lands except the Rocky Gap Road and areas with other designation listed above

ROADED NATURAL

Rocky Gap (Potato Ridge) Road

FACILITIES - ROADS and TRAILS (Issue 2)

Roads

Create a shortened "return loop" by constructing a 2.4 mile road from Sandstone Quarry to the Visitor Center (see 2nd following map). This road would follow the old Sandstone/Willow and Willow Springs roads for about .9 mile of its length. This would allow vehicles and bicycles to return to Highway 159 without travelling around the entire Scenic Drive or returning against one-way traffic.

Maintain the La Madre Spring Road to accommodate 2-wheel drive vehicles.

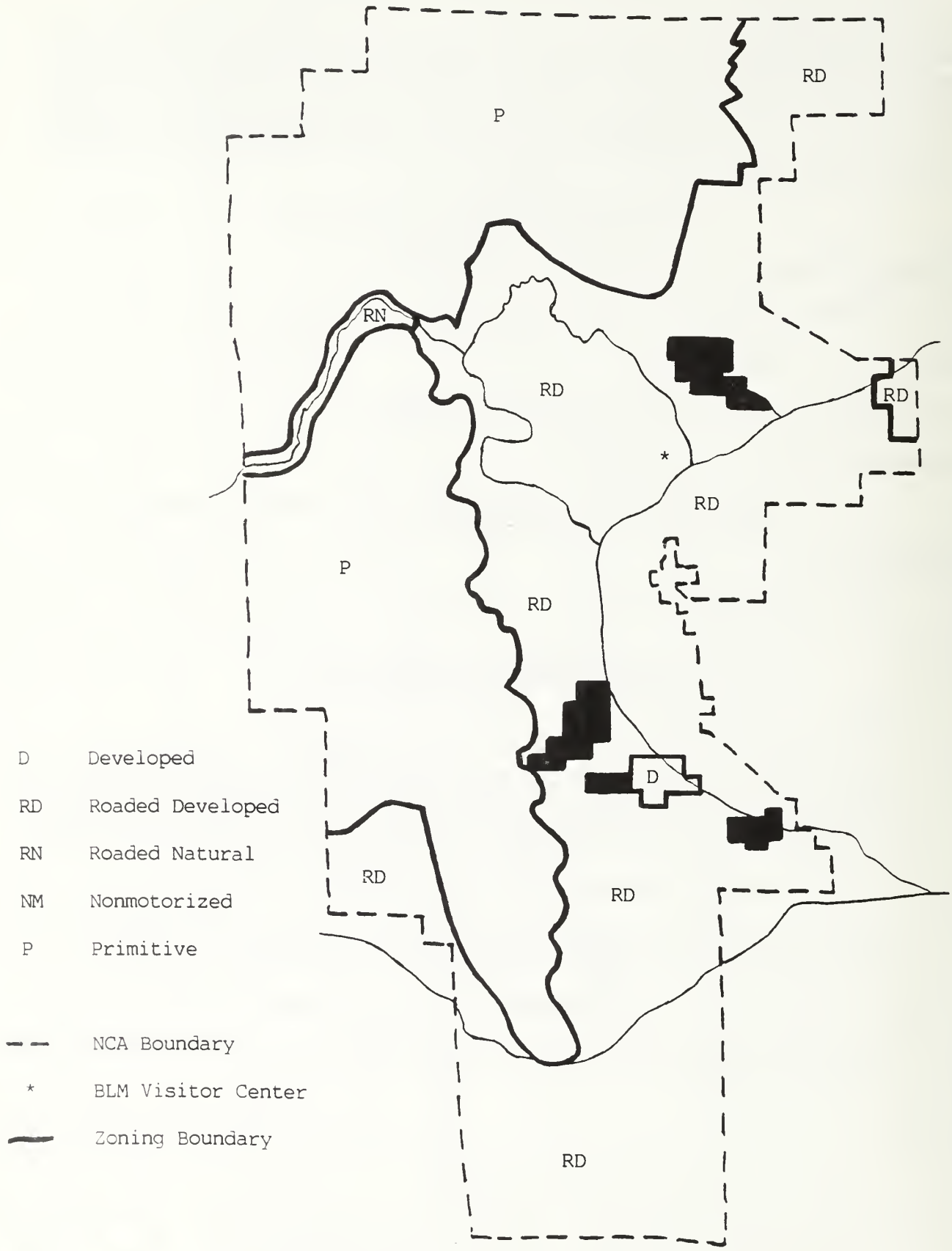
Pave Red Springs, Juniper Canyon, White Rock and Sandstone Quarry roads to improve access, reduce maintenance and cut back on particulate matter in the atmosphere.

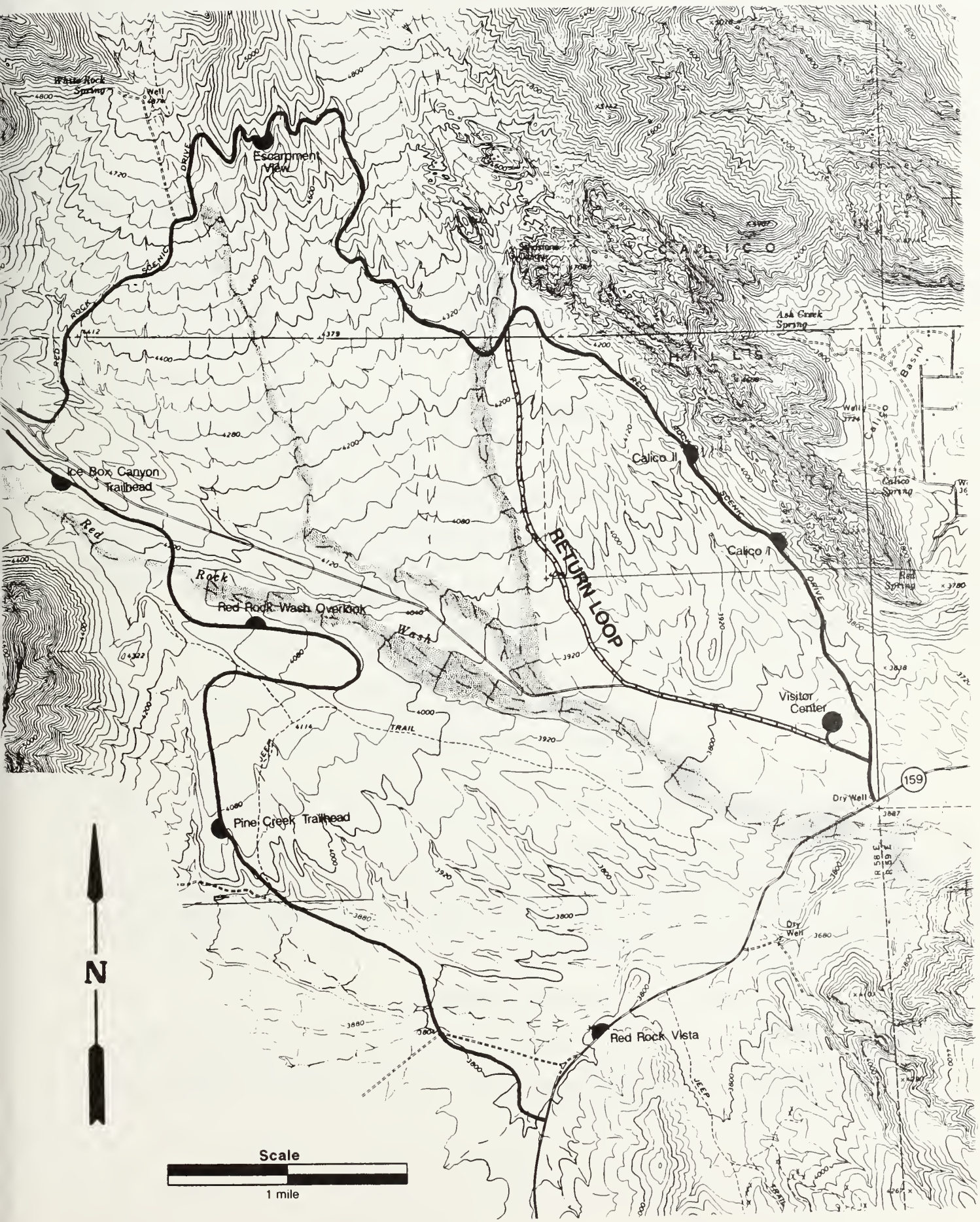
Maintain the Rocky Gap Road for 2-wheel drive vehicles and designate it for one way travel west.

Improve the Mud Springs/Black Velvet access roads and allow vehicle use on the road north from the Black Velvet turnoff.

Alternative C

RED ROCK CANYON NATIONAL CONSERVATION AREA




Escarpment View
Ice Box Canyon Trailhead
Red Rock Wash Overlook
Pine Creek Trailhead
Calico II
Calico I
Visitor Center
RETURN LOOP
Red Rock Vista
Dry Well
Ash Creek Spring
Calico Spring
Red Spring
White Rock Spring
Calico Basin
SCENIC DRIVE
JEEP TRAIL
159
N
Scale
1 mile

Upgrade the 13 Mile Road (1/2 mile east of the Calico Basin entrance), providing an alternate access route from the city of Las Vegas.

Develop horse and burro viewing areas off of heavy traffic roads.

Overlooks and Parking

Construct Upper Sandstone/Turtlehead Overlook to alleviate overcrowding at Sandstone Quarry and provide improved access to the Turtlehead Peak Trail.

Construct Ranger's Choice Overlook along the west side of the Scenic Drive between Red Rock Wash Overlook and Pine Creek Overlook and provide picnic facilities.

Construct Cottonwood Overlook near Highway 160.

Trails

Construct a hiking trail along the top of the escarpment.

Pave the old Sandstone Quarry to Willow Springs road for bicycle use.

Pave the old Willow Springs to Visitor Center road for bicycle use.

Construct a trail along the base of the escarpment for hiking, horse riding and mountain biking. Consider separate trails where feasible.

Pave a separate path adjacent to the Scenic Drive for bicycles.

Pave a separate bicycle path parallel to Highway 159.

Improve the trail from Red Rock Summit to Bridge Mountain.

CAMPING FACILITIES and DESIGNATIONS (Issue 3)

The priority campground location will be at the Oliver Ranch. This will be a full service facility, but will not include provisions for motor homes. There will be a use fee. Initial design capacity would be 50 sites.

10 Mile Canyon would be the second priority for campground location. It would be a primitive site with designated access and campsites, and toilets. It may also be used for group camping by permit and for overflow from Oliver Ranch. A second alternative campsite is in Calico Basin. There are two large parcels of private land on the west side of the subdivision whose owners have discussed land exchanges with BLM. Should an exchange occur, this property, which already has easy access to existing roads, power and water, would be considered for a camping area.

Improve access to the Black Velvet area and provide outhouses.

Allow group camping by permit at La Madre Spring at the old building site 1/2 mile below the reservoir.

Develop a campground in the Cottonwood Valley south of Highway 160 if the other campground sites cannot adequately provide for camping needs.

Several overnight campsites will be developed along the trail at the base of the escarpment (permit needed).

(See the map in camping section under Alternative B for camping area designations)

TECHNICAL ROCK CLIMBING (Issue 4)

Commercial Permits

The number of year round commercial rock climbing permits would be limited to six (6). An additional five (5) "guest" permits for commercial rock climbing would be allowed. The permits are designed to accommodate, on a one-time basis, commercial users who do not regularly use the NCA. Each of these permits would be limited to three days maximum use per year with a maximum of ten (10) students and three (3) instructors.

Other

For additional proposed actions and management of technical rock climbing, see "Management Common to All Alternatives" section.

CULTURAL RESOURCES (Issue 7)

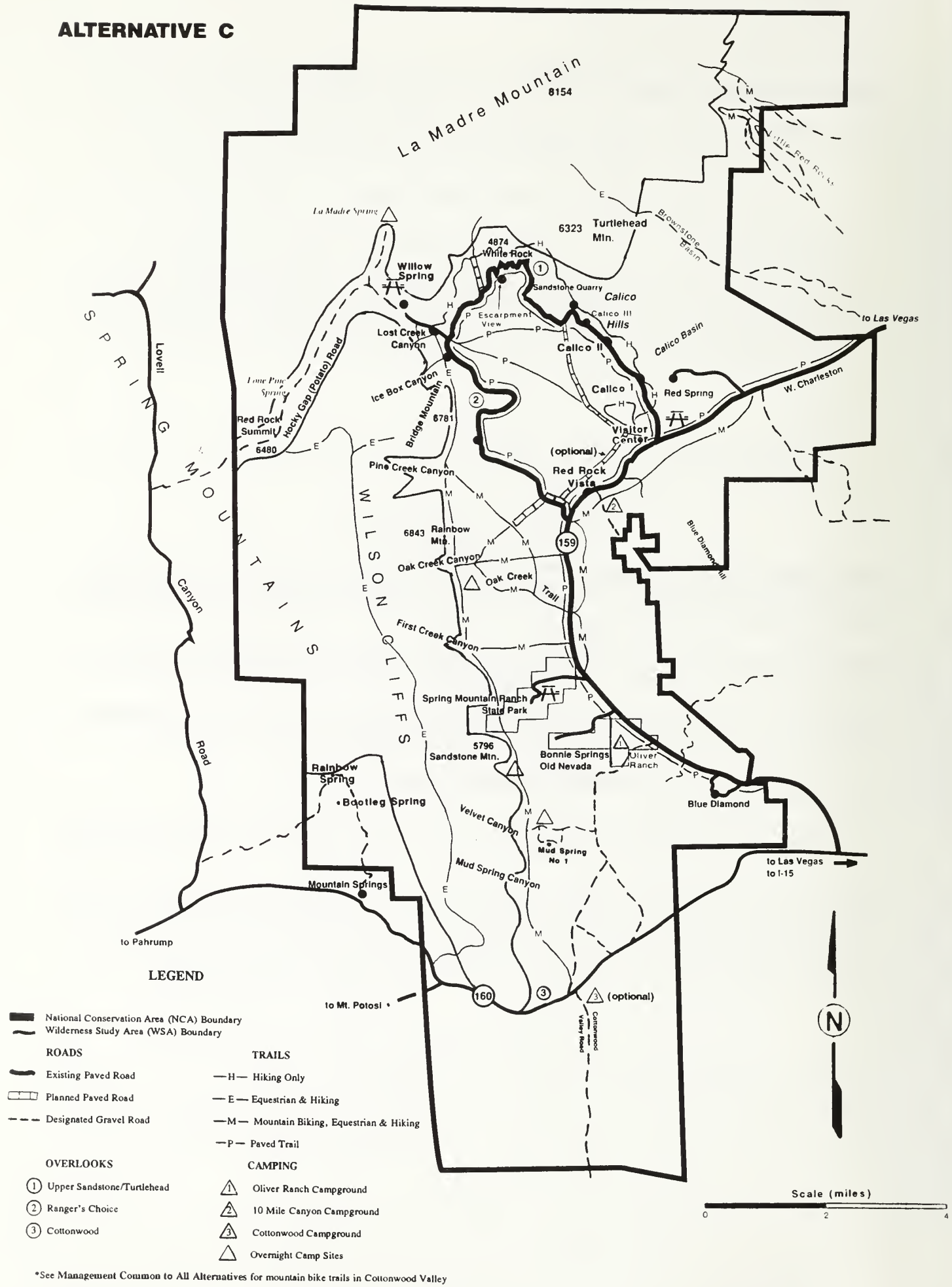
Install interpretive signing at the parking lots of Brownstone Canyon, Lost Creek, Pine Creek, Red Spring, Sandstone Quarry, Willow Spring and on Highway 160 near the Spanish Trail crossing of Cottonwood Valley, explaining the historic and cultural resources.

Construct a handicap accessible trail at Red Spring and Willow Spring to one representative rock art site and one agave roasting pit at each area (where available).

Construct a small contact station at the entrance of Brownstone Canyon where interpreters can lead cultural resource activities, give presentations and distribute written information.

See the "Management Common to All Alternatives" section of this chapter.

ALTERNATIVE C



LEGEND

National Conservation Area (NCA) Boundary
Wilderness Study Area (WSA) Boundary

ROADS

Existing Paved Road
Planned Paved Road
Designated Gravel Road

TRAILS

—H— Hiking Only
—E— Equestrian & Hiking
—M— Mountain Biking, Equestrian & Hiking
—P— Paved Trail

OVERLOOKS

(1) Upper Sandstone/Turtlehead
(2) Ranger's Choice
(3) Cottonwood

CAMPING

(1) Oliver Ranch Campground
(2) 10 Mile Canyon Campground
(3) Cottonwood Campground
Overnight Camp Sites

*See Management Common to All Alternatives for mountain bike trails in Cottonwood Valley

ALTERNATIVE D - PROPOSED ACTIONS

Alternative D proposes the least amount of new development in order to keep resource disturbance at a minimum. It is the most restrictive alternative in responding to user demand and meeting increasing needs. The impact of this alternative would probably be to reduce visitation from current levels while providing maximum protection to natural resources. Visitors would be required to ride a shuttle bus around the Scenic Drive on weekends and holidays if not at all times.

MANAGEMENT EMPHASIS AREA DESIGNATIONS

Common to Alternatives B, C & D

Pine Creek and La Madre Mountains "Wilderness Study Areas" (WSA) designated Primitive

Oliver Ranch designated Developed

Desert Sportsman's Shooting Range designated Roaded Developed

ROADED DEVELOPED

The Scenic Drive and surrounding area

ROADED NATURAL

South of the Spring Mountain Ranch, north of Highway 160 and east of the Pine Creek WSA (Primitive Zone), except for the Developed Zones as listed for all alternatives

The area south of Highway 160 minus the steeper slopes to the east and west

Above Highway 159 between Calico Basin and the shooting range

Area beginning about 1 mile north of Brownstone Basin and continuing to the Little Red Rocks Basin with the La Madre WSA bordering on the west

The Rocky Gap Road

NONMOTORIZED

East of Highway 159, except for the shooting range and portions of developed zones

The area north of Calico Basin and east of the La Madre Mtn. WSA (Primitive zone) minus the portion zoned Roaded Natural.

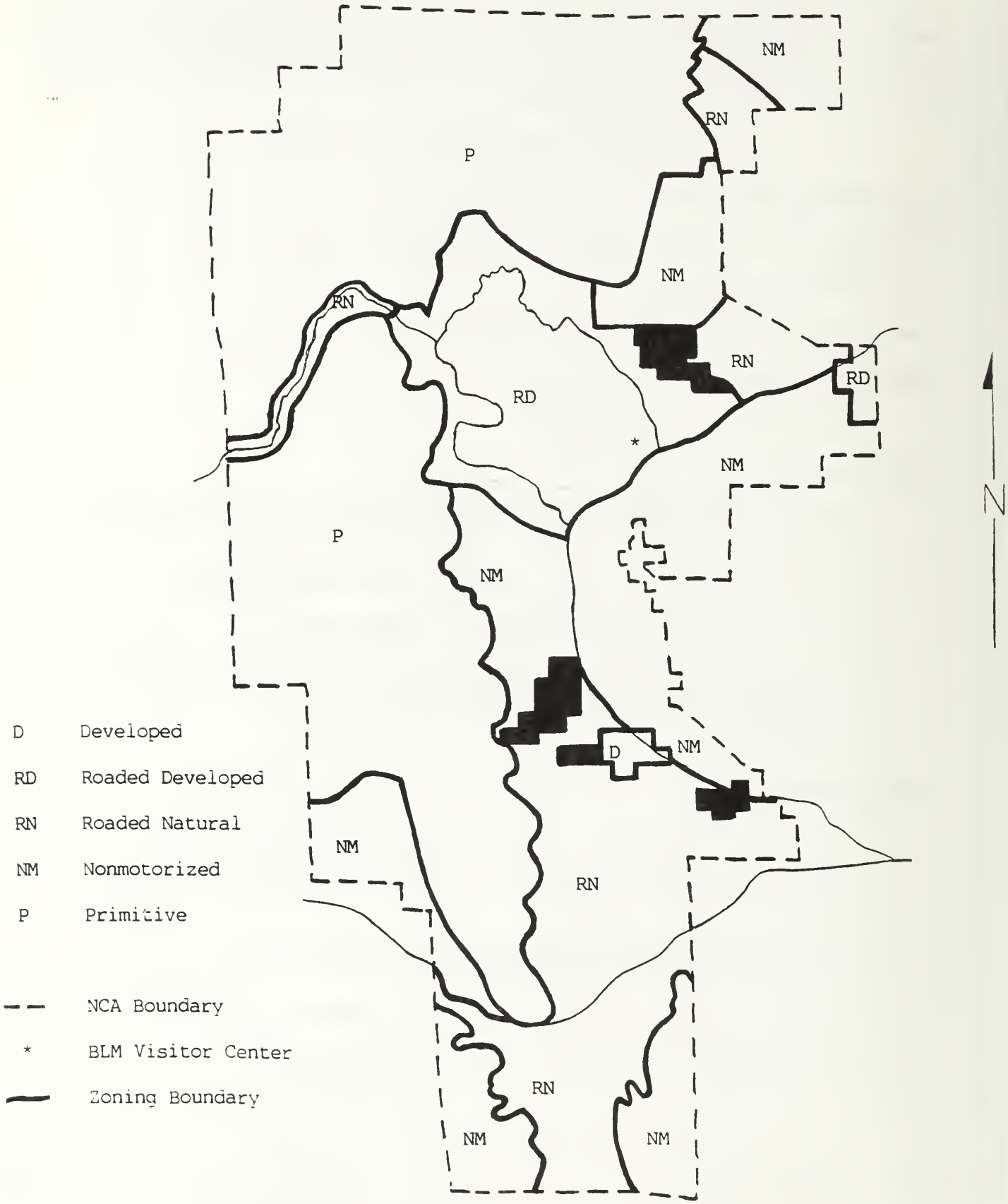
Between Highway 159 and the Pine Creek WSA, and bordered by Spring Mountain Ranch to the south and the Scenic Drive zone to the north

The steeper slopes to the east and west on the portion of the NCA south of Highway 160

North of Highway 160, and south and west of the Pine Creek WSA

Alternative D

RED ROCK CANYON NATIONAL CONSERVATION AREA



FACILITIES - ROADS and TRAILS (Issue 2)

Roads

Close the La Madre Spring Road to motor vehicles.

The Rocky Gap Road will be designated as a one-way road heading west, unless the County chooses to relinquish its RS 2477 claim, in which case the road would be closed to motor vehicles.

Close all roads in the Mud Springs/Black Velvet area and north to Oliver Ranch to motor vehicles (for administrative use only).

Close the area north of Highway 160 and south and west of the Pine Creek WSA to motor vehicles.

Gate the 13 Mile Road (1/2 mile east of the Calico Basin entrance) and allow use by permit only.

A shuttle return road from the Scenic Drive exit to the Visitor Center would be constructed as part of implementing a shuttle system. This would allow safer operation of shuttles by allowing them to return to the Visitor Center without using Highway 159 and interacting with the faster traffic using the highway. The exit gate would remain closed when the shuttle was in operation.

(See map next page)

Overlooks and Parking

No additional overlooks or parking areas would be constructed. A shuttle system would be implemented requiring a 1,000 vehicle parking lot which would be located near the Visitor Center.

Trails

Designate the old Sandstone Quarry to Willow Springs and Willow Springs to Visitor Center roads for mountain bikes. No paving of these routes to allow touring bike use would be undertaken.

Construct a trail along the base of the escarpment for hiking, and horse riding. The trail leaves the escarpment base and heads east into the valley floor center and Highway 159 to detour around Spring Mountain Ranch State Park and Bonnie Springs.

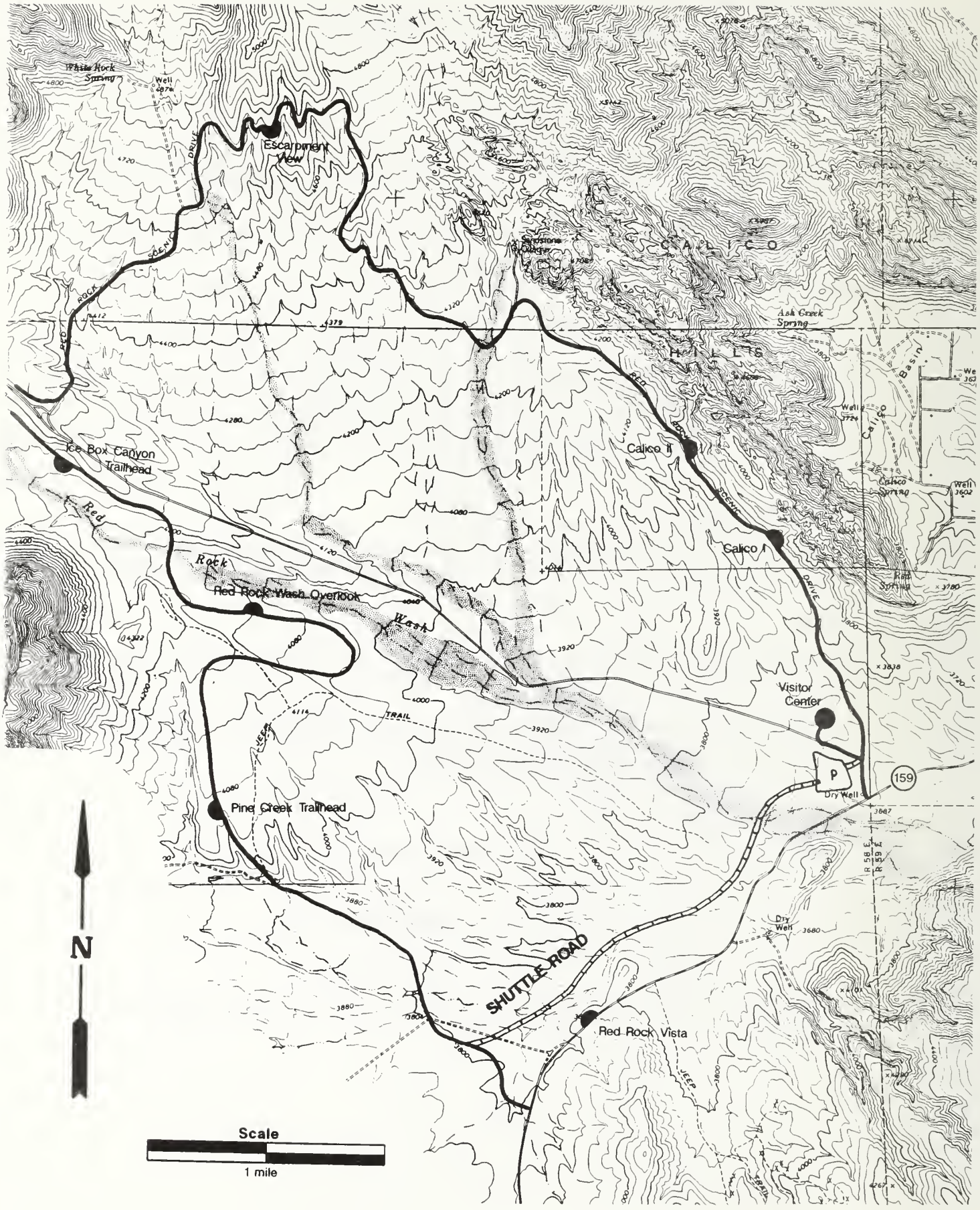
Stripe a bicycle lane on the Scenic Drive.

Improve the trail from Red Rock Summit to Bridge Mountain.

CAMPING FACILITIES and DESIGNATIONS (Issue 3)

There will be no designated campgrounds or campsites in the NCA.

Camping would be allowed only in the backcountry areas on top of the escarpment (see map in camping section under Alternative B).


Escarpment View
Ice Box Canyon Trailhead
Red Rock Wash Overlook
Pine Creek Trailhead
Calico II
Calico I
Visitor Center
Red Rock Vista
SHUTTLE ROAD
CALICO HILLS
Calico Basin
Ash Creek Spring
Calico Spring
Dry Well
159
N
Scale
1 mile

TECHNICAL ROCK CLIMBING (Issue 4)

Permits

The number of year round commercial rock climbing permits would be limited to three (3). An additional ten (10) "guest" permits for commercial rock climbing would be allowed. The permits are designed to accommodate, on a one-time basis, commercial users who do not regularly use the NCA. Each of these permits would be limited to three days maximum use per year with a maximum of ten (10) students and three (3) instructors.

Other

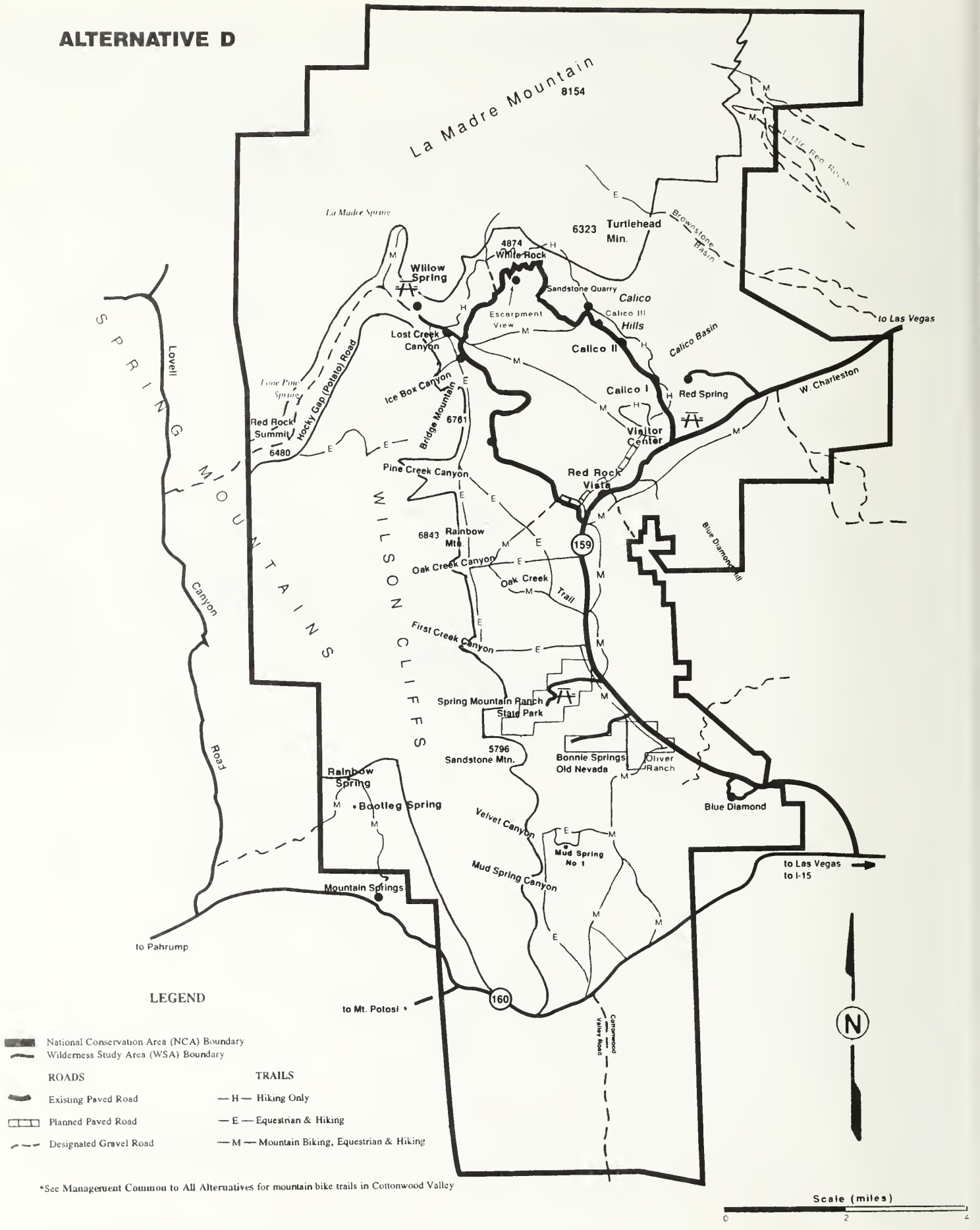
For additional proposed actions and management of technical rock climbing, see "Management Common to All Alternatives".

CULTURAL RESOURCES (Issue 7)

Close Brownstone Canyon to the general public and allow visitation by permit only.

See "Management Common to All Alternatives".

ALTERNATIVE D



*See Management Common to All Alternatives for mountain bike trails in Cottonwood Valley

COMPARISON OF ALTERNATIVES

Alternative A No Action	**Alternative B** Preferred	**Alternative C** Pro Development	**Alternative D** Minimum Development
Roads			
No return route from Sandstone Quarry	Return route from Sandstone Quarry to the Visitor Center	Same as B	Same as A
Pave Red Spring, North Oak Creek and White Rock	Pave Red Spring, N. Oak Creek, White Rock and Sandstone Quarry	Same as B	No paving of existing gravel roads
Rocky Gap will remain a minimal maintenance 4-wheel drive road	Make Rocky Gap a one-way road heading west	Upgrade Rocky Gap to 2-wheel drive and make one-way heading west	Same as B
La Madre closed to motor vehicles (use by permit only)	Same as A	Maintain La Madre road for 2-wheel drive	Close La Madre Road to motor vehicles
Close South (old) Oak Creek Road to motor vehicles	Same	Same	Same
Widen the last 7/10 mile of the Scenic Drive for 2-way traffic	Same	Same	Same
Main north-south access south of Highway 160 will be the only designated access in that area (Cottonwood Valley)	Same	Same	Same
Dirt road located 1/2 mile east of the Calico Basin entry road will remain open but will not be maintained	Road will be gated and use will be by permit only	Road will remain open and will be upgraded	Same as B
Access to Mud Springs/Black Velvet and north to Oliver Ranch open but not maintained	Mud Springs/Black Velvet access improved, but access north to Bonnie Springs closed to motor vehicles	Improve the Mud Springs/Black Velvet access roads and leave access north to Bonnie Springs open to motor vehicles	Close all roads in area to motor vehicles (administrative use only)
Access to area north of Highway 160 and south and west of the WSA open but not maintained	Access will be closed to motor vehicles	Same as A	Same as B
All motorized vehicle use limited to designated roads	Same	Same	Same
Closed roads will be restored back to their natural state	Same	Same	Same

Alternative A No Action	**Alternative B** Preferred	**Alternative C** Pro Development	**Alternative D** Minimum Development
Overlooks and Parking			
Construct Upper Sandstone/Turtlehead about a mile past Sandstone Quarry	Same as A	Same as A	Do not construct Upper Sandstone/Turtlehead
Construct Ranger's Choice along west side of Scenic Drive between Icebox and Pine Creek parking areas	Same as A	Same as A	Do not construct Ranger's Choice
Do not construct Cottonwood Overlook	Same as A	Construct Cottonwood Overlook near Highway 160	Same as A
No shuttle system will be implemented	Shuttle system is a possible future action which will be researched. If implemented, would include a 1000 vehicle parking lot and a separate access road from the Scenic Drive exit to the Visitor Center	Same as B	A shuttle system will be implemented and will include a parking lot with a 1000 vehicle capacity and a separate service road from the Scenic Drive exit to the Visitor Center
	Construct horse and burro viewing areas off of the main (heavy used) roads	Same as B	Utilize existing trailheads and pull-offs for horse and burro viewing
The following actions are common to all alternatives			
Expand Pine Creek parking	Same as A	Same as A	Same as A
Redesign and expand parking lot at Visitor Center	Same as A	Same as A	Same as A

Alternative A No Action	**Alternative B** Preferred	**Alternative C** Pro Development	**Alternative D** Minimum Development
Trails			
Construct a trail along the top of escarpment from the Forest Service boundary north of Red Rock Summit to Highway 160 at Mountain Springs	Perform trail reconnaissance for possible trial location, but construction would take place only if monitoring showed resource damage was occurring from over use and multiple trailing	Same as A	Trail will not be constructed
The old Sandstone to Willow road will be designated for mountain bikes		Old Sandstone to Willow road will be paved to accommodate all bicycles	Same as A
Old Willow to Visitor Center road will be designated for mountain bikes	Same as A, except the portion used for the return loop	Pave old Willow to Visitor Center road to accommodate all bicycles	Same as A
Horse, hike and mountain bike at the base of the escarpment. Consider hiking trail separate from horse and bike trail	Horse and hike trail at the base of the escarpment. Mountain bikes will have an alternate route not along base	Accommodate horse, mountain bike and hike at the base of the escarpment. Consider separate trails where possible	Single trail at escarpment base which will not include mountain bikes and leaves the base to detour around Spring Mountain Ranch and Bonnie Springs
Construct Great Circle Trail around Scenic Drive	Same	Same	Same
Convert old S. Oak Creek Road to a trail	Same	Same	Same
Bike lane around Scenic Drive (may be separate from road at some locations	No special lane or route, bikes use Scenic Drive road	A separate paved bike trail constructed along, but separate from the Scenic Drive	Stripe a bicycle lane on the Scenic Drive
No special bike lane along Highway 159	Work cooperatively with State Hwy. Dept. to provide bike path or lane along Hwy. 159	Pave a separate bike lane along Highway 159	Same as A
Maintain current Red Rock Summit to Bridge Mountain Trail	Improve the Red Rock Summit to Bridge Mountain trail	Same as B	Same as B
Additional mountain bike routes will include Rocky Gap Road, routes designated in Little Red Rocks, designated routes south of Bonnie Springs, trail from the Calico Basin entrance road to the Scenic drive exit and on to the Spring Mountain Ranch entrance (east side of Highway 159), and the 13 mile road	Same	Same	Same
Designate horse load/unload zones	Same	Same	Same

DESCRIPTION OF EXISTING ENVIRONMENT AND MANAGEMENT SITUATION

LAND STATUS

Red Rock Canyon presently consists of 83,440 acres. Private and State of Nevada lands located within the RRCNCA boundary include Spring Mountain Ranch State Park, the town of Blue Diamond, the community of Calico Basin, Bonnie Springs/Old Nevada, and the Desert Sportsman's shooting range. Another inholding, the Oliver Ranch, has been acquired by the BLM adding 300 acres (included in the above acreage). More expansion is possible, with a proposal before Congress to enlarge the NCA by an additional 93,090 acres.

In 1990, when RRC became a National Conservation Area (NCA), all included lands were withdrawn from all forms of entry, appropriation or disposal under the public land laws; from location, entry, and patent under the mining laws; and from operation under the mineral leasing and geothermal leasing laws. An exception is valid existing rights, (claims and rights-of-way established prior to NCA designation). There are a number of mining claims and rights-of-way which fall under this category. The only current mining proposal is from Stone of La Madre to remove 500 tons of sandstone and limestone from their claims in Little Red Rock to do a marketability study.

RRCNCA ACTIVE MINING CLAIMS

Location	Name of Claim	Serial #	Date Filed
T20S, R59E			
Sec. 8 SW4	Stone of La Madre A	NMC564938	5/5/89
Sec. 8 W2	Stone of La Madre B	NMC564939	5/5/89
Sec. 17 NE4	Stone of La Madre 1	NMC564934	5/5/89
Sec. 17 NW4	Stone of La Madre 2	NMC564935	5/5/89
Sec. 17 SW4	Stone of La Madre 3	NMC564936	5/5/89
Sec. 20 NW4	Stone of La Madre 4	NMC564937	5/5/89
T21S, R58E			
Sec. 36 SE4	Margaret #1	NMC609165	10/25/90
Sec. 36 SE4	Margaret #2	NMC609165	10/25/90
Sec. 36 SE4	Margaret #3	NMC609165	10/25/90
Sec. 36 SE4	Margaret #4	NMC609165	10/25/90
T21S, R59E			
Sec. 4 N2	Charlette	NMC557464	5/1/89
Sec. 19 SE4	Daisy Bell #1	NMC475489	4/6/88
T22S, R58E			
Sec. 18 SE4	Copper Hill 5	NMC125400	7/1/43
Sec. 18 SE4	Copper Hill 6	NMC125401	7/1/43
Sec. 28 S2	Potosi #3	NMC102698	2/16/58
Sec. 33 E2	Potosi #2	NMC102697	2/16/58
Sec. 33 N2	Potosi #4	NMC102699	2/16/58
Sec. 34 W2	Potosi #1	NMC102696	2/16/58

T22S, R59E			
Sec. 6 NW4	Margaret #9	NMC609173	10/25/90
Sec. 6 NW4	Margaret #10	NMC609174	10/25/90
Sec. 6 NW4	Margaret #11	NMC609175	10/25/90
Sec. 6 NW4	Margaret #12	NMC609176	10/25/90
Sec. 6 SW4	Margaret #13	NMC609177	10/25/90
Sec. 6 SW4	Margaret #14	NMC609178	10/25/90
Sec. 6 SW4	Margaret #15	NMC609179	10/25/90
Sec. 6 SW4	Margaret #16	NMC609180	10/25/90
Sec. 7 NW4	Margaret #17	NMC609181	10/25/90
Sec. 18 NW4	Espirit #2	NMC596866	5/16/90
Sec. 18 NW4	Espirit #4	NMC596868	5/16/90
T23S, R58E			
Sec. 9 NW4	Springhaven #1	NMC96033	10/4/70
Sec. 9 NW4	Springhaven #2	NMC96034	10/4/70

FACILITIES

The RRC Visitor Center is a 7,600 square foot facility offering information and interpretation about recreation opportunities, wildlife, wild horses and burros, vegetation, geology, cultural resources and much more. The facility also offers a bookstore operated by "Red Rock Canyon Interpretive Association", a non-profit organization with the mission of researching and sharing interpretive information about RRC and assisting the BLM financially with endeavors related to interpretation.

In the same location as the Visitor Center is the "Homer Morgan Pavilion". The pavilion offers a rest stop/destination location, with water and a rest room, for bicycle enthusiasts. It also includes benches and picnic tables providing opportunities for day use picnicking and group gatherings.

The Oliver Ranch, acquired by BLM in 1993, has two residential buildings and several shop and utility structures. Possible uses include the primary campground facility for the NCA, ranger station, fire station, interpretive and educational training center, and temporary wild horse adoption center.

Major roads include State Highway 159, State Highway 160, the Rocky Gap Road (a dirt road which climbs over the escarpment), and a 13 mile paved Scenic Drive. The Scenic Drive area includes the Visitor Center, nine overlook and parking areas, and a day use picnic area. Another day use picnic area is located just east of the Scenic Drive at Calico Basin. Besides scenic viewing and picnicking, visitors participate in camping, rock climbing, mountain biking, hiking and horse riding.

Camping areas include one designated primitive campground and another area where overflow is directed. The campground (at Oak Creek) has been ignored from a management stand point. It has been overused and abused for several years and the area has suffered resource damage to point where the facility needs to be closed and the area allowed to recover. Rock climbing, mountain biking and horse riding are all popular activities at RRCNCA, but none of these activities have current management plans. Trail developments are minimal and not much in the way of written information is available for the public. Several hiking opportunities are offered in the north half of the NCA, with most in the area of the Scenic Drive. Many of the trails offered are routes to take and not actually designated trails, so they are not always well marked and may be difficult to follow on the ground. Consequently, hikers, mountain bikers, rock climbers and horse riders have created their own trails, some not in appropriate locations.

MAJOR ROADS			
Name	**Type**	**Length**	**Length Totals**
State Highway 159	Paved	11.9 miles	29.2 miles
State Highway 160	Paved	4.3 miles	
Scenic Drive	Paved	13 miles	
Rocky Gap	Dirt	6 miles	10.3 miles
White Rock	Dirt	.6 miles	
North Oak Creek	Dirt	.7 miles	
Cottonwood Valley	Dirt	3 miles	

OVERLOOKS & PARKING			
Name	**Use**	**Capacity**	**Capacity on Scenic Drive**
Calico I	Scenic view of Calico Hills/ Access to hiking, technical climbing, and rock scrambling	35 spaces designated	294 spaces
Calico II	Same as Calico I	Approximately 25 spaces	
Sandstone Quarry	Restrooms/ Access to hiking and scenic viewing in historical area	Approximately 30 spaces	
Escarpment View	Scenic view of valley floor, Calicos, and escarpment from highest point on Scenic Drive	Approximately 30 spaces	
White Rock	Hiking access	Approximately 24 spaces	
Willow Springs/Lost Creek	Restrooms/ Hiking and picnicking/ Cultural resource interests	Approximately 69 spaces	
Ice Box Canyon	Scenic view of escarpment/ Trailhead	Approximately 34 spaces	
Red Rock Wash	Viewing point for Red Rock Wash	7 spaces designated	
Pine Creek Canyon	Restrooms/ View of escarpment/ Trailhead	15 spaces - most designated	
North Oak Creek Canyon Access	Trailhead to access Oak Creek Canyon from north	Approximately 25 spaces	
Red Rock Vista	Scenic view of RRC north of Red Rock Vista/ Interpretation and dedication site of RRC	Approximately 54 spaces	
Red Springs	Picnicking/ Cultural resource interests	Approximately 39 spaces	

TRAILS		
Name	**Description**	**Length**
White Rock/Willow Spring	Hiking trail from White Rock Spring to Willow Spring	1.5 miles
Moenkopi Loop	Interpretive trail starting and ending at the Visitor Center	2 miles
Keystone Thrust	Geologic interest	4 miles round trip
Willow Spring	Interpretive trail featuring plants and cultural resources	1.5 miles
Top of Escarpment (via Rocky Gap)	Scenic hiking, horse riding and mountain biking to Red Rock Summit by way of Rocky Gap. Hiking trail continues following ridge to top of escarpment	14 miles round trip
Lost Creek	Scenic hike with natural features	.7 miles round trip
Ice Box Canyon	Scenic hike with natural features	2.5 miles round trip
Pine Creek	Natural features and includes historic homestead site	2-3 miles round trip
North Oak Creek	Accesses Oak Creek Canyon from road tying into Scenic Drive	2-3 miles round trip
First Creek	Access to First Creek Canyon	5 miles round trip

CAMPING		
Name	**Description**	**Capacity**
Oak Creek Campground	Primitive camping with designated sites and outhouses	17 sites
Black Velvet	Primitive camping with no services or maintenance. Rough access road (4x4)	20 people
Other Camping	Overnight camping at locations over 5000 feet in elevation	No specific sites provided

WILDERNESS

Red Rock Canyon National Conservation Area (RRCNCA) includes portions of two areas which have been studied for consideration as designated wilderness areas. The La Madre Mountain Wilderness Study Area (WSA) includes the northern portion of the NCA and is bordered to the southeast by the RRC Scenic Drive area and to the southwest by the Pine Creek WSA. The two WSAs are separated only by the Red Rock Summit Road (Rocky Gap Road) and included corridor. The Pine Creek WSA, within the NCA, continues south along the west boundary to State Route 160, and runs along the base of the Red Rock Escarpment as the east border (see map on following page).

La Madre Mountain WSA

The La Madre Mountain WSA includes 61,630 acres of BLM and Forest Service lands. The BLM portion includes 41,306 acres, of which the proposed alternative is to recommend 23,050 acres for wilderness. Most of the recommended portion on BLM land is within the NCA.

The elevation ranges from 3,600 feet in Brownstone Basin to 9,600 feet at the peak of La Madre Mountain. The WSA is diverse with special geological, ecological, zoological and cultural features.

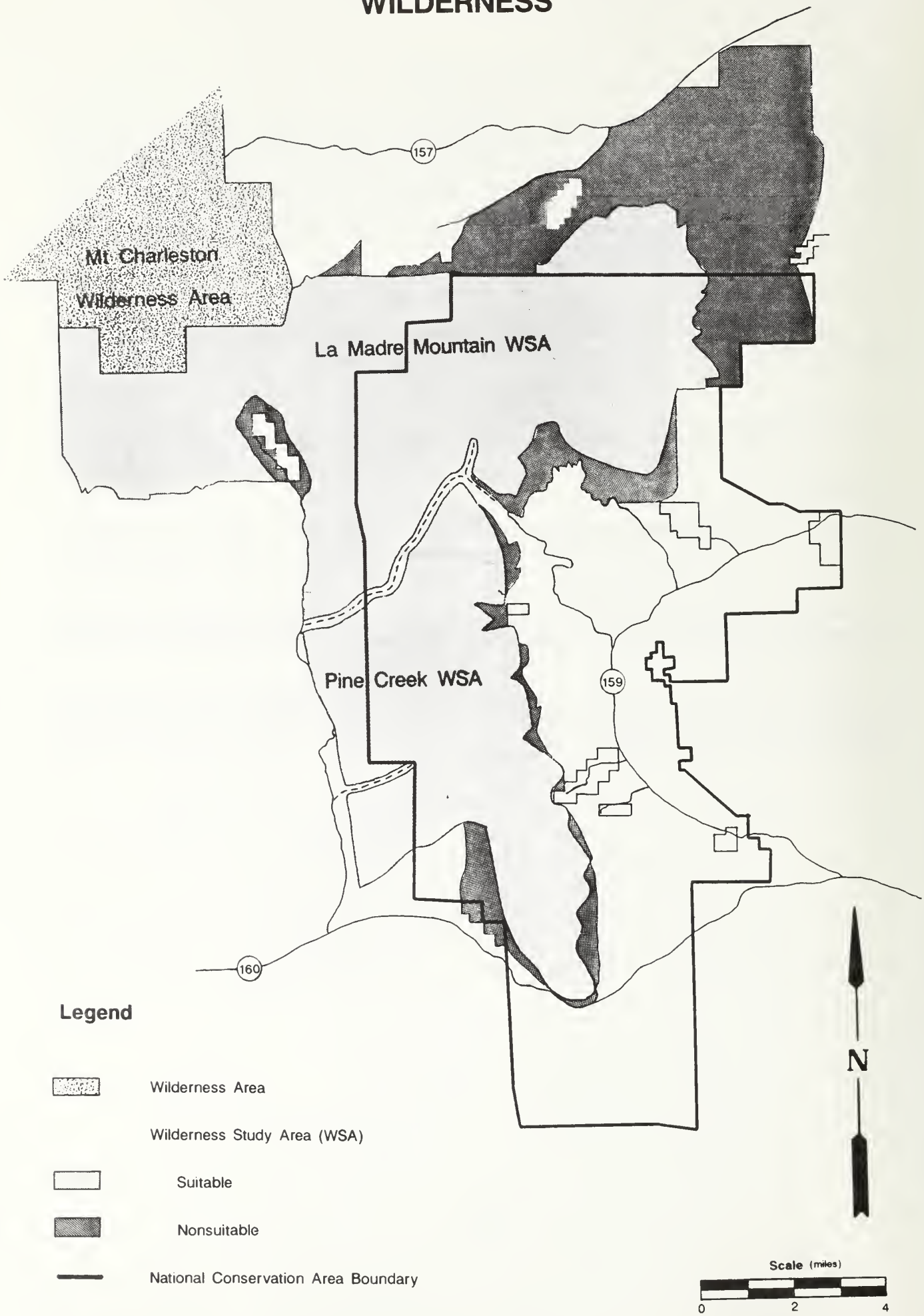
Pine Creek WSA

The Pine Creek WSA includes 24,618 acres on BLM and Forest Service lands. The BLM portion includes 19,722 acres, all of which is in the NCA. The recommendation for wilderness includes 17,639 of the BLM acres.

The elevation ranges from 4,400 feet to 7,000 feet with the WSA being included in the southern portion of the Spring Mountain Range. Geological, paleontological, botanical and zoological are some of the special interests of the WSA.

For a more in depth review of the La Madre Mountain and Pine Creek WSAs, see the "Nevada BLM Statewide Wilderness Report" (volume V) published in October of 1991. Copies can be reviewed at the Las Vegas BLM Office or at the State Office in Reno.

WILDERNESS


Mt. Charleston
Wilderness Area
La Madre Mountain WSA
Pine Creek WSA
157
159
160
Legend
Wilderness Area
Wilderness Study Area (WSA)
Suitable
Nonsuitable
National Conservation Area Boundary
N
Scale (miles)
0
2
4

VISITOR DEMOGRAPHICS

The following information is from the "Customer" survey completed in 1992 by the Outdoor Recreation and Wilderness Assessment Group (ORWAG), a research unit of the USDA Forest Service, Southeastern Forest Experiment Station. Assessments were made through on site interviews at RRC and written surveys distributed by mail.

Gender - Out of 908 interviews, approximately 55% were male and 45% female

Age - 40% were from 25-44 years of age
25% from 45-64
Approximately 10% in each remaining age group
11 and younger
12-14
65 and older

Race/Ethnic - 87% white
8% hispanic
The remainder composed of other minorities

Education - Highest level completed
14% bachelor's degree or equivalent
46% some college
26% high school diploma
14% did not receive high school diploma

Employment - 44% work full time (40 hour week)
16% retired
Other groups each around 7-10%
Not employed
Student
Self employed
Part-time
Homemaker

Annual Household Income - 35% from $25,000 - $50,000
Other groups each around 10%
Less than $10,000
$10,000 - $24,000
$50,000 - $75,000
More than $75,000
Would not disclose

Impairment - Slightly over 2% had some type of impairment, with half involving mobility and the other half including hearing, visual and mental.

Instate-Outstate - 55% of visitors from instate
45% of visitors from outside of Nevada

VEGETATION

RRCNCA supports a wide variety of plant species dependant on soil types and depth, elevation, exposure, temperature, precipitation, and existing and past use. An area that supports vegetation and has one or more dominant or co-dominant species is identified as a "vegetation type", usually named after the dominant or most abundant species. Vegetation types vary greatly in the percentage of each species in the total composition. The vegetation in the RRCNCA can be divided into nine major vegetation types: Pinyon-Juniper, Joshua Tree, Rabbitbrush, Oakbrush, Blackbrush, Manzanita, Desert Shrub, Unique Vegetation, and Barren. Locations of each are shown on the "Vegetative Type" map which follows.

Pinyon-Juniper

This type lies between 5,000 and 7,000 feet and receives between 10 to 18 inches of precipitation a year. The type forms a belt between the desert and the true forest above. The lower edge of the belt is occupied by juniper, but at higher elevations pinyon pine and juniper intermix. At the upper edge of the belt pinyon pine becomes prevalent. Curlleaf, mountain mahogany, big sagebrush and blackbrush are also found in this type in varying amounts. Three awn, Nevada bluegrass and cheatgrass make up the majority of the grass species present.

Joshua Tree

This type is found between 3,600 and 4,200 feet and receives between 8 and 10 inches of precipitation annually. Soils are moderately deep to deep. Joshua tree is the dominant species and makes up a fair amount of the total species composition (3 to 10 percent). Blackbrush, creosote bush, Mormon tea and burrobrush also make up portions of this type. Grasses are usually sparse and species are mostly annuals.

Rabbitbrush

This type can range between 3,400 and 9,000 feet elevation, but in this area is found between 3,400 and 4,200 feet. Precipitation usually is low, ranging from 6 to 8 inches. Rabbitbrush is generally found on eroded or disturbed soils along roadsides and in wash bottoms. It is characterized by soils with a relatively low alkali content.

Oakbrush

This type generally occurs from 4,000 to 6,000 feet in the RRCNCA, mostly along the Pine Creek and Oak Creek drainages. Soils are moderately deep to deep. Precipitation is usually between 8 and 10 inches. Sagebrush, manzanita, snowberry and rabbitbrush are some of the shrub species that also occur in this type in varying amounts. Nevada bluegrass, Indian ricegrass and big galleta, as well as several annual grasses and forbs, also occur in this type. Soil differences and soil moisture, as affected by slope and aspect, probably account for the oakbrush occurrence.

Blackbrush

The Blackbrush Type is usually found from 4,000 to 6,000 feet elevation. Topography is usually steep to rolling and soils are very shallow to shallow (2 to 20 inches). This type is usually found in association with creosote, hopsage, sagebrush and wolfberry. Precipitation is fairly low at about 5 to 8 inches per year.

Manzanita

This type is found in the area surrounding the escarpment in the rocky canyons and on the walls. Vegetation is only found on areas where soil has accumulated. The most limiting factor in this area is availability of soil. Precipitation usually ranges from 8 to 10 inches annually. Manzanita is the most dominant plant in the area. Other species which are present in this type, in varying amounts, are turbinella oak, cliffrose, desert barberry, desert ceanothus, snowberry, apache plume, juniper and pinyon pine. Various annual grasses and forbs also occur on areas where soil has accumulated.

Desert Shrub

The Desert Shrub Type is found generally to the east of the sandstone escarpment. Precipitation is generally 5 to 8 inches annually. Soils are generally shallow to very shallow. Species found in this community consist of Spanish bayonet, blackbrush, Mormon tea, cheesebush, spiny memodora, desert almond, sagebrush, bursage, cholla cactus, dalea, turpentine bush and catclaw. Grasses commonly found include needle grass, sand drop seed and big galleta grass.

In the Desert Shrub Type, moist years produce an exceptional growth of annual plants. The wide variety of small flowering plants include buckwheats, marigolds, mallows and desert poppy. Several species of annual grasses also occur in moist years.

Barren

This type is found on the eastern edge of the RRCNCA and is mostly bare rock. Vegetative cover is found only in areas where soil accumulates and where water periodically stands, allowing seed germination. The main species are pinyon pine, juniper, manzanita, sagebrush, snakeweed and creosote. Some very sparse perennial grasses occur, along with some annual grasses and forbs.

Unique Vegetation

This type is limited mainly to the deep, cool, well watered canyons of the escarpment. These canyons, especially Pine Creek, Oak Creek and First Creek, provide a micro-climate that supports small communities of ponderosa pine and several other species not commonly found at this low an elevation. Some of these other species are willow, serviceberry, snowberry, manzanita, sagebrush, rabbitbrush, desert almond, desert peach, black cottonwood and gambles oak. Nevada bluegrass, Indian ricegrass, blue grama and big galleta make up some of the grass species found in this type. Another unique vegetation type is the "succulent scrub" plant community which is characterized by a wide diversity of cactus, yucca and agave species, and occurs in the Blue Diamond Hills area.

THREATENED and ENDANGERED PLANT SPECIES

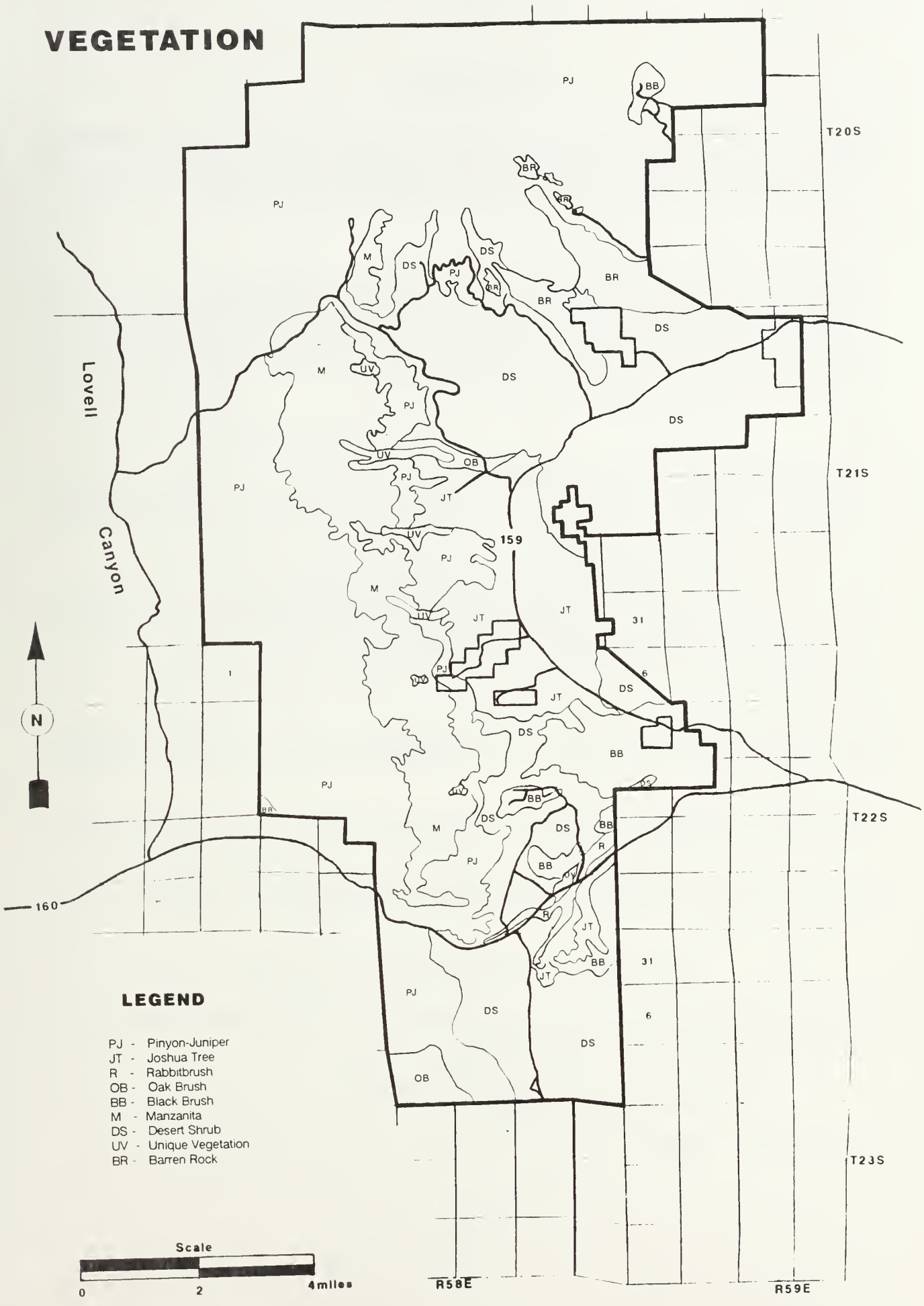
The following list is provided by the U.S. Fish and Wildlife Service, and includes candidate species possibly found in the RRCNCA.

2	Rough scabrida, Angelica scabrida
2	Spring Mountain milkvetch, Astragalus remotus
2	Alkali mariposa, Calochortus striatus
2	Smooth pungent forsellesia, Forsellesia pungens glabra
1	Blue Diamond cholla, Opuntia whipplei var multigeniculata
2	Bicolored penstemon, Penstemon bicolor ssp bicolor
2	Bicolored penstemon, Penstemon bicolor ssp roseus
2	Selaginella utahensis

1 = Category 1: Taxa for which there is substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered of threatened species.

2 = Category 2: Taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

VEGETATION



LEGEND

PJ - Pinyon-Juniper
JT - Joshua Tree
R - Rabbitbrush
OB - Oak Brush
BB - Black Brush
M - Manzanita
DS - Desert Shrub
UV - Unique Vegetation
BR - Barren Rock

WILDLIFE

RRCNCA is inhabited by over 45 species of mammals, 100 species of birds and 30 species of reptiles and amphibians. The riparian and wash areas provide very important habitat to wildlife. The increased availability of water in these areas encourages a higher density and more variety of plants. The richer plant communities support more species and greater populations of animals than does the surrounding desert.

Mammals

One highly valued resident of RRCNCA is the bighorn sheep (Ovis canadensis nelsoni). Its habitat is typified by steep, rocky, mountainous terrain which allows it to escape from predators and provides shelter. Generally sheep stay within a two mile radius of permanent water sources. Other than the valley floor, most of the NCA is suitable habitat for bighorn sheep, with the rock cliff areas of the Spring Mountains and La Madre Mountains providing critical habitat. Other mammals found in the NCA include mule deer, cottontail and jack rabbits, antelope ground squirrels, coyotes and kit foxes.

Birds

All species of the orders Falconiformes and Strigiformes are protected in the State of Nevada. This includes the golden eagle, prairie falcon, peregrine falcon, American kestrel, Cooper's hawk, red-tailed hawk, sharp-shinned hawk, great horned owl, long-eared owl, screech owl and turkey vulture. RRC's steep rocky cliffs provide important habitat for raptor nesting.

Several other species of birds inhabiting RRC have restricted ranges and are present in low numbers in the Southwest. They include the tree swallow, Hammond's and dusky flycatcher, Le Conte's thrasher, gray vireo, Cassin's finch, and black chinned, white crowned and song sparrows. Other birds that inhabit RRC include Gambel's quail, mourning dove, roadrunner and jays.

Reptiles and Amphibians

The desert tortoise inhabits RRCNCA and is usually associated with creosote or creosote-blackbrush bajadas. Washes are important burrowing areas. The population trend for the desert tortoise in RRCNCA is not presently known.

The Gila monster (Heloderma suspectum) is another rare species that can be found in the area. The range appears to be below 4,000 feet elevation with rocky and/or sandy washes being preferred habitat.

Other reptiles include several species of lizards and snakes. Amphibians present in RRC include the tiger salamander (Ambystoma tigrinum) and several species of toads and frogs.

THREATENED and ENDANGERED WILDLIFE SPECIES

The following is a list provided by the U.S. Fish and Wildlife Service, that includes endangered, threatened, and candidate species possibly found in the RRCNCA.

E	American peregrine falcon, Falco peregrinus anatum
T	Desert tortoise, Gopherus agassizii

E = Endangered, T = Threatened

Candidate Species

Mammals

2 Palmer's chipmunk, Eutamias palmeri
2 Spotted bat, Euderma maculatum

Birds

2 Northern goshawk, Accipiter gentilis
2 Ferruginous hawk, Buteo regalis
2 Mountain quail, Oreortyx pictus
2 Loggerhead shrike, Lanius ludovicianus

Reptile and Amphibians

2 Chuckwalla, Sauromalus obesus
2 Arizona southwestern toad, Bufo microscaphus

Invertebrates

2 Spring Mountains acasstus checkerspot, Chlosyne acastus
2 Dark blue butterfly, Euphilotes enoptes ssp.
2 Morand's checkerspot butterfly, Euphydryas anicia morandi
2 Spring Mountain comma skipper, Hesperia comma ssp.
2 Nevada admiral, Limenitus weidemeyerii nevadae
2 Spring Mountains, icarioidides blue butterfly, Plejebus icarioides ssp.
2 Spring Mountains butterfly, Plejebus shasta charlestonensis
2 Carole's silverspot butterfly, Speyeria zerene carolae

2 = Category 2: Taxa for which existing information may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

WILD HORSES AND BURROS

A recent count of horses in the RRC area showed 43 horses inhabiting the area. Since the count, 2 horses have been found dead, leaving the present number at 41 animals. The natural increase per year for horses, after considering births and deaths by natural causes, is around 16 to 18 percent. They normally inhabit the Cottonwood Valley area south of Highway 160 and north of the Highway up to the Mud Springs area.

The most recent burro count was made in 1989 and showed approximately 55 burros. No current reliable count exists. In November of 1993, a group of riders reported counting 111. Burros have a greater tolerance for the harsh desert environment and have a natural rate of increase of approximately 25 percent of herd size annually. This would put the burro population at around 134 animals, but the number has been affected by other factors which are not considered natural. Over the last four years approximately 8 to 10 burros have been killed each year in traffic accidents. While horses tend to avoid people, burros have become very accepting and tend to frequent State Highways 159 and 160 in quest of food from tourists.

As the burro population expands, so does their range. Again, this tends to put more burros in the vicinity of the State Highways. When the population is maintained at a manageable level, the burros stay within the lower elevations (valley floor) of RRC from the Scenic Drive south. When the number of burros increases, their range expands into Calico Basin and even further east into the fringe of the Las Vegas expansion. In an attempt to control the herd size, burros are captured and relocated or put into the adoption program. So far this year (1993) 62 burros who became nuisance animals along Highway 159 have been captured and placed up for adoption.

SOILS

There are many factors involved in soil formation, including a variety of physical, chemical and biological agents, which can cause soils to vary greatly from place to place. However, soils can be considered to fall into two large classes, those that form in place on top of the parent rock, and those that are formed on materials eroded from one area and transported to another. Both types occur in RRC. The in-place soils occur most commonly on top of the escarpment, while the transported soils occur below the escarpment. Parent materials for both are the limestone and sandstone that occur at the surface or below the soils, or mixtures of these two rock types.

Hard pan (caliche) occurs in many of these soil types. Hard pan is the result of the deposition of lime in the soil, apparently caused by rainwater leaching the soil materials and redepositing the lime near the surface. This process can take place repeatedly until an impermeable, totally cemented rock is formed.

Generally, the soils in the NCA are composed of sandy loams, with 35-60 percent gravel and have a mean temperature of 15-22 degrees centigrade at 2 feet below the surface. The depth of the hard pan is from zero to more than 60 inches.

The Red Rock area is divided into six soil mapping units. Each mapping unit is assigned a number and represents percentages of the major soils types identified by the U.S. Soils Conservation Service.

Mapping Unit 415

Typic Paleorthids (40%), Typic Torriorthents (30%), Typic Calciorthids (25%)

This mapping unit occurs on the higher dissected alluvial fans below limestone hills in the survey area. It consists of undulating to steep gravelly ridges and side slopes with narrow drainageways. The main slopes

are approximately 8 percent with side slopes up to 30 percent. The soils have a 30-60 percent surface cover of gravels with some stones near the heads of some alluvial fans in larger drainageways. The soils are shallow to deep, calcareous, medium to coarse textures with more than 50 percent gravel.

Mapping Unit 417

Typic Torriorthents (65%), Typic Haplargids (15%)

This mapping unit occurs on moderately to strongly sloping short alluvial fans below the unit 914 in the NCA. These fans are generally not more than one-half mile in length, with stabilized side slopes into the drainage system. The unit consists of deep, reddish-brown, very gravelly, loamy calcarious soils. These soils are developing in alluvium from the red sandstone cliffs and generally contain 40-80 percent sandstone fragments that range in size from gravels to stones. The 6 to 10 inch surface layer is normally moderately coarse textures and nongravelly.

Mapping Unit 442

Ustollic Haplargids (35%), Lithic Ustollic-Calciorthids (35%), Limestone outcrop (20%)

This mapping unit occurs in the Spring and Sheep Mountains above 5,000. It consists of rolling to very steep mountain ridges, side slopes and narrow drainageways that are normally bedrock controlled. The soils are brown, shallow, moderately deep calcareous, gravelly loams developed in limestone-derived material, with some windblown additions.

Mapping Unit 912

Typic Torriorthents (40%), Typic Paleorthids (25%), Limestone outcrop (25%)

This mapping unit occurs on the dry desert mountains. It consists of a very steep to perpendicular fault block front that consists mainly of rock outcrop with a moderate dip on the back slope. Elevations from the base to the summit range from 200 to over 1,000 feet.

Mapping Unit 913

Typic Torriorthents (45%); Typic Calciorthids (25%), Limestone Outcrop (15%)

This mapping unit occurs on the low, rolling, limestone controlled hills. It has low (normally less than 250 feet) steep escarpments on one side and moderate to steep back slopes. Also included in the unit, are low rolling limestone-controlled hills that may be isolated or associated with the dry desert mountains in the 912 unit. The surface varies from gravelly to very gravelly and cobbly with occasional stones. The soil is very gravelly and high in carbonates.

Mapping Unit 914

Sandstone outcrop (90%)

This mapping unit occurs as sandstone bluffs along the eastern front of the Spring Mountains. This miscellaneous soil type consists of very steep barren sandstone ridges ranging from 1,000 to 2,000 feet in elevation.

RRCNCA is composed of two major watersheds. One watershed drains eastward to the Las Vegas Valley via two ephemeral streams, Red Rock Wash and Cottonwood Wash, which transport the infrequent flood

flows from the watershed. The other watershed drains southward to Pahrump Valley through Lovell Canyon. The two watersheds are separated by the Red Rock escarpment and are approximately equal in area.

The watershed from the escarpment east to the edge of the valley floor is protected from erosion by massive sandstone cliffs cut by steep narrow canyons with accumulations of sediments gathered over long periods of time. Some of the canyons have springs in them. These drainages make their way across the valley and eventually join one of the two major washes that drain the area. Much of the surface water flowing through these streams and washes is lost through rapid runoff. The area is protected from erosion by bedrock, rock fragments, vegetation and litter. A comparatively small portion of the area is bare ground.

West of the escarpment the watershed lies on a west-facing slope protected by limestone bedrock, covered by coarse-grained shallow soils, rock fragments, vegetation and litter.

The erosion condition class, considering both watersheds as a whole, is considered moderate to slight, although there are critical erosion areas at specific locations within the watersheds that must be recognized. These erosion condition classes were determined by BLM through an on-the-ground analysis of various soil and vegetation characteristics. The criteria for these classes are:

Stable — There are no signs of soil movement. Surface litter is usually accumulating in place. Surface rock, if present, will be evenly distributed over the area. No rills are apparent. No flow patterns are apparent. Gullies may be present in a stable condition. No rocks or plants on pedestals are apparent.

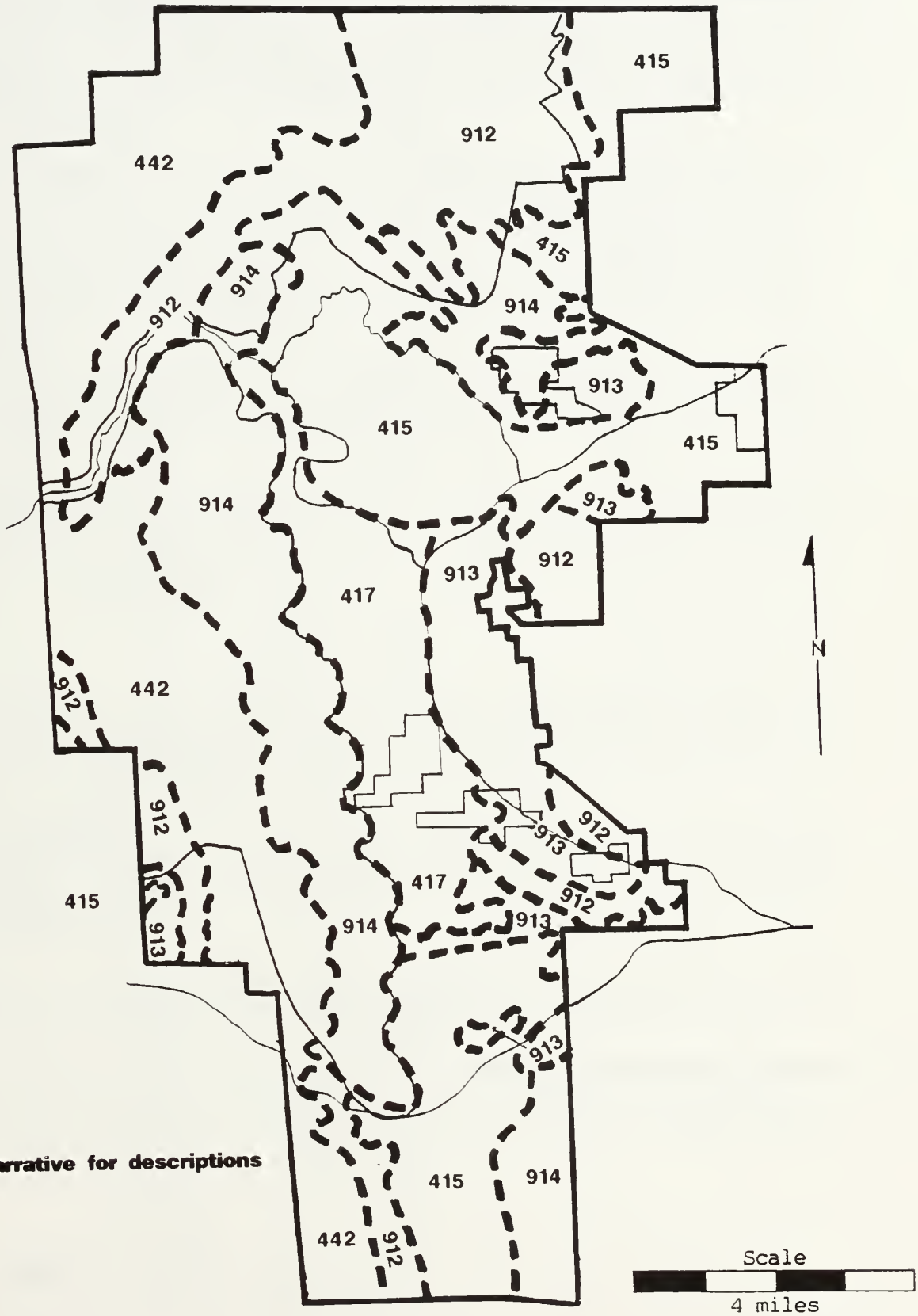
Slight — Some movement of soil particles is apparent. Some surface litter movement is apparent. Surface rock may be present, but collection of small particles may be spotty. No pedestals are apparent. Rills less than 1/2 inch deep occur at infrequent intervals of more than 10 feet. Visible flow patterns have been formed by surface water. Deposition of placement particles may appear in flow patterns. Gullies may be present, but with little evidence of streambank or streambed erosion.

Moderate — Moderate movement of soil is plainly visible and recent. Moderate movement can be recognized buy slight terracing caused by the accumulation of material deposited against litter, vegetation or rocks. The terraces will generally be less that 1 inch in height. Moderate movement of litter is apparent. Some surface rock may be exposed in bare spots where fine soil particles have been recently removed by wind and/or water. Small rocks and plants on pedestals occurring in the flow patterns may be noticed. Small rills are apparent in exposed places. These rills will be between 1/2 inch and 6 inches deep at intervals of approximately 10 feet. Sediment deposits are visible intermittently in flow patterns and against small obstructions elsewhere.

Critical — The soil mantle is in a critically eroded condition. Soil movement occurs with each runoff. Transported soil and debris caused by wind and water is deposited throughout the area against minor surface obstructions. Extreme movement of litter is apparent. Recent surface rock is well formed on gravelly and stony soils. Small rocks and plants on pedestals are generally evident and roots are exposed. Large rills are apparent on exposed areas. Flow patterns contain easily noticeable silt and sand deposits and alluvial fans. Actively eroding gullies are present on 10 to 50 percent of the area being considered.

RED ROCK CANYON NATIONAL CONSERVATION AREA

SOILS



See preceding narrative for descriptions

RED ROCK CANYON NATIONAL CONSERVATION AREA

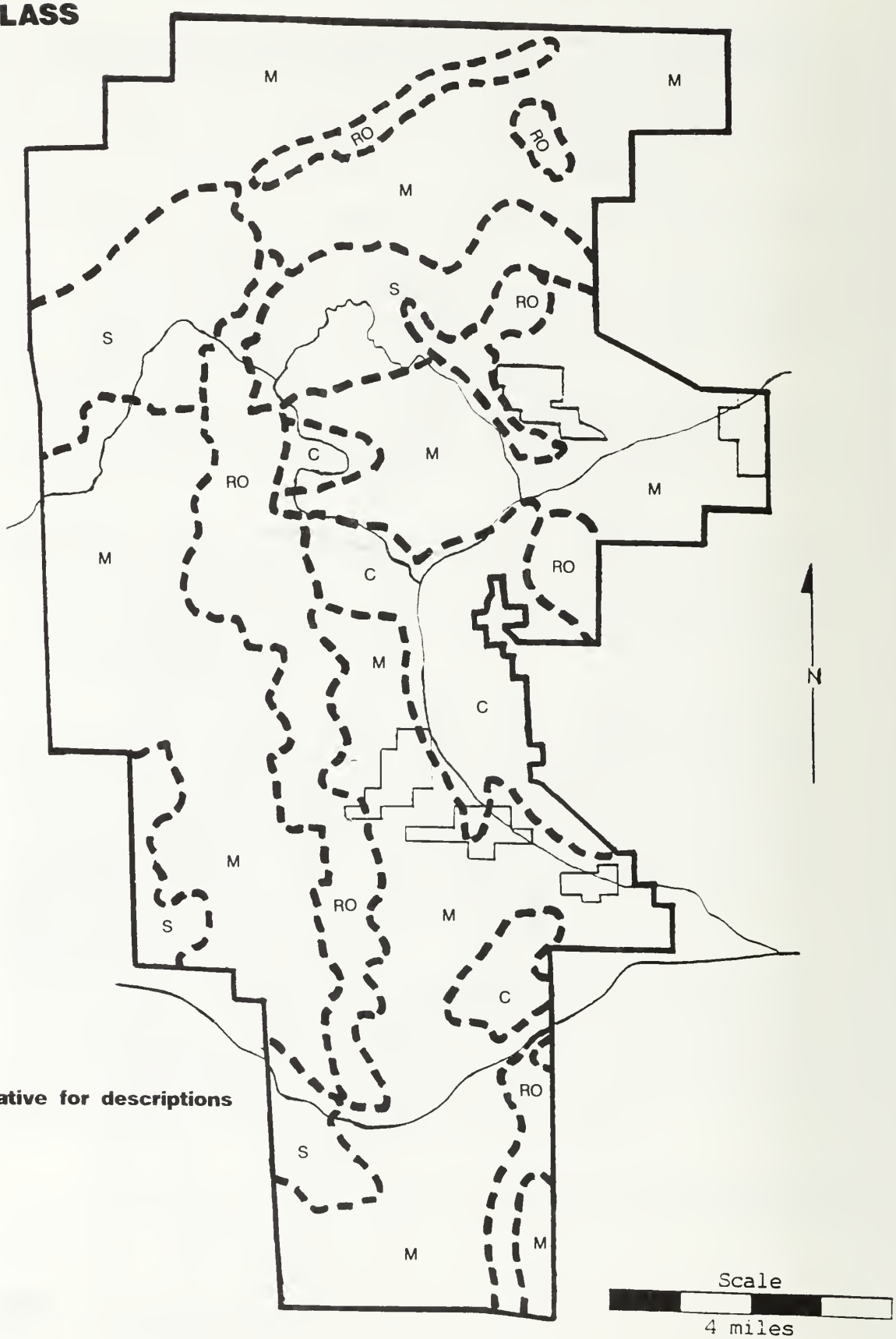
EROSION CLASS

M - Moderate

S - Slight

C - Critical

RO - Rock Outcrop



See preceding narrative for descriptions

WATER RESOURCES

Water is a precious commodity in the Las Vegas Valley area. Rainfall for the valley averages around 4 inches annually, but the amount varies with elevation, with higher elevations normally receiving more precipitation. Rain and snow in the Spring Mountains supply most of the recharge for the Las Vegas Valley aquifer. The aquifer, along with water from Lake Mead, supplies water to the metropolitan area. The Las Vegas area was considered a water deficit area by the Commission on Population Growth and the American Future (1972), as far back as 1960.

RRCNCA has three sources of water, which include surface water, overland flow from precipitation, and groundwater. Surface water occurrence in the NCA is limited to ephemeral streams and riparian areas associated with springs. The many springs in the area (40+) are the result of water encountering a rock type that will not allow water to flow through it. The water is diverted along this impermeable layer, and where this layer is exposed to the land surface, a spring is formed. The water then flows along the surface creating short creeks and riparian habitat, until it seeps back into the ground and flows in an easterly direction to eventually become part of the Las Vegas Valley aquifer system.

The chemical quality of the water in the springs in RRC is good. They are classified as carbonate waters, with most being the calcium and magnesium carbonate types. However, almost all of the springs show bacterial contamination from fecal coliform, indicating contamination by warm blooded animals. Without treatment, the bacteria make the water unfit for human consumption.

Red Rock Wash and Cottonwood Wash are the more significant drainages in the NCA. Both have been classified as Flood Hazard Areas by the U.S. Department of Housing and Urban Development. Other areas below the escarpment have also been identified. Flood Hazard Areas are zones subject to the 100 year flood.

VISUAL RESOURCES

Red Rock Canyon has long been recognized for its scenic values. In 1964, after the passage of the Classification and Multiple Use bill, the BLM placed 10,000 acres in withdrawal status. Since that time, RRC has increased in acreage to 83,440 acres, due to public support for protection of the scenic splendor of the area, and is presently being considered for additional expansion that would double the size.

One of the dominant features of Red Rock Canyon is the geologically unique Keystone Thrust Fault running north-south along the west boundary. It is composed of sandstone which is covered and protected by a layer of older and more weather resistant limestone. To the east, and also running north-south, is a 3,000 foot multicolored sandstone escarpment, which features an array of arches domes, potholes and other interesting formations.

Scenic viewing is the activity that attracts the highest percentage of visitors to Red Rock Canyon. A study completed in 1992 (Customer) found that even for other activities, including biking/running, hiking, rock climbing and picnicking/day use, the primary reason for choosing RRC is the scenery.

Visual Resource Management (VRM) is a tool used in land use planning. It bases landscape character on the four basic visual elements of form, line, color and texture, and is used to analyze impacts of development. The planning area is first evaluated and assigned values for several characteristics based on

a numerical point system. The total points assigned to a given area are used to determine an existing scenic quality class value as follows:

Class A (19-33) Areas that contain the most outstanding scenic features not common generally in the area

Class B (12-18) Areas in which there is a combination of some outstanding features and some that are fairly common to the physiographic region

Class C (0-11) Areas in which the features are fairly common to the physiographic region

The following map depicts assigned scenic quality classifications as determined in an earlier analysis completed in 1980, for the "Oil and Gas Leasing in the Red Rocks Canyon Recreation Lands" Environmental Impact Statement.

Adding in the distance zones and viewer sensitivity factors, the landscape is then divided into VRM management classes as follows:

Class I Natural ecological changes and very limited management activity are allowed. Any contrast created must not attract attention. This classification is applied to wilderness areas, wild and scenic rivers, and other similar situations.

Class II Changes in any of the basics (form, line, color, texture) caused by a management activity, should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.

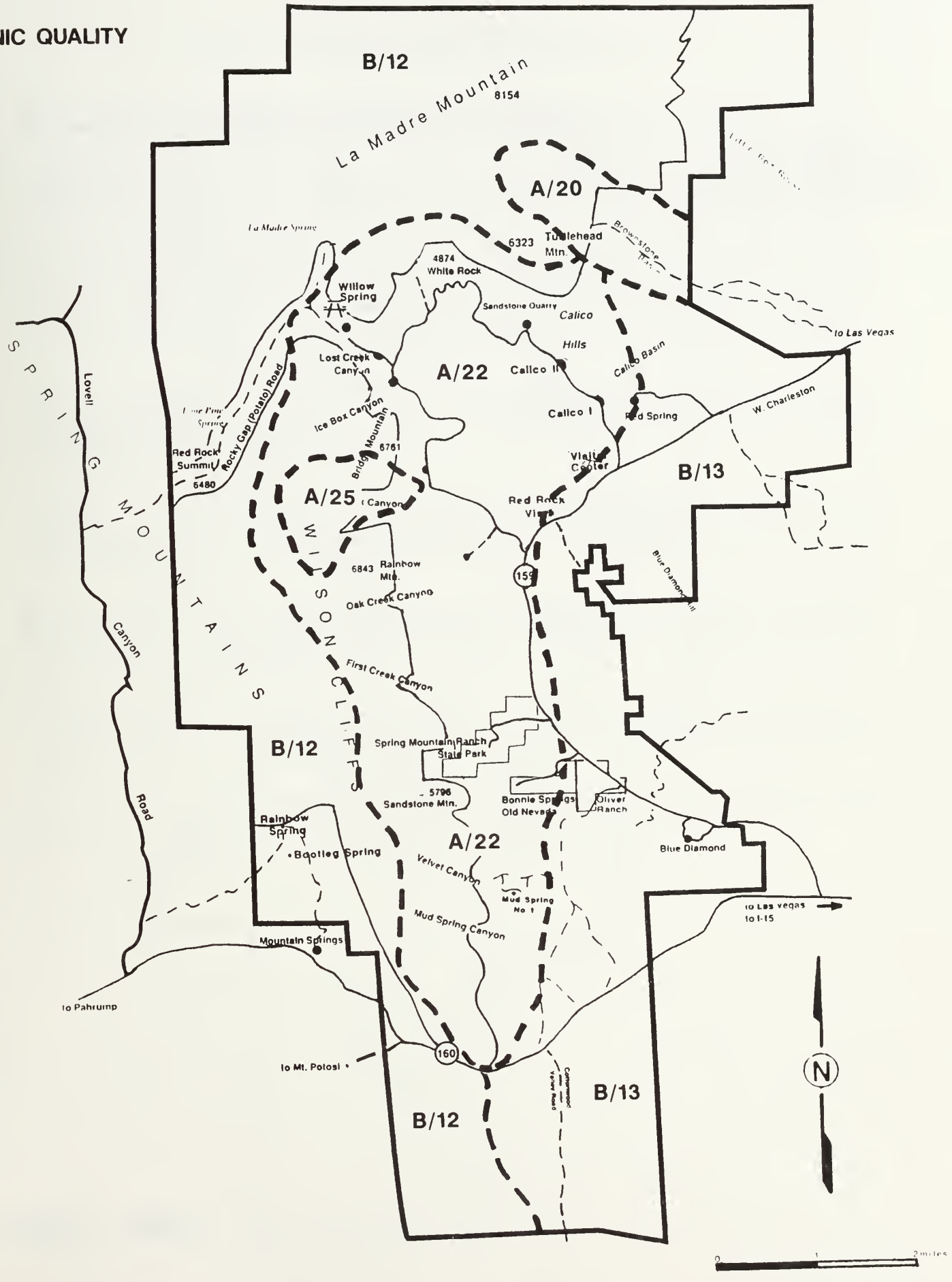
Class III Contrasts to basic elements caused by management activity are evident, but should remain subordinate to the existing landscape.

Class IV Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color and texture of the characteristic landscape.

The second map indicates the VRM classes assigned in the Oil and Gas EIS. If the WSAs are designated as wilderness by Congress they would be managed as VRM Class I areas.

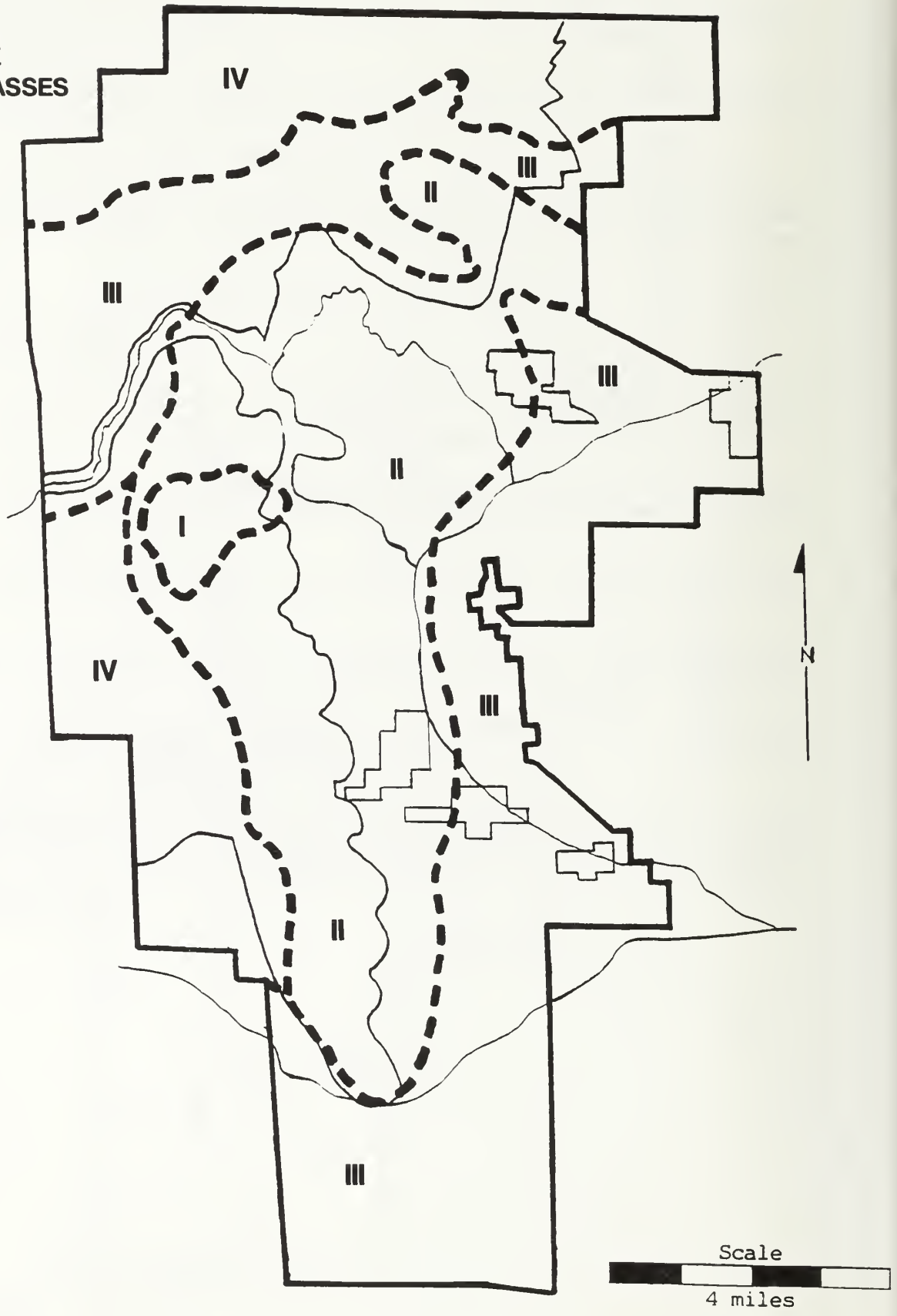
Further analysis is done to determine the impacts of any proposed actions on scenic quality. The level or degree to which various actions impact the scenic quality of the landscape depends on the amount of contrast created by the activity in relation to the existing landscape character. The landscape is studied from several key viewpoints to analyze the potential effects of proposed developments on the basic elements of form, line, color and texture.

SCENIC QUALITY



RED ROCK CANYON NATIONAL CONSERVATION AREA

VISUAL RESOURCE MANAGEMENT CLASSES



CULTURAL RESOURCES

Cultural resources are anything that humans have made or modified for their use. The study of cultural resources (archeology) is divided into historic and prehistoric categories. Prehistoric archeology involves time before contact with European populations (before written history). Historic archeology in southern Nevada began approximately 160 years ago with the Spanish Trail (1829), while cultural resources give evidence of the presence of prehistoric Native Americans as early as 13000 B.P. (before present). Between 5500 and 13000 B.P., several phases of occupation occurred in the southern Nevada region, with the different phases being determined by changes in the types of cultural resources recovered. The Little Lake Pinto Gypsum Phase lasted from 5500 to 2000 B.P. and consisted of Native American culture acclimated to a desert environment. This period included occupation of the RRC area, which was an attractive site due to a higher availability of water than is found in most desert environments. Next came the Anasazi from 2000 through 850 B.P., and finally the Southern Protohistoric Paiute Era in which the Southern Paiutes occupied the RRC area from 850 B.P. until the presence of the early Europeans around 160 years ago.

The RRC area is rich with cultural resources left by Native American inhabitants. When the first Europeans entered southern Nevada, the Southern Paiutes were still in the area, so there are some written records of their presence and lifestyle. Other than that, all of our knowledge about ancient Native Americans is derived from the cultural resources they left behind.

The study of cultural resources enhances our present knowledge of plants and animals, and man's interaction with plants, animals and fellow man. It allows us to understand the process that has led us to where we are today, and can help us deal with future situations. The more intact a cultural site is, the more likely it is to yield valuable scientific information.

Cultural resources have been well inventoried in the northern end of the NCA, especially in Brownstone Canyon, Sandstone Quarry, Lost Creek, Willow Spring, Calico Spring and Ice Box Canyon. Inventory and study of sites to the south is less comprehensive. In general, the vicinity of any stable water source could include cultural sites.

The Willow Spring and Brownstone Canyon areas represent the most significant archeological values in the northern portion of the NCA. Long term prehistoric use of the areas is indicated by the presence of significant numbers of rock shelters, roasting pits and petroglyphs.

Sites within the NCA have experienced low to moderate levels of damage. Willow Spring, Brownstone Canyon and Sandstone Quarry have sustained much of the vandalism and disturbance.

AIR QUALITY

The primary concern with air quality involves what is referred to as "PM10" particulate matter (suspended particles less than 10 microns in size). The Clean Air Act sets limits on and standards for the amount of PM10 allowable in urban areas like Las Vegas. The Las Vegas Valley exceeds the national standards for PM10 particulate matter. RRCNCA is included in the Las Vegas Valley non-attainment area and is subject to General Conformity Regulations approved by the EPA, and all revised control measures identified in Nevada's State Implementation Plan for PM10.

The Clark County Board of County Commissioners adopted a PM10 Air Quality Implementation Plan for Las Vegas Valley on November 5, 1991. It recommends that all publicly owned lands within the Las Vegas Valley non-attainment area be subject to Clark County Health District dust control regulations. It also states that the BLM, through its planning process, will be encouraged by local governments to adopt goals and policies for restrictions on the use of off-road recreational vehicles on public lands.

Some of the contributors to the increase in PM10 particulate matter include dust from vehicular use of unpaved roads, vehicles driving off road, sand and gravel operations, and road construction or other construction projects which cause surface disturbance. Factors tied to dirt roads include volume of traffic, silt content of the surface material and frequency of precipitation.

At present there are 71 miles of dirt roads in the NCA. Additional unplanned routes continue to develop from off road driving, attempts to extend existing routes, widening of existing roads or the creation of alternate routes around impassable spots on existing routes.

FIRE HISTORY SUMMARY, 1980-1992, RRCNCA

This wildfire historical summary is limited to the thirteen year span for which reliable records exist. In terms of the area's actual fire ecology, these recorded trends may or may not reflect the long-term fire pattern (fire regime), which is strongly influenced by climatic cycles. Fire occurrence in the NCA is described in terms of cause, frequency and size. Fire occurrence is summarized both for the NCA as a unit, and for it's two constituent fire management zones. These zones consist of woodlands (escarpment/canyons) and mixed grass/shrublands (desert basin) and represent the two major fuel types found in the area.

The wildfire history during the years 1980-1992 is summarized for the NCA as follows:

Cumulative Total Fire Occurrence

Fire cause	natural ignition (lightning):	60 fires
	human ignition (all sources):	139 fires
Fire frequency	[total number of fires]:	199
Fire size	(combined acreage burned):	1479*
	(average acreage per fire):	7.4*

Annual Average Fire Occurrence

Fire cause	natural ignition:	04 fires
	human ignition:	11 fires
Fire frequency	(all causes):	15
Fire size	(combined acreage):	113*

The patterns of wildfire activity in the two fire management zones vary greatly, as seen in the following:

Cumulative Total Fire Occurrence

[Timber]	Fire cause	natural ignition:	19	
		human ignition:	13	
	Frequency	(# of fires):	32	
		(percentage of NCA total):		16%
	Size	(total combined acreage):		48
		(percentage of NCA total):		03%
		(average acreage per fire):		1.5
[Grass/Shrub]	Fire cause	natural ignition:	41	
		human ignition:	126	
	Frequency	(number of fires):	167	
		(percentage of NCA total):		84%
	Size	(total combined acreage):		1431*
		(percentage of NCA total):		97%*
		(average acreage per fire):		8.6*

* Note: a single 1983 fire (1250-acres) constitutes 85% of the NCA's cumulative fire acreage for the years 1980-1992.

DESCRIPTION OF IMPACTS OF PROPOSED ACTIONS AND ALTERNATIVES

VEGETATION

The NCA has been withdrawn from mining (other than valid existing rights), mineral leasing and geothermal leasing, and is no longer grazed, so there would be no impacts from these uses. Vegetation is presently impacted when parking areas reach capacity and vehicles park along roadsides, driving over and parking on vegetation in the process. Horse and bicycle riders, as well as hikers, create similar impacts by creating random trails or through trail braiding.

Each alternative considers these ongoing impacting factors and proposes actions which would mitigate the occurrences to some degree. The discussion of alternatives will focus on the direct amount of disturbance to vegetation, as well as the ground surface to be rehabilitated, with implementation of planned actions. All exposure is converted to acres.

Alternative A

Paved Roads

No paved roads causing new disturbance to vegetation are planned.

Dirt Roads

No new dirt road construction is planned. 34.2 acres (23.5 miles) of the existing dirt road network would be closed for rehabilitation.

Trails

The trail network proposed would include 11.2 acres (23 miles) of new construction causing direct disturbance to vegetation. The proposed network would also include rehabilitation of discontinued trails, but at this time there is no inventory to determine those acres.

Overlooks/Parking

The new construction of 2 overlooks would cause disturbance of .56 acres.

Camping

The proposed construction of Oliver Ranch Campground, 10 Mile Campground and several overnight camp sites would cause 26 acres of disturbance to vegetation. The closure of Oak Creek Campground would rehabilitate 4 acres.

Summary

Implementation of Alternative A would cause disturbance to 41.8 acres of vegetation and result in rehabilitation of 38.2 acres.

Alternative B

Paved Roads

New paved road construction would impact 3.6 acres (1.5 miles). If the Scenic Drive shuttle system were implemented, an additional 4.8 acres of vegetation would be disturbed.

Dirt Roads

No new construction of dirt roads is planned. The proposed system would close 34.2 acres (23.5 miles) of the existing network for rehabilitation.

Trails

The proposed trail network includes 7.8 acres (16 miles) of new construction. There would also be closure and rehabilitation of some of the existing trail network, but an accurate acreage cannot be determined as no complete trail inventory exists at this time.

Overlooks/Parking

Two new overlook projects would cause disturbance of .56 acres. If the shuttle system were implemented, an additional 8 acres of new construction would occur.

Camping

The proposed construction of Oliver Ranch Campground, and 10 Mile Campground would account for 22 acres of disturbance to vegetation. The closure of Oak Creek Campground and the Black Velvet area would rehabilitate 8 acres.

Summary

Implementation of the actions proposed in Alternative B would cause disturbance to 34.0 acres of vegetation (plus an additional 12.8 acres if the shuttle option were eventually implemented). 42.2 acres of existing disturbed area would be rehabilitated.

Alternative C

Paved Roads

New paved road construction would impact 3.6 acres (1.5 miles). If the Scenic Drive shuttle system were implemented, an additional 4.8 acres of vegetation would be disturbed.

Dirt Roads

No new construction of dirt roads is planned. The proposed system would close 34.2 acres (23.5 miles) of the existing network for rehabilitation.

Trails

The proposed trail network would include 23.3 acres (48 miles) of new construction. There would also be closure and rehabilitation of some of the existing trail network, but an accurate acreage cannot be

determined as no complete trail inventory exists at this time.

Overlooks/Parking

Three new overlooks are proposed which would affect .84 acres of vegetation. If the shuttle system were implemented (optional for this alternative), a new parking facility would account for an additional 8 acres.

Camping

The proposed construction of Oliver Ranch Campground, 10 Mile Campground, Cottonwood Campground and several overnight camp sites would account for 36 acres of disturbance to vegetation. The closure of Oak Creek Campground would rehabilitate 4 acres.

Summary

Implementation of the actions proposed in Alternative C would cause disturbance to 63.7 acres of vegetation (plus an additional 12.8 acres if the shuttle option were eventually implemented). 38.2 acres of existing disturbed area would be rehabilitated.

Alternative D

Paved Roads

Construction of the Scenic Drive shuttle system access road would impact 4.8 acres (2 miles) of disturbance to vegetation.

Dirt Roads

No new construction of dirt roads is planned. The proposed system would call for closure of 34.2 acres (23.5 miles) of the existing network for rehabilitation.

Trails

Alternative D proposes 7.8 acres (16 miles) of new trail construction. There would also be closure and rehabilitation of some of the existing trail network, but an accurate acreage cannot be determined at this time as no complete trail inventory exists at this time.

Overlooks/Parking

No new overlooks are proposed for this alternative, but an 8 acre parking area would be included for the proposed shuttle system.

Camping

No new campgrounds or camp sites are proposed. The closure of Oak Creek Campground and the Black Velvet area to camping would rehabilitate 8 acres of disturbed vegetation.

Summary

Implementation of the actions proposed in Alternative D would cause disturbance to 20.6 acres of vegetation. 42.2 acres of existing disturbed area would be rehabilitated.

WILDLIFE

Wildlife would be affected by actions that cause a change in habitat, cause alterations to water sources and/or riparian habitat, or change accessibility and/or visitor use.

Water and riparian resources are crucial to wildlife, not only because of the water, but because of the richer plant communities, with a higher density and diversity of plants than can be found in the surrounding desert environment.

Human presence will most likely continue to increase, along with the sustained growth of the Las Vegas community, because of the constant increase in local tourism and the growing international popularity of Red Rock Canyon.

Impacts Common to All Alternatives

In general, most ground disturbance or construction of facilities would take place in the vicinity of the Scenic Drive. This area supports the heaviest visitor use and has already been impacted enough to deter most of the species that would be affected by additional disturbance. Individual proposed actions will go through an additional site specific planning stage, including an environmental assessment and biological evaluation, with special consideration to threatened and endangered species.

Raptor nesting site areas will be closed to climbing during active nesting periods.

Alternative A

Two new trails that could have an affect on wildlife would include a trail running along the top of the escarpment and one running along the base of the escarpment. The two trails could increase the human presence in areas that are not frequented by RRC visitors. This would include the escarpment canyons from Spring Mountain Ranch south, with the exception of Velvet Canyon which is already readily accessible by dirt road. Canyons to the north, including First Creek, Oak Creek, Pine Creek, Ice Box and Lost Creek, are all accessible by existing trails, so the proposed trail at the escarpment base would have little impact other than to make it easier to visit multiple canyons on one trip. Construction of a trail along the crest and an increase in users, would cause an increase in disturbance to wildlife along the entire crest, from the Rocky Gap Road to Highway 160, since few people now use this area.

Local residents feel that wildlife numbers, particularly deer, have been increasing over the last few years due in large part to reduced access and human use along the escarpment base south of Oak Creek. A trail at the base of the escarpment would bring more people into the area even though most would be through hikers spending only a short time in any one area.

Proposed overnight campsites located along the trail at the base of the escarpment would add to the human presence and would increase disturbance to nocturnal species.

The dirt road network designated for public use would be reduced from 71 miles to 26.1 miles. This would be a reduction of 43 miles, accounting for a significant reduction in motor vehicle access. This would particularly benefit wildlife and wild horses in the area south of Highway 160.

Alternative B

Impacts would be reduced from Alternative A, because the trail at the top of the escarpment would not be constructed unless it was determined later on that there was a need based on resource protection. The trail

at the base of the escarpment would be designated for hiking and horse riding only (no mountain bikes).

The Black Velvet area is presently used as an overflow camp area when Oak Creek reaches capacity and as a primary site for climbers using the southern canyons. Alternative B would close both Black Velvet and Oak Creek to camping, and would not allow camping along the trail at the base of the escarpment. This would eliminate most human presence in the Black Velvet area and along the escarpment base during night hours and would lessen the impact on nocturnal wildlife.

The public use dirt road system would be reduced from 71 miles to 19.7 miles. The most significant benefit would be to wildlife and wild horses south of Highway 160, with disturbance from motor vehicles being restricted to a solitary access road.

Alternative C

Alternative C would be very similar to Alternative A regarding the trails at the base and crest of the escarpment and affects on wildlife. Two paved trails are proposed; one trail would parallel the Scenic Drive and the other would be constructed along the length of Highway 159 within the NCA boundary. Due to the location of both trails, impacts on wildlife would be minimal.

Most of the impact would be from the amount of camping opportunities offered in a desert environment where much of the wildlife is nocturnal. New proposed camping opportunities in sensitive areas would include camp sites along the trail at the base of the escarpment and the option of a campground in the Cottonwood Valley area.

Existing public dirt road access would be reduced 43 miles, from 71 miles to 28 miles. Most of the reduction in access would occur south of Highway 160.

Alternative D

Alternative D proposes the construction of an 8 acre parking facility and 2 miles of access road, both being part of the Scenic Drive shuttle system. The impacts to wildlife should be minimal, because proposed project locations are in areas of heavy visitor use.

This alternative does not propose a trail along the crest of the escarpment. A trail at the base of the escarpment is proposed, but would include some variance in location from what is proposed in the other alternatives, detouring away from the base of the escarpment between First Creek Canyon and Velvet Canyon. The trail could affect wildlife within the escarpment canyons south of Velvet Canyon due to the increased human presence. Canyons to the north, including First Creek, Oak Creek, Pine Creek, Ice Box and Lost Creek, are all accessible by existing trails, so the proposed trail would have little impact.

Impacts to nocturnal wildlife on the valley floor would be reduced, because most dirt roads would be closed and no developed camping facilities would be offered anywhere in the NCA. Any existing campgrounds and campsites would be closed.

The road system would be reduced from 71 miles to 15 miles. This would be a reduction of 56 miles, accounting for a significant reduction in motor vehicle access. This would particularly benefit wildlife and wild horses in the Cottonwood Valley area from Bonnie Springs to the south boundary of the NCA, through a reduction in human and motor vehicle presence and a lessening of fragmentation to wildlife habitat.

WILD HORSES AND BURROS

Along State Routes 159 and 160, where safety is an issue, actions will be taken to protect both animals and people. By not allowing horses and burros to exceed "Appropriate Management Levels" (AMLs), impacts of horses and burros on other resources will remain within acceptable limits, and impacts of planned actions in the GMP will be minimal to horses and burros.

The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration, is presently in the scoping phase of planning the widening a portion of Highway 160 including all of Highway 160 within the NCA. The proposal includes fencing both sides of the Highway within the NCA. Through cooperative efforts between NDOT and the BLM, the construction will include four underpasses below State Route 160. This would allow horses and burros access north and south of the highway and maintains the validity of the HMA.

Common to All Alternatives

The proposed actions considered in all 4 alternatives will not have a very significant affect on wild horses and burros. Horses range south of Bonnie Springs throughout the Cottonwood Valley area to the southern boundary of the NCA. Most of the proposed developments are in the northern portion of the NCA.

There would be a significant reduction in motor vehicle access, which would reduce the number of horse deaths due to motor vehicles. Dirt roads within the horse range would be limited to a few main access roads. The exact network varies slightly by alternative. Some of the remaining dirt roads would be used for trails (no motor vehicles) and the rest would be closed to public access.

Burros range over most of the valley floor throughout the NCA. The most significant benefit to the burro population would be direct actions taken to minimize situations hazardous to burros and humans. This would include fencing the west edge of Highway 159 to prevent burro-vehicle accidents. In other specific locations, burros may be fenced out where they are considered a nuisance or are destructive to other resources. Removing old abandoned and unauthorized range fences would reduce barriers to both burros and horses.

Providing a water source south of Highway 160 in Cottonwood Valley should prove very beneficial to horses and burros, particularly when Highway 160 is fenced and access to water sources north of the highway is reduced due to the limited number of crossing locations.

Alternative A

Dirt roads within the horse range would be limited to the main north-south Cottonwood Valley road south of Highway 160, the Wildhorse Loop roads, access to the Black Velvet area, and the main north-south road between Bonnie Springs and Wildhorse Loop. Throughout the NCA, public use dirt roads would be reduced from 71 miles to 26.1 miles (minus 44.9 miles). 19.9 miles would be gated and used for administrative purposes, and 23.5 miles would be closed and restored to a natural state. The reduction in usage and available access would reduce disturbance to horses and burros.

Alternative B

The proposed actions in Alternative B reduce existing impacts to wild horses and burros. Dirt roads within the horse range would be limited to the main north-south Cottonwood Valley road south of Highway 160, the Wildhorse Loop roads, and access to the Black Velvet area. Public use dirt roads would be reduced from 71 miles to 19.7 miles (minus 51.3 miles) of dirt roads open for public use, with 26.3 miles being gated and used for administrative purposes, and 23.5 miles being closed and restored to a natural state.

The closing of the Black Velvet area to camping is an additional factor further reducing the visitor use in the horse and burro range.

Alternative C

The proposed dirt road network would have a positive effect on horses and burros in the Cottonwood Valley area. Dirt roads within the horse range would be limited to the main north-south Cottonwood Valley road south of Highway 160, the Wildhorse Loop roads, access to the Black Velvet area, and the main north-south road between Bonnie Springs and the Wildhorse Loop. Throughout the NCA, there would be a reduction of about 41.1 miles of dirt roads open for public use, with 17.6 miles being gated and used for administrative purposes, and 23.5 miles being closed and restored to a natural state.

An additional development proposed in Alternative C that would affect the horse range in the Cottonwood Valley area is the development of a campground south of Highway 160, which would require around 10 to 15 acres. The campground would be an optional development, but if constructed would result in a constant human presence within the middle of the horse range.

Alternative D

Alternative D would be the most beneficial to wild horses and burros due to the reductions in access. The only dirt road which would be designated within the horse range would be the main north-south access through Cottonwood valley south of Highway 160. This, in affect, would eliminate most of the motor vehicle traffic in the area. All of the additional access roads designated in the other alternatives would be used for non-motorized trails.

Throughout the NCA, there would be a reduction of about 55.8 miles of dirt roads open for public use, with 32.3 miles being gated and used for administrative purposes, and 23.5 miles being closed and restored to a natural state.

SOILS AND WATERSHED

Soils and watershed can be impacted when projects include removal of vegetation and soil disturbance. Exposed soils are susceptible to erosion. Conversely, road and trail closures, and restoration projects designed to revegetate and/or mitigate past resource damage would produce beneficial affects.

Impacts Common to All Alternatives

All alternatives should prove favorable for soils and watershed. Over half of the existing dirt roads will be closed to public access, with some being designated for administrative use only and some being completely closed and restored to a natural state. There are no proposals for construction of new dirt roads.

A portion of the trail system in each alternative will involve new construction, but a large number of existing user created trails will be closed and restored to a natural state. By formally designating and maintaining a system of trails within the NCA, trail braiding and random route creation can be avoided. New trail design will be done in a manner to avoid steep grades, and construction will include techniques which will further avoid erosion problems.

Closure of the Oak Creek Campground and old Oak Creek Road will prevent further damage to a soil and erosion problem area, in the vicinity of an active wash, that has been slowly deteriorating for years.

Alternative A

Alternative A includes proposed actions which would have the following affects on soil and watershed:

Dirt Roads

Proposed management of existing roads:

38.0 acres (26.1 miles) open for public use
28.9 acres (19.9 miles) gated - administrative use only
34.2 acres (23.5 miles) to be closed and restored

Roads designated for administrative use would have very little motor vehicle use, resulting in a reduction to soil and watershed impacts. Road closures would eliminate impacts contributing to soils and watershed problems, and allow restoration and revegetation to begin.

Trails

11.2 acres (23 miles) of new construction
28.6 acres (59 miles) of existing to be designated

With proper design and construction techniques, impacts from the new construction would be minimal. Improvements to existing trails and elimination of undesirable trails will reduce soil and watershed impacts.

Camping

+12.0 acres - Oliver Ranch Campground
+ 4.0 acres - Individual sites and Black Velvet area
+10.0 acres - 10 Mile Canyon (group camping by permit)
- 4.0 acres - Oak Creek Campground closure

Proposals involving camping facilities would result in 26 acres of new soil exposure and 4 acres closed for restoration, resulting in a net soil exposure of 22 acres.

Paved Roads

3.6 acres (1.5 miles) - Entrance roads to Red Spring, White Rock and North Oak Creek.

The paving of existing dirt roads would protect exposed soil from weather and human factors. As a result, erosion and other potential impacts would be reduced.

Alternative B

Alternative B includes proposed actions which would have the following affects on soil and watershed:

Dirt Roads

Proposed management of existing dirt roads:

28.7 acres (19.7 miles) open for public use
38.3 acres (26.3 miles) gated - administrative use only
34.2 acres (23.5 miles) to be closed and restored

Roads designated for administrative use would have very little motor vehicle use, resulting in a reduction to soil and watershed impacts. Road closures would eliminate impacts contributing to soils and watershed problems. These roads would be restored to a natural state so that impacts that have already occurred will be reversed, depending on the level of restoration that can be achieved.

Trails

7.8 acres (16 miles) of new construction
31.0 acres (64 miles) of existing to be designated

Impacts would be reduced slightly from Alternative A, due to less new trail construction.

Parking

8.0 acres (optional - only if shuttle system developed)

The construction of the shuttle parking lot would create an 8 acre opening. The lot would be paved so that the soil would not be directly exposed, but the size of the area could have impacts on the natural drainage patterns in the immediate vicinity due to minor changes in topography and the large impermeable area.

Camping

+12.0 acres - Oliver Ranch Campground
+10.0 acres - 10 Mile Canyon (group camping by permit)
- 4.0 acres - Oak Creek Campground closure
- 4.0 acres - Black Velvet camping closure

Proposals involving camping facilities would result in 22 acres of new soil exposure and 8 acres closed for restoration, resulting in a net 14 acres of exposed soil.

Paved Roads

6.3 acres (2.6 miles) - Existing dirt entrance roads to Red Spring, White Rock, North Oak Creek and Sandstone Quarry, and a portion of the old Willow Springs to Visitor Center dirt road

3.6 acres (1.5 miles) - Return road from Sandstone Quarry to the Visitor Center (new disturbance, not including portion on old Willow Springs to Visitor Center road)

4.8 acres (2.0 miles) - Access road (only if shuttle system were implemented)

The paving of existing dirt roads would protect exposed soil from weather and human factors. As a result, erosion and other potential impacts would be reduced. The construction of 3.6 acres of paved roads (8.4 acres if the shuttle system were eventually implemented) on undisturbed ground could impact natural drainage patterns in the immediate vicinity.

Alternative C

Alternative C includes proposed actions which would have the following affects on soil and watershed:

Dirt Roads

Proposal use of existing public roads:

41.3 acres (28.4 miles) open for public use
25.6 acres (17.6 miles) gated - administrative use only
34.2 acres (23.5 miles) to be closed and restored

Roads designated for administrative use would have very little motor vehicle use, resulting in a reduction to soil and watershed impacts. Road closures would eliminate impacts contributing to soils and watershed problems. These roads would be restored to a natural state so that impacts that have already occurred will be reversed, depending on the level of restoration that can be achieved.

Trails

23.3 acres (48 miles) of new construction
28.6 acres (59 miles) of existing to be designated

Alternative C would have the most impact to soils and watershed with more than double the amount of new

trail construction proposed in any of the other alternatives. However, 12 of the acres of new construction would be paved bicycle trail, so the soil would not be exposed.

Parking

8.0 acres (optional - only if shuttle system developed)

The construction of the shuttle parking lot would create an 8 acre opening. The lot would be paved so that the soil would not be directly exposed, but the size of the area could have impacts on the natural drainage patterns in the immediate vicinity due to minor changes in topography and the large impermeable area.

Camping

+12.0 acres - Oliver Ranch Campground
+ 4.0 acres - Individual sites and Black Velvet area
+10.0 acres - 10 Mile Canyon (group camping by permit)
- 4.0 acres - Oak Creek Campground closure

Proposals involving camping facilities would result in 26 acres (36 acres if either the Cottonwood Valley Campground or Calico Basin Campgrounds were constructed) of new soil exposure and 4 acres closed for restoration, resulting in a net 22 acres (32 acres with optional campground) of exposed soil.

Paved Roads

6.3 acres (2.6 miles) - Existing dirt entrance roads to Red Spring, White Rock, North Oak Creek and Sandstone Quarry, and a portion of the old Willow Springs to Visitor Center dirt road

3.6 acres (1.5 miles) - Return road from Sandstone Quarry to the Visitor Center (new disturbance, not including portion on old Willow Springs to Visitor Center road)

4.8 acres (2.0 miles) - Access road (only if shuttle system were implemented)

The paving of existing dirt roads would protect exposed soil from weather and human factors. As a result, erosion and other potential impacts would be reduced. The construction of 3.6 acres of paved roads (8.4 acres if the shuttle system were eventually implemented) on undisturbed ground could impact natural drainage patterns in the immediate vicinity.

Alternative D

Alternative D includes proposed actions which would have the following affects on soil and watershed:

Dirt Roads

Proposed use of existing public roads:

22.1 acres (15.2 miles) open for public use

47.0 acres (32.3 miles) gated - administrative use only
34.2 acres (23.5 miles) to be closed and restored

Roads designated for administrative use would have very little motor vehicle use, resulting in a reduction to soil and watershed impacts. Road closures would eliminate impacts contributing to soils and watershed problems. These roads would be restored to a natural state so that impacts that have already occurred will be reversed, depending on the level of restoration that can be achieved.

Trails

7.8 acres (16 miles) of new construction
33.9 acres (70 miles) of existing to be designated

The proposed trails would have the same impacts as alternative B, which would be minimal.

Parking

8.0 acres - New shuttle system lot (not optional)

The construction of the shuttle parking lot would create an 8 acre opening. The lot would be paved so that the soil would not be directly exposed, but the size of the area could have impacts on the natural drainage patterns in the immediate vicinity due to minor changes in topography and the large impermeable area.

Camping

- 4.0 acres - Oak Creek Campground closure
- 4.0 acres - Black Velvet camping closure

No new facilities to impact soils and watershed. Existing facilities will be closed resulting in the rehabilitation of 8 acres.

Paved Roads

4.8 acres (2 miles) - Access road for shuttle system

The paving of existing dirt roads would protect exposed soil from weather and human factors. As a result, erosion and other potential impacts would be reduced. The construction of 6 acres of paved roads on undisturbed ground could impact natural drainage patterns in the immediate vicinity.

WATER AND RIPARIAN RESOURCES

Water is a scarce commodity in desert environments and any actions taken which affect quality, quantity and availability are a concern. In this case, impacts could go beyond the NCA boundary, as water from RRC contributes to the Las Vegas Valley aquifer.

Within the NCA, springs and riparian areas are a concern when considering alternative actions. Water from these sources is critical to wildlife, wild horses and burros, and to the riparian community. Planned actions that indirectly increase human access and occupation of these fragile areas may increase disturbance on the sites and have negative impacts on the riparian areas and the wildlife they support. Unchecked, wild horse and burro populations could have the same affect.

Impacts Common to All Alternatives

None of the proposed actions call for the development of any new water sources. The only new BLM facility proposing the use of water would be Oliver Ranch. Oliver Ranch was recently acquired by the BLM and has its own existing water sources on site which would be used at the site to provide for any uses necessary in administering the site.

The only actions proposed at springs and riparian areas are protective actions, which are the same for all alternatives. If adverse impacts become apparent during the monitoring of any of these sites, appropriate action will be taken. An example might be constructing a fence around a site to prevent damage from overuse by burros. In order for this particular measure to be implemented, a source of water for wildlife and wild horses and burros would have to be available in the immediate vicinity (within 1/4 mile).

The criteria involved in trail and campsite location will include avoiding springs and fragile riparian resources. There may be a few exceptions where a resource is accessible for public enjoyment, such as providing hike-in access to Wheeler Camp Spring. This would actually be more restrictive in that motor vehicle access would no longer be permitted. If monitoring of the site shows unacceptable impacts to the resource, appropriate measures would be taken.

Motor vehicle access to wildlife water guzzlers will be restricted to administrative use only.

Alternative A

No overnight uses would be allowed in the canyon riparian areas or within 1/4 mile of any water source.

The road to La Madre Spring would be gated and vehicle access and camping would be allowed by permit only. Although on site impacts are not presently a problem, the restrictions to access and camping would allow control in the event that future monitoring shows increasing and unacceptable impacts.

Spring source fencing would benefit riparian, visual, vegetative, watershed and wildlife resources by protecting riparian vegetation and the water holding/producing capacity of the site(s). Wheeler Camp Spring and Mud Spring # 1 would both receive immediate benefits as damage from vehicles has been documented.

The riparian areas and fern gardens in the North Fork of Pine Creek would be afforded additional protection by channeling public use up the South fork through the improvement of the user created trail up the South Fork. Because the existing constructed trail ends at the junction of the forks and because it is on the north bank, many visitors simply continue hiking up the North Fork.

Alternative B

No overnight uses would be allowed in the canyon riparian areas or within 1/4 mile of any water source.

La Madre Spring would receive the same protection as described in Alternative A.

Spring sources would be fenced as described in Alternative A.

The Black Velvet area would be closed to camping, reducing the visitor use and impacts in the vicinity of Mud Springs 1 & 2.

Vehicle access to Rainbow and Bootleg Springs would be closed and the roads would be designated as trails. This reduced access would decrease the potential impacts to water and riparian resources.

Alternative C

The road to La Madre Spring would be opened and maintained to allowed access by 2-wheel drive vehicles. This improved access would create the potential for increased impacts to the water resources La Madre Spring vicinity due to the potential increase in visitor use.

The road to Mud Spring #1 would be upgraded to allow 2-wheel drive access. This would have the same affect as the improved access to La Madre Spring.

The Black Velvet area would remain open to camping and facilities would be upgraded. The improved camping facilities along with the improved access to Mud Spring would further increase the potential for impacts to springs and riparian habitat in the area.

Spring sources would be fenced as described in Alternative A.

Alternative D

Camping would not be allowed at La Madre Spring. The access road would be closed to motor vehicle use, although it would be included in the trails inventory. Although the area is not presently a high use area, these actions would reduce the potential for future impacts at La Madre Spring.

No camping would be allowed in the Black Velvet area and there would be no public access for motor vehicles in the area north of Highway 160. This would cause a significant reduction in visitor use and potential impacts to Lone Grapevine Spring, Black Velvet Canyon and riparian (spring) resources in the area while allowing recovery of existing impacts at Mud Springs # 1.

Vehicle access to Rainbow and Bootleg Springs would be closed and the roads would be designated as trails. The impacts would be the same as Alternative B.

Spring sources would be fenced as described in Alternative A.

RECREATION OPPORTUNITIES

Opportunities would be provided for a variety of recreational activities. Each alternative uses the Management Emphasis Area (MEA) concept to provide a range of recreational opportunities settings and desired management conditions designed to allow appropriate uses while protecting natural resources. The natural resources RRC has to offer should be the focus of recreational activities pursued. If the setting does not have a particular bearing on an activity and/or the activity has a detrimental impact on natural resources, activities should be pursued at other locations or outside of RRCNCA.

Impacts Common To All Alternatives

In all alternatives, the WSAs are assigned an MEA designation of "primitive". Recreation within primitive areas presupposes a certain level of self reliance and risk, and the feeling of being alone with nature, which is promoted by a lack of evidence of past human use. No facilities or developments are proposed other than a trail traversing the length of the crest of the escarpment included in Alternatives A and C. Implementation of Alternative B or D would have no impact, and the impacts caused by implementation of Alternative A or C would be minimal since any actions would have to meet WSA (or wilderness) management standards.

Trail and dirt road networks will be formalized, designated and marked. This will allow visitors to be better informed as to opportunities and will reduce resource impacts from random trail and road creation.

The actions proposed for technical rock climbing will have some minor impacts, because at present the activity is basically unmanaged. The proposed actions will allow for resolution of potential problem situations in a proactive manner, as opposed to operating in a reactive manner and the possibility of resolving problem situations through drastic measures having major impacts on climbing.

Oak Creek Campground, which is the only camping facility offered in the NCA, will be closed. Options for replacement camping areas or for no camping are discussed under the alternatives below.

The last 7/10 mile of the Scenic Drive will be widened to allow 2-way traffic. This allows visitors to access the North Oak Creek road without having to go around the entire Scenic Drive. This would reduce congestion and the conflict between visitors leisurely enjoying the scenery and those impatient to reach the North Oak Creek turn-off.

Alternative A

Access

Parking opportunities along the Scenic Drive would increase with the construction of 2 new overlooks and expansion of Pine Creek overlook. This would relieve parking congestion and avoid exceeding visitor capacity, which could result in temporary closure of the Scenic Drive.

Dirt roads available for public use would be reduced from 71.0 miles to 26.5 miles. The public would be better informed as to dirt road locations due to more comprehensive and accurate mapping, and on ground signing. The affect of the reduction in public use dirt roads would be less access throughout the NCA. However, the quality of scenic viewing would be enhanced with fewer roads scaring the landscape. In addition, nonmotorized MEA opportunities would be enhanced with the absence of motor vehicles.

Trails

Opportunities for trail use by hiking, horseback or mountain bike would be improved. The current disjointed trail system would be formalized and completed with improved mapping and on ground signing for public information. Due to elimination of braided and meandering trails, the on ground trail system would be less confusing to users. New trail construction would provide opportunities to access areas along the top and base of the escarpment.

Camping

Camping opportunities would increase and allow more options than currently exist. The primary campground facility would be located at the Oliver Ranch. The facility would be full service with designated sites, water and restrooms provided. 10 Mile Canyon would be designated for group camping by permit. Primitive camping would continue at the Black Velvet area, and overnight camping by permit at designated primitive sites would be available along the base of the escarpment and La Madre Spring for groups.

Alternative B

Access

The return loop from Sandstone Quarry to the Visitor Center provides an alternate route allowing visitors to the Calico Hills a shortened exit. This would reduce congestion beyond Sandstone Quarry from visitors not wishing to travel the entire Scenic Drive. It would also reduce the hazardous situation of vehicles and bicycles returning against one-way traffic for quicker egress. During heavy rains, flooding occurs at certain locations along the Scenic Drive and closure is necessary. The shortened loop does not include areas of high flood potential and would allow the Scenic Drive to remain partially open at times when complete closure would normally occur.

As in Alternative A, parking opportunities along the Scenic Drive would increase with the construction of 2 new overlooks and expansion of the Pine Creek Overlook. This would relieve parking congestion and avoid exceeding visitor capacity, which could result in temporary closure of the Scenic Drive.

Dirt roads available for public use would be reduced from 71.0 miles to 19.7 miles. The public would be better informed as to dirt road locations due to more comprehensive and accurate mapping, and on ground signing. The affect of the reduction in public use dirt roads would be less access throughout the NCA. However, the quality of scenic viewing would be enhanced with fewer roads scaring the landscape. In addition, nonmotorized MEA opportunities would be enhanced with the absence of motor vehicles.

At 5 or 6 locations along Highways 159 and 160, burro viewing stations would be constructed off the road to provide safe areas for the public to view the wild burros. This would allow the popular experience of viewing burros to continue and eliminate the frustration of blocked roads affecting other visitors who do not wish to stop and view the burros.

Trails

Opportunities for trail use by hiking, horseback or mountain bike would be improved. The current disjointed trail system would be formalized and completed with improved mapping and on ground signing for public information. Due to elimination of braided and meandering trails, the overall access miles would decrease. New trail construction would provide opportunities to access areas along the base of the escarpment and possibly along the crest (optional).

Camping

Camping opportunities would increase slightly over the existing situation but with the closure of Black Velvet to camping there would no longer be camping allowed immediately adjacent to the base of the escarpment. The primary campground facility would be located at the Oliver Ranch. The facility would be full service with designated sites, water and restrooms provided. 10 Mile Canyon would be designated for group camping by permit. La Madre Spring would be available for group camping by permit.

Alternative C

Access

Alternative C would include the same return route from Sandstone Quarry to the Visitor Center as is discussed for Alternative B. The impacts and benefits would also be the same.

Parking opportunities along the Scenic Drive would increase with the construction of 2 new overlooks and expansion of Pine Creek Overlook. This would relieve parking congestion and avoid exceeding visitor capacity, which could result in temporary closure of the Scenic Drive. An additional overlook would be constructed in the Cottonwood Valley area off of Highway 160.

Dirt roads available for public use would be reduced from 71.0 miles to 28.4 miles. The public would be better informed as to dirt road locations. The network would be formalized with maps showing the dirt road system and signing would be done on location. The Rocky Gap and La Madre Roads would be improved to allow 2-wheel drive access. This would open additional access to visitors, but would also eliminate the only real challenging 4-wheel drive road in the NCA.

At 5 or 6 locations along Highways 159 and 160, burro viewing stations would be constructed off the road to provide safe areas for the public to view the wild burros. This would allow the popular experience of viewing burros to continue and eliminate the frustration of blocked roads to other visitors who do not wish to stop and view the burros.

Trails

Opportunities for trail use by hiking, horseback or mountain bike would be improved. The current disjointed trail system would be formalized and completed with improved mapping and on ground signing for public information. Due to elimination of braided and meandering trails, the overall access miles would decrease. New trail construction would provide opportunities to access areas along the base of the escarpment and along the crest. It would also provide an additional 25 miles of paved trails for road bicycles.

Camping

Camping opportunities would be maximized. The primary campground facility would be located at the Oliver Ranch. All of the opportunities provided in Alternative A would be included in this alternative. In addition, this alternative includes the option of constructing a campground in the Cottonwood Valley or Calico Basin areas.

Alternative D

Access

To provide for the increasing visitation at RRC, Alternative D proposes the implementation of a shuttle system. Included would be a 2 mile access road and a parking facility with a capacity for 1000 vehicles. No other roads or overlook/parking facilities are proposed. This would cut back the number of vehicles on the Scenic Drive and offer the opportunity of interpretation while touring.

Dirt roads open to public use would be reduced from 71.0 miles to 15.2 miles significantly reducing the opportunities for driving off paved roads. The public would be better informed as to dirt road locations with maps showing the road system and increased signing. This would eliminate confusion due to poorly marked roads and the presence of multiple user created roads.

Opportunities for rock climbing in the Black Velvet/Mud Springs area would be severely diminished by closure of all access roads in the area. A several mile hike would be required to access the canyon walls and with no camping is allowed under this alternative, it would be very difficult to enter the area, complete a climb and exit in one day.

Trails

Opportunities for trail use by hiking, horseback or mountain bike would be improved. The current disjointed trail system would be formalized and completed with improved mapping and on ground signing for public information. Due to elimination of braided and meandering trails, the overall access miles would decrease. New trail construction would provide access along the base of the escarpment but would detour away from the base from First Creek south to Black Velvet.

Camping

Camping opportunities would decrease significantly. Existing campground facilities would be closed and no new facilities would be provided. Other than overnight camping at high elevation remote areas on the top of the escarpment, visitors wishing to camp would need to find a facility outside of the NCA.

VISUAL RESOURCES

Scenic quality is perhaps the most attractive feature of RRCNCA. Scenic viewing attracts more visitors to RRC than any other activity. Even when visitors come to RRC primarily to participate in other recreational activities, scenery is the number one reason RRC is the selected location. The demand for scenic touring is in an indirect way, causing the most impact on the viewshed. During the peak visitor use season, the facilities in the Scenic Drive vicinity function at the saturation point. During the spring of 1993, the Scenic Drive was temporarily closed on one occasion due to overcrowding.

Alternative A

Visual impacts from the construction of two new overlooks would be mitigated through the use of topographic features to mask the sites and by not skylining the sites on ridges. Expanding the Pine Creek and Visitor Center parking lots would visually increase the feeling of development but is mitigated by the amount of development that already exists at both these sites. Paving of existing dirt overlooks, parking facilities and the entrance roads would significantly reduce the visual impact of these areas, particularly the White Rock Road which is highly visible.

Reducing the number of dirt roads would reduce the impacts of introduced unnatural lines and color.

While most of the proposed trails would be located away from areas where visitors stop to view the area, some would be evident, particularly near the Calico Hills. However, the Calico Hills are the area most visually impacted by an increasing number of user created trails which would be eliminated and rehabilitated after construction of a designated trail. Long-term improvement to visual resources would result from the elimination of numerous user created trails.

Closing the existing Oak Creek Campground would eliminate this impact on the view of the escarpment from Highway 159. All of the proposed or alternate campground locations are located so as to not be seen by visitors looking at the escarpment from any site on the Scenic Drive or Highways 159 and 160.

Alternative B

Impacts due to overlook and parking area construction would be similar to Alternative A. Impacts of 2.4 miles of paved return road from Sandstone Quarry to the Scenic Drive entrance would be evident to long time users of the area but would be minimized by placing the road behind the Moenkopi Ridge and out of site of most visitors. To new users the road would simply seem a part of the Scenic Drive.

Reducing the number of dirt roads would reduce the impacts of introduced unnatural lines and color.

While most of the proposed trails would be located away from areas where visitors stop to view the area, some would be evident, particularly near the Calico Hills. However, the Calico Hills are the area most visually impacted by an increasing number of user created trails which would be eliminated and rehabilitated after construction of a designated trail. Long-term improvement to visual resources would result from the elimination of numerous user created trails.

Closing the existing Oak Creek Campground would eliminate this impact on the view of the escarpment from Highway 159. All of the proposed or alternate campground locations are located so as to not be seen by visitors looking at the escarpment from any site on the Scenic Drive or Highways 159 and 160.

Closure of the Black Velvet camping area would have a positive affect on visual resources. The area's vegetation would be allowed to recover from trampling and illegal firewood gathering.

Burro viewing areas would be developed at 5 or 6 locations along Highways 159 and 160. The viewing areas would have a minor affect on the viewshed since they would be located on the side of paved roads. On the other hand, burros are a very popular inclusion to the scenic touring of RRC and the viewing areas would allow this to happen in a safer manner.

Alternative C

The visual impacts of overlook, parking and road construction would be similar to Alternative B. The visual impacts of the proposed bicycle trails would be more noticeable, particularly the section along the Scenic Drive from the entrance to White Rock. Because of slope and topography it is not possible to hide or disguise this trail in some areas. Limited clearing of vegetation and the use of soil stabilizers to color cut slopes would be used to limit the contrasts created by this project. The bicycle trail along Highway 159 would be noticeable but would mimic the form, line and color of the existing road.

Reducing the number of dirt roads would reduce the impacts of introduced unnatural lines and color.

While most of the proposed trails would be located away from areas where visitors stop to view the area, some would be evident, particularly near the Calico Hills. However, the Calico Hills are the area most visually impacted by an increasing number of user created trails which would be eliminated and rehabilitated after construction of a designated trail. Long-term improvement to visual resources would result from the elimination of numerous user created trails.

The primary campground facility would move from Oak Creek to Oliver Ranch. This would eliminate a campground that detracts from the visual experience along Highway 159 and replace it with a new campground facility that would not be seen from the highway. Development of a campground in the Cottonwood Valley area south of Highway 160 is an option to be implemented if needed. The area is designated as "Class III", which may include developed facilities that do not dominate the landscape.

Alternative D

Visual impacts of overlook and parking projects are few in Alternative D because only the expansion of parking at Pine Creek and the Visitor Center is proposed. This would result in approximately 1.6 acres of new pavement with negligible impact to visual resources.

The construction of a 1,000 vehicle lot and shuttle access road would be a significant visual impact since this parking lot must be located somewhere off Highway 159 near the Visitor Center. Berms and vegetation could be used to soften the impact but the change from native vegetation to asphalt on a large area would be hard to miss.

Reducing the number of dirt roads would reduce the impacts of introduced unnatural lines and color.

While most of the proposed trails would be located away from areas where visitors stop to view the area, some would be evident, particularly near the Calico Hills. However, the Calico Hills are the area most visually impacted by an increasing number of user created trails which would be eliminated and rehabilitated after construction of a designated trail. Long-term improvement to visual resources would result from the elimination of numerous user created trails.

This alternative does not include any campgrounds or camping facilities. This would result in the elimination of all of the impacts on scenic values caused by camping, including damage to vegetation from trampling, remnants of illegal fire rings, soil erosion problems, and the sight of the campgrounds themselves.

CULTURAL RESOURCES

Cultural resources are different from other resources in that cultural resources cannot regenerate once damaged. Detrimental impacts occur in several ways. Construction projects can damage or destroy cultural resources. Visitors can cause impacts either inadvertently or through acts of vandalism or robbery. Opinions on the best method of protecting the resource vary. The location of cultural resource sites can be kept secret in an attempt to avoid degradation or sites can be shared with the public along with interpretive information and education to develop an appreciation for the resource.

Impacts Common To All Alternatives

In locations where climbing, hiking or other activities might inadvertently damage a cultural site, ARPA signs will be placed to advise visitors. By advising visitors that they are at a protected cultural site and possible damaging activities must not take place within a set distance from the site, impacts would be reduced.

Alternative A

The impacts to cultural resources would not increase. Trails location and design will be done in a manner to avoid cultural sites. The dirt road network open to public use will be reduced from the present 71 miles to about 26 miles. The decrease will reduce access to several cultural sites.

Alternative B

Alternative B would decrease the impacts to cultural resources. The measures in Alternative A would also occur in Alternative B, with the public dirt road network being reduced to about 20 miles. Signing would be used at strategic locations to interpret archeological and historical resources and educate visitors to the area. Trails (handicap accessible) are proposed at Red Spring and Willow Spring that would lead to and provide interpretive and educative information about one example of rock art and other features, depending on availability. The intent of the education and interpretation, on and off site, is to reduce impacts to cultural resources through increased awareness and appreciation.

Alternative C

The actions involving cultural resources would the same as Alternative B with one addition, construction of a visitor contact station at the entrance to Brownstone Canyon. This facility would be occupied by an interpretive specialist to lead activities and provide interpretive and educational material to visitors regarding cultural resources. The intent of these actions would be to decrease impacts to cultural resources through increased awareness, appreciation and on-site monitoring of use.

Alternative D

Alternative D proposes the fewest actions with potential to impact cultural resources. All camping facilities would be eliminated and the dirt road network for public access would be reduced from the existing 71 miles to about 15 miles. Construction projects would include only a few improvements to existing facilities. Brownstone Canyon would be closed to the general public with visitation by permit only. These actions would reduce access to areas off the main travel routes, resulting in less impacts to cultural resources.

AIR QUALITY

The primary concern with air quality is the amount of PM10 particulate matter suspended in the air in the form of dust caused from the use of dirt roads, parking areas and surface disturbances. Contributors from RRCNCA include vehicular use on unpaved roads and construction projects causing ground disturbance. RRC is in compliance with other local and federal air quality standards, but is included within the Las Vegas Valley non-attainment area for PM10.

Impacts Common to All Alternatives

The amount of PM10 from unpaved roads would decrease. Vehicular traffic will only be allowed on designated roads. The majority of the existing dirt roads will not be designated, but will be closed. There are no proposals to build any new dirt roads.

The implementation of planned projects would occur over the course of a number of years, so the amount of additional PM10 affecting air quality would be minimal at any one time.

Alternative A

Of the approximate 71.0 miles of dirt roads inventoried in September of 1993, 1.5 miles would be paved, 26.1 miles would remain available for public use, 19.9 miles would be gated and used for administrative purposes only, and 23.5 miles would be closed and restored to a natural state. Since all of these roads are currently open to public use, the proposed reductions in public use along with the reduction in exposed surface soil would cause a significant reduction in the amount of PM10 currently attributed to dirt roads in RRCNCA. Paving projects, including the Red Springs, North Oak Creek and White Rock roads, will cause a short term increase in PM10, but would reduce PM10 over time, due to a decrease in exposure of bare soil of 1.47 miles of existing dirt roads.

Five additional construction projects are planned, including new construction of 2 overlook/parking areas and improvements to 3 others including the Visitor Center parking lot. This, again, will increase the PM10 in the short term. All of these areas will be paved and PM10 level will not be increased.

Alternative B

The affects would be similar to Alternative A. Paving projects would include the entrance roads to Red Springs, North Oak Creek, White Rock and Sandstone Quarry. This would cause a short term increase in PM10, but would reduce PM10 levels in the long term due to a decrease in exposure of bare soil on 1.67 miles of existing dirt roads. An additional road construction project would be a return route from Sandstone Quarry to allow traffic to return to the Visitor Center. There would be approximately 2.4 miles of new paved road construction. After completion, pollution from vehicle exhaust would be reduced with fewer vehicles driving the entire Scenic Drive.

The amount of PM10 from unpaved roads would decrease slightly more than in Alternative A. Of the approximate 71.0 miles of dirt roads inventoried in September of 1993, 1.7 miles would be paved (as discussed in the previous paragraph), 19.7 miles would remain available for public use, 26.3 miles would be gated and used for administrative purposes only, and 23.5 miles would be closed and restored to a natural state.

Five additional construction projects are planned, including new construction of 2 overlook/parking areas and improvements to 3 others including the Visitor Center parking lot. Alternative B allows for the option of constructing a 1000 vehicle parking facility if a shuttle system is implemented at a future time. This, again, will increase the PM10 in the short term. All of these areas will be paved and PM10 levels will not be increased.

Alternative C

Alternative C has the same road paving projects as alternative B, with entrance roads to Red Springs, North Oak Creek, White Rock and Sandstone Quarry, and the return loop from Sandstone Quarry to the Visitor Center. The impacts would be the same. In addition, separate bicycle paths would be constructed and paved along Highway 159 and the Scenic Drive.

The decrease in PM10 from unpaved roads would be about the same as in Alternative A. Of the approximate 71.0 miles of dirt roads inventoried in September of 1993, 1.7 miles would be paved, 28.4 miles would remain available for public use, 17.6 miles would be gated and used for administrative purposes only, and 23.5 miles would be closed and restored to a natural state.

Six additional construction projects are planned, including new construction of 3 overlook/parking areas and improvements to 3 others including the Visitor Center parking lot. Alternative C allows for the option of constructing a 1000 vehicle parking facility if a shuttle system is implemented at a future time. This will increase the PM10 in the short term. All of these areas will be paved and PM10 levels will not be increased.

Alternative D

Alternative D relies on the reduction of vehicle traffic through implementation of a shuttle system rather than the construction of additional overlook/parking sites. No paving of existing dirt roads would occur in this alternative. Paving projects in common with the other alternatives would be limited to the Sandstone Quarry parking lot and expansion of the Visitor Center and Pine Creek parking lots. This alternative would include construction of a 1000 vehicle parking facility and 2 mile access road as part of the implementation of the Scenic Drive shuttle system. Although the shuttle proposals in this alternative would reduce traffic, the reduction would be on the Scenic Drive and involve mostly paved roads, so the reduction in PM10 from use of a shuttle would be minimal.

However, Alternative D would result in the largest decrease in PM10 resulting from the use of unpaved roads. The 71.0 miles of dirt roads presently open for public use would be reduced to 15.2 miles. Of the remaining dirt road network, 32.3 miles would be gated and used for administrative purposes only, and 23.5 miles would be closed and restored to a natural state.

COORDINATION AND CONSULTATION

Public Involvement

The initial scoping report was dispersed to the public at the beginning of January 1992. The report announced the preparation of the GMP for RRCNCA, summarized the planning process, listed some anticipated issues, requested written input, and listed several dates for public scoping meetings. The scoping meetings involved discussion of the GMP and gathering additional comments and concerns. Meetings were held as follows:

1/9/92	Green Valley Library - 17 in attendance
1/15/92	Las Vegas District Office - 39 in attendance
3/20/93	Red Rock Visitor Center - 60+ in attendance
1/23/92	Las Vegas District Office - 42 in attendance
2/3/92	Goodsprings Citizens Advisory Council Meeting - 20 in attendance

With the input gathered at the above meetings, written responses received at the BLM office, and consultation with BLM and other specialists, some preliminary alternatives were developed. These alternatives were presented at an second round of public meetings to gather additional scoping input. These meetings were held as follows:

3/10/93	Blue Diamond Library - 14 in attendance
3/15/93	Las Vegas District Office - 39 in attendance
3/20/93	Las Vegas District Office - 13 in attendance
3/24/93	Las Vegas District Office - 27 in attendance

In addition to the above, several special emphasis meetings were held as follows:

Technical Rock Climbing

3/19/93 Las Vegas District Office - 18 in attendance

Equestrian

3/22/93 Las Vegas District Office - 3 in attendance

Bicycle

4/22/93 Las Vegas District Office - 16 in attendance

All of the information gathered has been used to develop this "Proposed" GMP. With the distribution of this Proposed GMP, will be a 60 day public review and comment period. The review period will be accompanied with another round of meetings for discussion and comments. Finally, with the information gathered during this period, modifications will be enacted to create the final GMP.

During the scoping process the BLM received input from and/or consulted
with the following government agencies, environmental groups and other special interests:

Proposed GMP sent to the following agencies and organizations for review and comment

Government Agencies

Henderson Parks and Recreation Department
City of North Las Vegas Community Planning and Development
U.S. Department of the Air Force
Clark County Commissioners
Clark County Department of Comprehensive Planning
Clark County Wildlife Advisory Board
U.S. Fish and Wildlife Service
Regional Transportation Commission
Environmental Quality Policy Review Board
Commission for the Preservation of Wild Horses
State of Nevada Division of Wildlife
Department of Conservation and Natural Resources
U.S. Forest Service
Red Rock Advisory Council

Environmental Groups

Friends of Red Rock Canyon
Red Rock Canyon Interpretation Association
Public Resource Associates
Defenders of Wildlife
Nevada Natural Resource Education Council
Nevada Wildlife Federation, Inc.
Red Rock Audubon Society
Bat Conservation International, Inc.
The Nature Conservancy
The Wilderness Society
Sierra Club (Toiyabe Chapter)

Organizations and Commercial Concerns

Access Fund
Las Vegas Distance Riders
Division of Motion Pictures
Desert Rock Sports
Howard Hughes Properties
Mountain Skills
Southern Nevada Land Cruisers
Las Vegas Bicycle Club
Sheep Mountain Home Owners Association
Bonnie Springs Old Nevada
all permittees

Bureau of Land Management Preparers, Contributors and Reviewers

Red Rock Canyon National Conservation Area

Gene Arnesen - Outdoor Recreation Planner
Chris Miller - Interpretive Specialist (archaeology)
Mark Rash - Park Ranger (fire, plants & wildlife)
Charles Ward - Supervisory Law Enforcement Ranger
Dave Barajas - Law Enforcement Ranger
Dave Wolf - Conservation Area Manager

Las Vegas District Reviewers

Doug Duncan - Wildlife Biologist
Jackie Gratton - Realty Specialist
Gail Marrs-Smith - Botanist
Gary McFadden - Wild Horse and Burro Specialist
Bob Stager - Range Conservationist
Gary Pavusko - Fire Management Officer
Stanton Rolf - Archaeologist
Donn Siebert - Hydrologist
Robert Taylor - Outdoor Recreation Planner

Prepared by Gene A Arnesen Date 3/30/94

Approved by Dave Wolf Date 4/2/94

APPENDIX 1

LIST OF ACRONYMS AND ABBREVIATIONS

AC	Advisory Council
ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Level
ARPA	Archeological Resource Protection Act
ATV	All Terrain Vehicle
BLM	Bureau of Land Management
B.P.	Before Present
CCC	Civilian Conservation Corps
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
ETA	Estimated Time of Arrival
FLPMA	Federal Land Policy and Management Act
FMAP	Fire Management Activity Plan
FMZ	Fire Management Zone
GMP	General Management Plan
HMA	Herd Management Area
LVMPD	Las Vegas Metropolitan Police Department
MEA	Management Emphasis Area
NCA	National Conservation Area
NDOT	Nevada Department of Transportation
NDSP	Nevada Division of State Parks
NFDRS	National Fire Danger Rating System
OHV	Off Highway Vehicle
ORWAG	Outdoor Recreation and Wilderness Assessment Group
PCRNA	Pine Creek Research Natural Area
RAWS	Remote Automatic Weather Station
RMP	Resource Management Plan
ROS	Recreation Opportunity Spectrum
RRC	Red Rock Canyon
RRCNCA	Red Rock Canyon National Conservation Area
RRCRL	Red Rock Canyon Recreation Lands
RS	Revised Statute
SAR	Search and Rescue
SHPO	State Historic Preservation Officer
SRP	Special Recreation Permit
T&E	Threatened and Endangered Species
UA	Use Authorization Permit
USFS	United States Forest Service
VRM	Visual Resource Management
WSA	Wilderness Study Area

APPENDIX 2

The following listing contains the rules for visitor use for the Red Rock Canyon National Conservation Area. Proposed rules were published in the Federal Register on December 13, 1991 and final rules were published on May 21, 1993. The rules became effective June 21, 1993.

SUPPLEMENTARY RULES, RED ROCK CANYON NATIONAL CONSERVATION AREA

Section 1.0 Definitions and Administrative Provisions

1.1 Definitions

The following definitions shall apply to all regulations in 43 CFR Part 8360, unless modified within a specific part or regulation:

"Abandonment" means the voluntary relinquishment of control of property for longer than a period specified with no intent to retain possession.

"Accident" means the collision, intentional or unintentional, of a vehicle with another vehicle, bicycle, pedestrian, structure, sign, or fixed object.

"Administrative activities" means those activities conducted under the authority of the Bureau of Land Management for the purpose of safeguarding persons or property, implementing management plans and policies developed in accordance and consistent with the regulations in this chapter, or repairing or maintaining government facilities.

"Bicycle" means every device, other than wheelchairs, propelled solely by human power upon which a person or persons may ride on land, having one, two, or more wheels.

"Camping" means the erecting of a tent or shelter of natural or synthetic material, preparing a sleeping bag or other bedding material for use, or parking of a motor vehicle, motor home or trailer for the apparent purpose of overnight occupancy.

"Cultural resource" means material remains of past human life or activities that are of significant cultural interest and are at least 50 years of age. This term includes, but shall not be limited to, objects made or used by humans, such as pottery, basketry, rock art, bottles, weapons, weapon projectiles, tools, structures or portions of structures, or any portion or piece of the foregoing items, and the physical site, location, or context in which they are found, or human skeletal materials or graves.

"Designated road" means a road or roads identified on a map of designated roads which will be maintained and available for public inspection at the Las Vegas District Office, Bureau of Land Management, and at the Red Rock Canyon National Conservation Area Visitor Center, and which are also posted as designated roads through the posting of appropriate signs or markers. Any road with any signed or physical barrier, including posts, branches, or rocks, is not a designated road.

"Designated trails" means a trail or trails identified on a map of designated trails which will be maintained and available for public inspection at the Las Vegas District Office, Bureau of Land Management, and at the Red Rock Canyon National Conservation Area Visitor Center, as well as any trail or route designated for a specific use by the posting of appropriate signs.

"Firearm" means a loaded or unloaded pistol, rifle, shotgun or other weapon which is designed to, or may be readily converted to, expel a projectile by the ignition of a propellant.

"Handling", as applied to wild horses and burros, means the intentional touching, feeling, or moving of a wild horse or burro.

"Hunting" means taking or attempting to take wildlife, except trapping.

"Motor vehicle" means every vehicle that is self-propelled by a non-living power source, including any vehicle that is propelled by electric power, but not operated upon rails or upon water.

"Operator" means a person who operates, drives, controls, or otherwise has charge of a mechanical mode of transportation or any other mechanical equipment.

"Paleontological" means pertaining to ancient life forms, and includes but is not limited to fossilized remains of plant and animal life.

"Permit" means a written authorization, from an authorized officer of the Bureau of Land Management, to engage in uses or activities that are otherwise prohibited, restricted, or regulated.

"Person" means an individual, firm, corporation, society, association, partnership, or private or public body.

"Pet" means a dog, cat or any animal that has been domesticated.

"Picnic area" means any area set aside or designated for picnic use by either the posting of appropriate signs, or by the provision of picnic tables.

"Possession" means exercising direct physical control or dominion, with or without ownership, over property, or archaeological, cultural or natural resources.

"Property" means both real and personal property.

"Red Rock Canyon National Conservation Area" means all lands owned by the United States and included within, acquired for inclusion within, or which are later incorporated within, the Red Rock Canyon National Conservation Area. This includes lands owned by the United States, but managed by the Nevada Division of State Parks or another organization or agency, pursuant to a cooperative management agreement. See Pub. L. 101-621, entitled "Red Rock Canyon National Conservation Area Establishment Act of 1990."

"Rock art" means images and symbols engraved into, pecked into, scratched upon, painted upon, or otherwise marked into or on geological features by past residents of or visitors to Red Rock Canyon National Conservation Area, and which are at least one hundred years old, including but not limited to petroglyphs, pictographs, and inscriptions.

"Smoking" means the carrying or possession of lighted cigarettes, cigars or pipes, or the intentional and direct inhalation of smoke from these objects.

"Take" or "taking" means to pursue, hunt, harass, harm, shoot, trap, net, capture, collect, kill, wound, or attempt to do any of the above.

"Traffic" means pedestrians, ridden or herded animals, vehicles, and other conveyances, either singly or together while using any road, trail, street or other thoroughfare for purpose of travel.

"Traffic control device" means any sign, painted roadway marking, or other device or means for controlling or directing vehicle traffic.

"Trap" means a snare, trap, mesh, wire or other implement, object or mechanical device designed to entrap or kill animals other than fish.

"Trapping" means taking or attempting to take wildlife with a trap.

"Unattended" means failure to exercise direct control over property.

"Unloaded," as applied to weapons and firearms, means that:

(1) There is no unexpended shell, cartridge, or projectile in any chamber or cylinder of a firearm or in a clip or magazine inserted in or attached to a firearm;

(2) A muzzle-loading weapon does not contain gun powder in the pan, or the percussion cap is not in place; and

(3) Bows, crossbows, spear guns or any implement capable of discharging a missile or similar device by means of a loading or discharging mechanism, when that loading or discharging mechanism is not charged or drawn.

"Vehicle" means every device in, upon, or by which a person or property is or may be transported or drawn on land, except devices used exclusively upon stationary rails or track.

"Weapon" means a firearm, compressed gas or spring-powered pistol or rifle, bow and arrow, crossbow, blowgun, spearguns, slingshot, irritant gas device, explosive device, or any other implement designed to discharge missiles or projectiles; hand-thrown spear, edged weapons, nun-chucks, clubs, billy-clubs, and any device modified for use or designed for use as a striking instrument; and includes any weapon the possession of which is prohibited under Nevada law.

"Wildlife" means any member of the animal kingdom and includes a part, product, egg or offspring thereof, or the dead body or part thereof, except fish.

1.2 Permits

(a) An authorized officer may issue a permit to authorize an otherwise prohibited or restricted activity. Such permits may contain reasonable restrictions necessary to preserve and protect public lands and their resources, and to minimize interference with and inconvenience to other visitors to Red Rock Canyon National Conservation Area.

(b) Violation of the terms and conditions of a permit is prohibited.

Section 2.0 Vehicle Operations and Traffic Safety

2.1 Unsafe Operation

The following are prohibited:

(a) Failing to maintain that degree of control of a vehicle necessary to avoid danger to persons, property or wildlife.

(b) Operating a motor vehicle in a manner which unnecessarily causes its tires to squeal, skid, or break free of the road surface.

(c) Operating a vehicle without due care or at a speed greater than that which is reasonable and prudent considering wildlife, pedestrians, traffic, weather, road and light conditions and road character.

2.2 Towing or Moving Vehicles

(a) No person shall tow or move a vehicle that has been involved in an accident without first notifying

an authorized officer, unless the position of the vehicle constitutes a hazard or prior notification is not practicable, in which case notification shall be made before the vehicle is removed from Red Rock Canyon National Conservation Area.

(b) Failure to notify an authorized officer as required in the preceding subsection is prohibited.

2.3 Weight, Width, and Length Limitations

(a) The following restrictions are hereby established for the Red Rock Canyon Scenic Loop Drive:
  (1) No vehicle, or vehicle and trailer combination, may be operated which exceeds thirty-five thousand (35,000) pounds gross vehicle weight.
  (2) No vehicle may be operated which exceeds eight feet in width.
  (3) No vehicle, towing any trailer, may be operated when the length of the trailer exceeds 35 feet.

(b) Operating a vehicle on the Red Rock Canyon Scenic Loop Drive, when that vehicle exceeds any of the weight, width, or length restrictions listed above, is prohibited.

(c) Exemptions. The weight, width, and length restrictions listed in this section do not apply to vehicles used by any federal, state, county, or local government agency, or to privately owned vehicles performing work for any such agency.

2.4 State Laws Applicable

(a) Unless specifically addressed by regulations set forth in 43 CFR, the laws of the State of Nevada shall govern the use and operation of vehicles. Such State laws which are now or may later be in effect are hereby adopted and made a part of the regulations in this part.

(b) Violating a provision of State law is prohibited.

2.5 Obstructing Traffic

The following are prohibited:

(a) Stopping, parking, or leaving any vehicle, whether attended or unattended, upon the paved, graded, or maintained surface of a road, so as to leave less than ten (10) feet of the width of the same traffic lane for the free or unobstructed movement of other vehicles is prohibited, except in the event of accident or other conditions beyond the immediate control of the operator, or as otherwise directed by an authorized person.

(b) Causing or permitting a vehicle under one's control to obstruct traffic by driving so slowly as to interfere with the normal flow of traffic, or in any other manner, is prohibited.

2.6 Bicycles

Except when specifically allowed by permit, the following are prohibited:

(a) The use of bicycles except on paved roads and parking areas, other roads or routes designated for motor vehicles, and on routes or trails designated for bicycle use. Such designations may be by the posting of signs or may be identified on a map which shall be available at the Las Vegas District Office and the Red Rock Canyon National Conservation Area Visitor Center.

(b) Possessing a bicycle in a wilderness area established by Federal statute.

(c) On roads, riding a bicycle other than on the right side of the roadway.

(d) On roads, riding a bicycle abreast of a bicycle being ridden on the right side of the roadway.

2.7 Travel and Parking Off Designated Roads

(a) Minor disturbance. Operating, or parking, a motor vehicle off of but less than 20 feet from a designated road or parking area is classified as a minor disturbance to natural features. Such disturbance of natural features is prohibited.

(b) Major disturbance. Operating, or parking, a motor vehicle 20 feet or further from a designated road or parking area is classified as a major disturbance to natural features. Such disturbance of natural features is prohibited.

2.8 Maintaining Vehicles

Lubricating or repairing any vehicle, except repairs necessitated by emergency, is prohibited.

2.9 Traffic Control Device

Failure to comply with the directions of a traffic control device is prohibited unless directed otherwise by an authorized person. This section is applicable to persons using bicycles.

Section 3.0 Public Use and Recreation

3.1 Fireworks and Explosives

(a) The possession or use of fireworks is prohibited, except pursuant to the terms and conditions of a permit.

(b) The possession or use of explosives and blasting agents is prohibited, except pursuant to the terms and conditions of a permit. This section shall not apply to explosives carried aboard vehicles being driven through Red Rock Canyon National Conservation Area on State Highway 159 or State Highway 160, provided that the persons possessing or transporting such explosives are in compliance with all other applicable state and federal laws, rules, and regulations controlling the possession and transportation of explosives.

3.2 Weapons

(a) The following are prohibited within Red Rock Canyon National Conservation Area:
  (1) Possession of a loaded weapon, except as authorized under subsection (b), following.
  (2) Intentional discharge of any weapon, except as authorized under subsection (b), following.
  (3) Possession of an unregistered firearm, when registration of the firearm is required by either the State of Nevada or Clark County.

(b) The possession of loaded weapons, and their use, is allowed when the possessor is at the time of possession involved in hunting within Red Rock Canyon National Conservation Area in accordance with state law, and in compliance with the restrictions contained in section 3.4(b) of these Supplementary Rules.

3.3 Trapping

(a) Trapping is allowed in accordance with state law, except within areas closed to trapping. Trapping in violation of state law is prohibited.

(b) The following areas are closed to trapping:
  (1) those portions of Red Rock Canyon National Conservation Area north of State Highway 160, on the east side of the Spring Mountain range, and which are located below the elevation of 5,000 feet.
  (2) all areas within one mile of any designated hiking trail, or of any trail designated for the use of horses and pack animals. Such designations will be identified on a map which will be made available for public inspection at the Red Rock Canyon National Conservation Area Visitor Center, and at the Las Vegas District Office of the Bureau of Land Management.

(c) Trapping, in an area designated as closed to trapping, is prohibited.

3.4 Hunting

(a) Hunting is allowed in accordance with state law, except within areas designated as closed to hunting. Hunting in violation of state law is prohibited.

(b) For purposes of public safety, the following area is designated as closed to hunting:
  (1) those areas of Red Rock Canyon National Conservation Area north of State Highway 160, on the east side of the Spring Mountain range, and which are located below the elevation of 5,000 feet; except that hunting for bighorn sheep, in accordance with state law, is allowed below the elevation of 5,000 feet in the following two areas:

Mount Diablo Meridian
R. 58 E., T. 20 S. N 1/2 of Section 36
R. 59 E., T. 20 S., NW 1/4 of Section 31

3.5 Fires
The following are prohibited:
(a) Lighting, tending, or maintaining any fire, except in a stove or grill provided for such purpose; or, within designated camping areas, in a fire ring provided for such purpose by the Bureau of Land Management. This prohibition does not apply to camp stoves, such as portable gasoline stoves or charcoal grills, brought by visitors for the purpose of cooking.
(b) Throwing or discarding lighted or smoldering material in a manner that threatens, causes damage to, or results in the burning of property or resources.

3.6 Glass Containers
The possession of glass containers, except within vehicles, designated camping areas, and designated picnic areas, is prohibited.

3.7 Human Waste
(a) Human fecal matter, including paper or other items contaminated with human fecal matter, may be deposited or disposed of only in restrooms, toilets, or other facilities designed or designated for the disposal of human fecal matter; or, where such facilities are not provided or available, shall either be removed from Red Rock Canyon National Conservation Area or be buried at least six inches below ground level. Human fecal matter may not be buried within 200 feet of any water source or supply.
(b) Depositing or disposing of human fecal matter within Red Rock Canyon National Conservation Area, except in accordance with subsection (a) above, is prohibited.

3.8 Preservation of Natural and Cultural Resources
(a) (1) An authorized person may designate fruits, nuts, seeds, plants, berries, and similar plant materials which may be collected for personal use within Red Rock Canyon National Conservation Area. Such designations may, if appropriate, specify a maximum amount that may be collected for personal use. Collection of plant materials in excess of the designated maximum is prohibited.
(2) Collection of plant materials, other than those designated under (a)(1) above, is prohibited; except that the District Manager may authorize collections other than those in (a)(l) above through the issuance of a permit; and except for removal, collection, and/or transplantation of plants and plant materials for official purposes such as landscaping and trail maintenance and construction.
(b) The following are prohibited:
(1) Possessing, destroying, taking, injuring, defacing, removing, harassing, or disturbing from its natural state living or dead wildlife, or the parts or products thereof, such as antlers or nests, except when incident to hunting conducted in accordance with state law.
(2) Introducing wildlife, fish, or plants, including their reproductive bodies, into Red Rock Canyon National Conservation Area, except when authorized by the District Manager for administrative activities, or pursuant to the terms and conditions of a permit.
(3) Digging for, removing, destroying, damaging, disturbing, or possessing artifacts, rock art, or other cultural resources, or using any device for detecting metal, except when allowed by permit.
(4) Feeding, attempting to feed, riding, attempting to ride, handling, or otherwise harassing or disturbing wild horses or burros, except pursuant to the terms and conditions of a permit.
(5) Collecting wood or other plant material for use in a campfire or for any other purpose, except pursuant to subsection (a)(1), above.
(6) Tossing, throwing, or rolling rocks or other items inside caves or caverns, into valleys or

canyons, or down hillsides or mountainsides.

(7) Possessing, destroying, defacing, digging, or removing rocks, cave formations or parts thereof, or fossilized or non-fossilized paleontological specimens.

(8) Applying chalk to, making a rubbing of, making a casting of, painting upon, or making a latex or other mold of, any rock art.

3.9 Pets

(a) The following are prohibited:

(1) Allowing a pet to make noise that is unreasonable considering location, time of day or night, and impact on public land users.

(2) At developed sites including campgrounds, picnic areas, parking areas, and visitor centers, failing to remove waste deposited by a pet.

(3) Allowing a pet, other than a seeing-eye dog, hearing-ear dog, or other animal specifically trained to assist a handicapped person, to enter buildings operated by the Bureau of Land Management.

(4) Leaving a pet unattended and tied to an object.

(b) Pets or feral animals that are running-at-large and observed in the act of killing, injuring, or molesting humans, livestock, or wildlife may be destroyed by an authorized person if necessary for public safety or the protection of livestock or wildlife.

(c) Pets running-at-large may be impounded, and may be turned over to Clark County Animal Control or to another appropriate organization which will accept, care for, and dispose of such pets. The owner of such pets may be charged reasonable fees for kennel or boarding costs, feed, veterinary care, and transportation.

(d) This section does not apply to dogs used by authorized Federal, State, and local law enforcement officers in the performance of their official duties.

3.10 Horses and Pack Animals

Except when authorized by permit, and except for horses and pack animals used for administrative activities or for the official business of any governmental entity or agency, the following are prohibited:

(a) The use of horses or pack animals in picnic areas, or on trails other than those designated as open to horses and pack animals. Such designations will be identified on a map which will be available for public inspection at the Red Rock Canyon National Conservation Area Visitor Center and at the Las Vegas District Office.

(b) The use of horses or pack animals on a paved road, except:

(1) Where such travel is necessary to cross the road.

(2) When the road has been closed to motor vehicles.

(c) Free-trailing or loose-herding of horses or pack animals on trails or cross-country.

(d) Allowing horses or pack animals to proceed in excess of a slow walk when passing in the immediate vicinity of persons on foot or bicycle.

(e) Obstructing a trail while horses or pack animals are passing; or making any unreasonable noise or gesture with the intent of, or recklessly creating a risk thereof, frightening, stampeding, spooking, or otherwise interfering with a user's control over his horses or pack animals.

(f) At developed sites including campgrounds, picnic areas, paved parking areas, and visitor centers, failing to remove waste deposited by horses and pack animals.

3.11 Alcoholic Beverages

(a) (1) The use and possession of alcoholic beverages within Red Rock Canyon National Conservation Area is allowed in accordance with the provisions of this section.

(2) The following are prohibited:

(i) The sale or gift of an alcoholic beverage to a person under 21 years of age.

(ii) The possession of an alcoholic beverage by a person under 21 years of age.

(b) (1) The District Manager may close all or a portion of public buildings, or structures, parking

lots, picnic areas, overlooks, walkways, commemorative areas, historic areas, or archaeological sites within Red Rock Canyon National Conservation Area to the consumption of alcoholic beverages when it is determined that:

(i) The consumption of alcohol would be inappropriate considering other uses of the location and the purpose for which it is maintained or established; or

(ii) Incidents of aberrant behavior related to the consumption of alcohol are of such magnitude that diligent attempts to enforce applicable regulations do not alleviate the problem.

(2) Such closures may be either by publication of the closure in the Federal Register, by the posting of appropriate signs, or both.

(3) Failure to abide by such a closure is prohibited.

(c) Presence in Red Rock Canyon National Conservation Area when under the influence of alcohol or a controlled substance to a degree that may endanger oneself or another person, or damage property or public land resources, is prohibited.

3.12 Disorderly Conduct

A person commits disorderly conduct when, with intent to cause public alarm, nuisance, jeopardy or violence, or knowingly or recklessly creating a risk thereof, such person commits any of the following prohibited acts:

(a) Engages in fighting or threatening, or in violent behavior.

(b) Uses language, an utterance or gesture, or engages in a display or act that is obscene, physically threatening or menacing, or done in a manner that is likely to inflict injury or incite an immediate breach of the peace.

3.13 Smoking

(a) (l) The District Manager may designate areas of Red Rock Canyon National Conservation Area, or all or a portion of a building, structure or facility as closed to smoking when necessary to protect public land resources, reduce the risk of fire, or prevent conflicts among visitor use activities. Such closures may be either by publication of the closure in the Federal Register, by the posting of appropriate signs, or both.

(2) Smoking in an area or location so designated is prohibited.

(b) Smoking is prohibited within all caves and caverns.

3.14 Property

(a) The following are prohibited:

(1) Abandoning property.

(2) Leaving property unattended for more than 24 hours in a day use area, or 72 hours in other areas, unless the owner of the property by permit or registration is specifically authorized a longer period of time.

(3) Failing to turn in found property to an authorized person as soon as practicable.

(b) Impoundment of property.

(1) Property left unattended in excess of the time limits in subsection (a)(2), above, may be impounded by an authorized person.

(2) Unattended property that interferes with visitor safety, orderly management of Red Rock Canyon National Conservation Area, or presents a threat to public land resources may be impounded by an authorized person at any time.

(3) The owner of record is responsible and liable for charges to the person who has removed, stored, or otherwise disposed of property impounded pursuant to this section.

(c) Disposition of property. Unattended property impounded pursuant to this section shall be deemed to be abandoned unless claimed by the owner or an authorized representative thereof within 60 days, and shall be disposed of in accordance with applicable regulations.

3.15 Aircraft and Air Delivery

Delivering or retrieving a person or object by parachute, helicopter, ultralight aircraft, hang glider, balloon, or other airborne means, except in emergencies involving public safety or serious property loss, or pursuant to the terms and conditions of a permit, is prohibited. The provisions of this section shall not be applicable to official business of the Federal government, or emergency rescues or rescue training in accordance with the direction of the District Manager, or to landings due to circumstances beyond the control of the operator.

3.16 Camping

(a) Camping is prohibited within Red Rock Canyon National Conservation Area, except: at elevations 5,000 feet above sea level and higher; within the designated camping areas at Oak Creek and Black Velvet Canyon; or within such additional or substitute areas as may be designated in a General Management Plan or Resource Management Plan for the National Conservation Area and posted by appropriate signs.

(b) By the posting of appropriate signs at the entrance to any campground, the District Manager may establish special conditions or rules for camping within any campground. Violation of such conditions or rules is prohibited.

(c) The following are prohibited:

(1) Digging or leveling the ground at a campsite.

(2) The installation of permanent camping facilities.

(3) Failing to obtain a permit, when required.

(4) Violation of the terms and conditions of any camping permit.

(5) In designated campgrounds, creating or sustaining unreasonable noise between the hours of 10:00 p.m. and 6:00 a.m.

(6) Except within designated campgrounds, camping within 200 feet of any natural or man-made water source.

3.17 Misappropriation of Property

The following are prohibited:

(a) Obtaining or exercising unlawful possession over the property of another with the purpose to deprive the owner of the property.

(b) Acquiring or possessing the property of another, with knowledge or reason to believe that the property is stolen.

3.18 Tampering and Vandalism

The following are prohibited:

(a) Tampering or attempting to tamper with property or real property, or moving, manipulating, or setting in motion any of the parts thereof, except when such property is under one's lawful control or possession.

(b) Destroying, injuring, defacing, or damaging property or real property.

3.19 Climbing

The following are prohibited:

(a) Climbing on, or within fifty feet of, any rock art.

(b) Touching or contacting any rock art, or allowing climbing equipment, including but not limited to ropes, slings, or packs, to fall upon, rest against, or otherwise come in contact with any rock art.

(c) Using climber's chalk, drilling bolts, or inserting or applying pitons, chocks, or any other anchoring device, within fifty feet of any rock art.

3.20 Closures

(a) (1) The existing limited closures of the Red Rock Canyon Scenic Loop Drive and the use areas associated with it, of the La Madre Spring area, and of the Red Spring Picnic Area, remain in effect. These areas will continue to be limited to daytime use only, with the exact hours

of closure posted at the entrance to these areas.

(2) The existing limited closure of the Red Rock Canyon Scenic Loop Drive is modified as follows: from one-half-hour before sunrise until the posted opening hour, pedestrians and bicyclists may enter and use the Scenic Loop Drive and the use areas associated with it. Motor vehicles will remain prohibited, except for administrative purposes or by permit or registration.

(b) The area known as the Cave, located at T. 2lS, R. 58E, section 13, and accessible by trail from State Highway 159, is limited to daytime use only. The exact hours of closure will be posted at the entrance to the area.

(c) The area known as Brownstone Canyon, located at T. 20S, R. 58E, sections 23, 24, 25, and 26, is limited to public use as follows:

(1) Daytime use only is permitted, with the exact hours of closure posted at the entrance to Brownstone Canyon.

(2) Vehicles, other than authorized vehicles, are prohibited from travelling into Brownstone Canyon beyond the fenced and/or signed barrier. For a vehicle to be authorized, it must be entering Brownstone Canyon in the performance of the official business of a federal, state, county, or local government agency or organization; or it must have registered and/or been issued a permit by the Bureau of Land Management. Such permits or registration can be obtained at the Red Rock Canyon National Conservation Area Visitor Center, or at the Las Vegas District Office of the Bureau of Land Management.

3.21 Non-Commercial Soliciting

(a) Non-commercial soliciting is defined as requesting or demanding gifts, money, goods, or services. Non-commercial soliciting is prohibited, unless a permit to allow non-commercial soliciting has been issued by the Manager, Red Rock Canyon National Conservation Area.

(b) An application for such a permit shall set forth the name of the applicant and organization (if any), the date, time, duration, nature, and location where the non-commercial solicitation is proposed to take place, the number of participants, the equipment and facilities to be used, and any other information required by the permit application form.

(c) The Manager shall, without unreasonable delay, issue a permit on proper application unless:

(1) A prior application for a permit for the same time and place has been made that has been or will be granted and the activities authorized by that permit do not reasonably allow multiple occupancy of that particular area; or

(2) It reasonably appears that the non-commercial solicitation will present a clear and present danger to the public health or safety; or

(3) The number of persons engaged in the non-commercial solicitation exceeds the number that can reasonably be accommodated in the particular location applied for, considering such issues as damage to public lands resources or facilities, impairment of the National Conservation Area's atmosphere of peace and tranquility, interference with program activities, or impairment of public use of facilities; or

(4) The location applied for has not been designated as available for the purpose of non-commercial solicitation; or

(5) The activity would constitute a violation of an applicable law or regulation.

(d) If a permit is denied, the applicant shall be so informed in writing, with the reason(s) for the denial set forth.

(e) The Manager shall designate on a map, that shall be available at the Red Rock Canyon National Conservation Area visitor center and at the Las Vegas District Office, the locations that are available for the purpose of non-commercial soliciting. Locations may be designated as not available only if the non-commercial solicitation would:

(1) Cause injury or damage to public lands resources; or

(2) Unreasonably impair the atmosphere of peace and tranquility maintained in wilderness,

natural, historic, or similar protected areas or zones; or

(3) Unreasonably interfere with interpretive, visitor service, or other programs or administrative activities of the Bureau of Land Management; or

(4) Substantially impair the operations of public use facilities or services of cooperating associations, concessionaires, or contractors; or

(5) Present a clear and present danger to the public health and safety.

(f) The permit may contain such conditions as are reasonably consistent with protection and use of the National Conservation Area for the purposes for which it was established. It may also contain reasonable limitations on the equipment used and the time and area within which the non-commercial solicitation is allowed.

(g) No permit shall be issued for a period in excess of l4 consecutive days, provided that permits may be extended for like periods, upon a new application, unless another applicant has requested use of the same location and multiple occupancy of that location is not reasonably possible.

(h) A permit may be suspended or revoked under any of those conditions, as listed in paragraph (c) of this section, that constitute grounds for denial of a permit, or for violation of the terms and conditions of the permit. Such a suspension or revocation shall be made in writing, with the reason(s) for suspension or revocation clearly set forth, except under emergency circumstances, when an immediate verbal suspension or revocation may be made followed by written confirmation within 72 hours.

(i) For any person engaged in non-commercial solicitation, the following are prohibited:

(1) Violating the terms or conditions of a permit.

(2) Obstructing or impeding pedestrians or vehicles; harassing public lands users or visitors with physical contact or persistent demands; or misrepresenting the purposes or affiliations of those engaged in the non-commercial solicitation.

3.22 Public Assemblies or Meetings

(a) Public assemblies, meetings, gatherings, demonstrations, parades and other public expressions of views are allowed within the Red Rock Canyon National Conservation Area, provided a permit therefor has been issued by the Manager of the National Conservation Area. Conducting a public assembly, meeting, gathering, demonstration, parade or other public expression of views without a permit is prohibited.

(b) An application for such a permit shall set forth the name of the applicant and organization (if any); the date, time, duration, nature, and place of the proposed event; an estimate of the number of persons expected to attend; a statement of equipment and facilities to be used; and any other information required by the permit application form.

(c) The Manager shall, without unreasonable delay, issue a permit on proper application unless:

(1) A prior application for a permit for the same time and place has been made that has been or will be granted and the activities authorized by that permit do not reasonably allow multiple occupancy of that particular area; or

(2) It reasonably appears that the event will present a clear and present danger to the public health or safety; or

(3) The event is of such nature or duration that it cannot reasonably be accommodated in the particular location applied for, considering such issues as damage to public lands resources or facilities, impairment of the National Conservation Area's atmosphere of peace and tranquility, interference with program activities, or impairment of public use of facilities.

(d) If a permit is denied, the applicant shall be so informed in writing, with the reason(s) for the denial set forth.

(e) The Manager shall designate on a map, that shall be available at the Red Rock Canyon National Conservation Area visitor center and at the Las Vegas District Office, any locations that are closed or restricted for public assemblies. Locations may be designated as not available only if such activities would:

(1) Cause injury or damage to public lands resources; or

(2) Unreasonably impair the atmosphere of peace and tranquility maintained in wilderness, natural, historic, or similar protected areas or zones; or

(3) Unreasonably interfere with interpretive, visitor service, or other programs or administrative activities of the Bureau of Land Management; or

(4) Substantially impair the operations of public use facilities or services of cooperating associations, concessionaires, or contractors; or

(5) Present a clear and present danger to the public health and safety.

(f) The permit may contain such conditions as are reasonably consistent with protection and use of the National Conservation Area for the purposes for which it was established. It may also contain reasonable limitations on the equipment used and the time and area within which the event is allowed.

(g) No permit shall be issued for a period in excess of 7 days, provided that permits may be extended for like periods, upon a new application, unless another applicant has requested use of the same location and multiple occupancy of that location is not reasonably possible.

(h) A permit may be suspended or revoked under any of those conditions, as listed in paragraph (c) of this section, that constitute grounds for denial of a permit, or for violation of the terms and conditions of the permit. Such a suspension or revocation shall be made in writing, with the reason(s) for suspension or revocation clearly set forth, except under emergency circumstances, when an immediate verbal suspension or revocation may be made followed by written confirmation within 72 hours.

(i) For any person engaged in activities covered under a permit issued pursuant to this section, the following are prohibited:

(1) Violating the terms or conditions of a permit.

(2) Obstructing or impeding pedestrians or vehicles, or harassing public lands users or visitors with physical contact or persistent demands.

3.23 Sale or Distribution of Printed Matter

(a) The sale or distribution of printed matter is allowed within the Red Rock Canyon National Conservation Area, provided that a permit to do so has been issued by the Manager of the National Conservation Area, and provided further that the printed matter is not solely or principally commercial advertising. Selling or distributing printed matter without a permit is prohibited.

(b) An application for such a permit shall set forth the name of the applicant and organization (if any), the date, time, duration, nature, and location of the proposed sale or distribution, the number of participants, the equipment and facilities to be used, and any other information required by the permit application form.

(c) The Manager shall, without unreasonable delay, issue a permit on proper application unless:

(1) A prior application for a permit for the same time and place has been made that has been or will be granted and the activities authorized by that permit do not reasonably allow multiple occupancy of that particular area; or

(2) It reasonably appears that the sale or distribution will present a clear and present danger to the public health or safety; or

(3) The number of persons engaged in the sale or distribution exceeds the number that can reasonably be accommodated in the particular location applied for, considering such issues as damage to public lands resources or facilities, impairment of the National Conservation Area's atmosphere of peace and tranquility, interference with program activities, or impairment of public use of facilities; or

(4) The location applied for has not been designated as available for the sale or distribution of printed matter; or

(5) The activity would constitute a violation of an applicable law or regulation.

(d) If a permit is denied, the applicant shall be so informed in writing, with the reason(s) for the denial set forth.

(e) The Manager shall designate on a map, that shall be available at the Red Rock Canyon National

Conservation Area visitor center and at the Las Vegas District Office, the locations that are available for the sale or distribution of printed matter. Locations may be designated as not available only if the sale or distribution of printed matter would:

(1) Cause injury or damage to public lands resources; or

(2) Unreasonably impair the atmosphere of peace and tranquility maintained in wilderness, natural, historic, or similar protected areas or zones; or

(3) Unreasonably interfere with interpretive, visitor service, or other programs or administrative activities of the Bureau of Land Management; or

(4) Substantially impair the operations of public use facilities or services of cooperating associations, concessionaires, or contractors; or

(5) Present a clear and present danger to the public health and safety.

(f) The permit may contain such conditions as are reasonably consistent with protection and use of the National Conservation Area for the purposes for which it was established. It may also contain reasonable limitations on the equipment used and the time and area within which the sale and distribution of printed matter is allowed.

(g) No permit shall be issued for a period in excess of 14 consecutive days, provided that permits may be extended for like periods, upon a new application, unless another applicant has requested use of the same location and multiple occupancy of that location is not reasonably possible.

(h) A permit may be suspended or revoked under any of those conditions, as listed in paragraph (c) of this section, that constitute grounds for denial of a permit, or for violation of the terms and conditions of the permit. Such a suspension or revocation shall be made in writing, with the reason(s) for suspension or revocation clearly set forth, except under emergency circumstances, when an immediate verbal suspension or revocation may be made followed by written confirmation within 72 hours.

(i) For any person engaged in the sale or distribution of printed matter, the following are prohibited:

(1) Violating the terms or conditions of a permit.

(2) Obstructing or impeding pedestrians or vehicles; harassing public lands users or visitors with physical contact or persistent demands; misrepresenting the purposes or affiliations of those engaged in the sale or distribution of printed matter; or misrepresenting whether the printed matter is available without cost or donation.

(j) The provisions of this section do not apply to any group or organization that has entered into a cooperative agreement with the Bureau of Land Management to further the management of the Red Rock Canyon National Conservation.

3.24 Spray Paint

The following are prohibited:

(a) The use of spray paint within Red Rock Canyon National Conservation Area, except for:

(1) administrative activities of the Bureau of Land Management or another federal agency; or

(2) the official business of any state, county, or local governmental entity; or

(3) the necessary performance of work related to the maintenance or construction of any authorized improvements or facilities on public lands.

(b) The possession of spray paint within Red Rock Canyon National Conservation Area, except when such containers of spray paint are located:

(1) in the trunk of a motor vehicle; or

(2) if a motor vehicle is not equipped with a trunk, in some other portion of the motor vehicle designed for the storage of luggage and not normally occupied by or readily accessible to the operator or passengers.

3.25 Persons Entering the Scenic Loop Drive at Willow Springs

(a) Any vehicle, which has traversed the road from Lovell Canyon to Willow Springs, may enter the Red Rock Canyon Scenic Loop Drive. When such entry is made after the posted closing time of the Scenic Loop Drive, the operator of the vehicle must proceed immediately to the exit of the Scenic

Loop Drive, while obeying the one-way traffic requirement.

(b) For any person who enters the Red Rock Canyon Scenic Loop Drive at Willow Springs after the posted closing time, the following are prohibited:

(1) Failing to immediately proceed to the exit of, and to immediately exit from, the Scenic Loop Drive in accordance with the one-way traffic pattern.

(2) Remaining within the Scenic Loop Drive longer than is necessary to travel from Willow Springs to the exit.

3.26 Authorization for After-Hours Vehicle Parking

(a) Vehicles parked on the Scenic Loop Drive at times other than the posted open hours must either have registered with the Bureau of Land Management, or must have obtained a permit, for such parking. Leaving vehicles parked on the Scenic Loop Drive after the posted closing hour, without a valid permit or registration, is prohibited.

(b) Permits, or registration, may be obtained at either the Las Vegas District Office or at the Red Rock Canyon NCA Visitor Center during normal business hours. Such authorization to park after hours on the Scenic Loop Drive expires when the operator of the vehicle returns to the parking area.

(c) Persons returning to a properly permitted or registered vehicle after the posted closing time of the Scenic Loop Drive must immediately exit the Scenic Loop Drive in accordance with the one-way traffic pattern. The following are prohibited:

(1) Failing to immediately proceed to the exit of, and to immediately exit from, the Scenic Loop Drive in accordance with the one-way traffic pattern.

(2) Remaining within the Scenic Loop Drive longer than is necessary to travel to the exit.

ARCHAEOLOGY IN RED ROCK CANYON OF SOUTHERN NEVADA: A CLASS I CULTURAL RESOURCES OVERVIEW

Cultural Resources Report 5-1991

by

Keith Myhrer
Archaeologist

September 1990
Revised February, 1991

Bureau of Land Management
Stateline Resource Area
Las Vegas District, Nevada

ABSTRACT

The unique setting of Red Rock Canyon as an oasis within a desert environment facilitated aboriginal exploitation and continues to foster recreational uses. This Class I Inventory reviews and evaluates the previous cultural resources investigations in Red Rock Canyon Recreation Lands. Archaeological research is classified within four separate phases: 1) initial exploration and identification of significant sites from the 1930s to 1960s, 2) BLM-contracted surveys from 1968 to 1977 for anticipated recreational development, 3) compliance inventories for Federal actions from 1975 to the present, and 4) three proactive research projects in the late 1980s. Red Rock was divided into three subzones for comparative purposes. Red Rock Summit consists of several large rockshelter/roasting pit districts. North Red Rock Escarpment has a predominance of rockshelter/rock art locales. South Red Rock possesses a distribution of lithic scatters, rock art and some rockshelters. I propose a strategy to test, evaluate, complete data recovery, and then manage for public uses at sites that are within high intensive recreational use areas. Sites within less intensive use areas should be managed for conservation. I also propose a research strategy for a graduate student for the roasting pit/rockshelter districts in Red Rock Summit subzone.

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ACKNOWLEDGEMENTS

A complete Class I Inventory of Red Rock Canyon Recreation Lands is not possible without field visits to its archaeological sites. I wish to thank the Red Rock staff members who provided me with intimate details concerning the environment, the history of Red Rock recreational uses, and initial inspections of the sites. My first field tours were given by Chris Miller, Chief Interpreter. After assuming position as Park Manager, Joel Mur guided me on a reconnaissance tour in which we discussed long-term management objectives. The following staff members also provided me with tours of cultural resource sites, Ralph Robinson, Chuck Ward and Pat Grediagin at the Lost Creek trail and site; Dave Phillips and Peggy Ahrens at Red Spring; and Joel, Chris, Peggy, Dave and Ralph at both Sandstone Quarry and Willow Spring. Also, Richard Stockton, Red Rock Volunteer and archaeologist accompanied us and provided advice on resources evaluations. Previous Park Manager Dave Hunsaker facilitated my work in Red Rock by allowing me to utilize the knowledge from his staff and giving me free reign to evaluate and work on sites in Red Rock. Finally, I appreciate the time that both Joel and Chris contributed to review the draft of this document.

Cover illustration: Roasting pit northeast of White Rock Spring, looking southwest towards Red Rock escarpment. Illustration drafted by Keith Myhrer and scanned into a Wordperfect user-block file.

INTRODUCTION TO RED ROCK CANYON

Red Rock Canyon was a desert oasis for humans during both prehistoric and historic times. It is also used by contemporary people as a center for recreation, solitude, and inspiration. The numerous springs and streams that flow within its natural boundaries provide for a variety of life. Because elevations in the canyon are 2000 feet higher than the surrounding valleys, allowing for extra moisture, a diverse assortment of edible plant resources such as agave and faunal resources like bighorn sheep is present. In addition, the contrasting colors of the sandstone and limestone formations and the various micro-environments of each canyon are aesthetically appealing.

The identification and study of artifacts, hearths, remains of occupied rockshelters, and a variety of rock art indicates that humans have utilized the Red Rock area for at least 2000 years. Principle use was concentrated near springs and other water sources, on terraces overlooking major washes, and along eroded bluffs and escarpments that allowed for physical shelter.

Recent use of Red Rock Canyon Recreation Lands (RRCRL) is primarily recreational in nature. The scenic Red Rock loop road was constructed in two phases between 1972 and 1978 and the Visitor Center was opened in 1982. Since that time, visitor use of RRCRL has massively increased, maintenance activities have continued, and trails and picnicking areas constructed. To meet the increasing demands of the growing urban population of Las Vegas Valley, some new trails and use areas have been proposed.

Red Rock is located about 10 miles west of the present edge of urban development of Las Vegas, Clark County, Nevada. Proposed commercial and residential development within the next decade is expected to meet the east boundary of the park lands. Population of the area is presently 750,000, but is expected to increase to more than a million in a few years. The recreation park presently consists of 63,110 acres and is managed by the Bureau of Land Management (BLM), Stateline Resource Area (SRA), Las Vegas District, Nevada. An additional 5,000 acres will be added to RRCRL as part of the Summa/Red Rock Land Exchange. Figure 1 is a map of southern Nevada in which SRA and RRCRL are located.

This document has two objectives. First, the previous archaeological work in the area is synthesized and evaluated in terms of the present Cultural Resource Management (CRM) requirements. Second, research strategies are proposed that provide appropriate cultural resources management for sites within heavily-used recreational areas, and for sites in the more isolated areas in Red Rock.

The remaining part of this section delineates the methodology for this Class I inventory and describes the environment in RRCRL. The prehistory and history of the area are summarized in the following section, followed by a review of the documents that describe archaeological work in the area. Next is a discussion of the archaeological sites recorded in Red Rock and their locational distribution. Finally I make recommendations for the future CRM of the recreation lands.

Class I Inventory Methodology

An initial reason to conduct a Class I inventory for RRCRL was to offer a general plan for probing, testing, and evaluating site complexes within intensively used recreational areas. Few sites in RRCRL have been formally evaluated for eligibility for nomination to the National Register of Historic Places (NRHP) and are considered eligible pending further evaluation. Site complexes within heavily used recreational areas, such as Red Spring, Lost Creek, Willow Spring, and Sandstone Quarry, have interpretive potential but have presumably suffered impacts from 25 years of recreational uses. A strategy to evaluate the sites prior to implementation of an aggressive interpretive scheme is necessary. Another reason for the inventory was to identify sites or districts that need management for scientific research or conservation purposes.

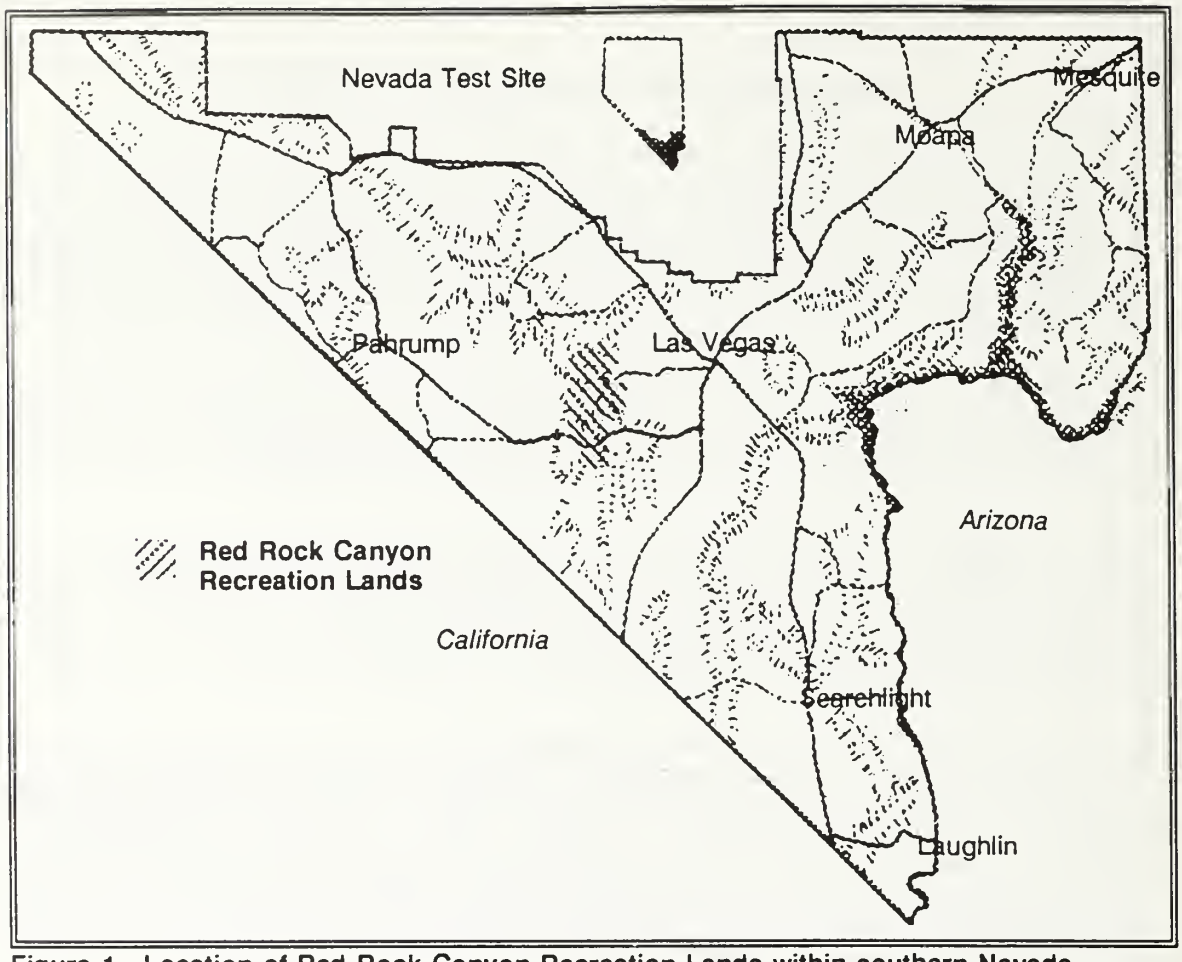

Figure 1. Location of Red Rock Canyon Recreation Lands within southern Nevada.

Rather than evaluating each site complex as an independent project, I felt that questions on significance and impacts should be treated for all sites in RRCRL within a holistic planning concept. Proposed treatment of each site would then be consistent with long-term objectives. I began this project in 1989. At the point that I had completed a general outline, the Washington office of BLM determined that a Resource Management Plan (RMP) was needed on an accelerated time frame for SRA of Las Vegas District, which includes RRCRL. I was assigned to write the cultural resources section of the RMP. The first step was a data inventory for the entire resource area. The results of the inventory are presented in an independent document that summarizes the kind of archaeological work conducted in the resource area, the number and types of sites recorded, the amount of acres surveyed, and presents a management philosophy for future CRM in southern Nevada (Myhrer 1990). Although the RMP work postponed the Class I Inventory for RRCRL, the summary document allows for a regional view of the archaeology of Red Rock Canyon within the region and establishes a CRM philosophy to treat individual sites within a larger conceptual framework.

The general aim of this literature review is to describe and synthesize the present amount of archaeological data and to identify several subzones of sensitivity in RRCRL. This project, as are most in Federal land management agencies such as BLM, was constrained by conceptual boundaries determined by funding ceilings and in effect time limits. A question identified prior to data collection concerned the amount of research that could be invested until efficiency was lost. For example, if 95 percent of the inventory was accomplished within one month, and another two weeks would be required to procure four or five additional percent, then application of the Law of Diminishing Returns would conclude the gathering of the final five percent as inefficient. This is especially meaningful when the researcher discovers that most of the sites identified in RRCRL were recorded prior to the mid-1970s when the number of site and environmental requirements were considerably lower than that of today. Consequently, searching for a few records that in actuality may not have even been written seemed an inefficient use of energy. The standards and quality of the data inventory for this project, described below, were considered the most useful and realistic for achieving an holistic view of the archaeology of Red Rock. The sources for the solicitation of data for the Class I Red Rock inventory were the records and base maps from Las Vegas District BLM, the Southern Nevada Site Repository.

The data collection consisted of two phases. The first step was entirely accomplished by William White, presently Preservation Planner with Nevada State Historic Preservation Office (SHPO) and in 1989 graduate intern under my direction. As one of several assignments, White reviewed the documents describing the projects conducted in RRCRL between 1969 and 1977. His comments and analysis are incorporated into the section on previous research in Red Rock. In addition, White complied the draft data base maps of RRCRL using records and maps from the Southern Nevada Repository of Site Records and BLM.

The second phase involved my review of White's analysis along with the review of all compliance-based projects after 1975. In conjunction with White's draft maps I examined the recordation forms and classified sites by components and types. During this process some sites were identified that had been recorded by two different archaeologists and assigned separate site numbers. For example, survey reports prior to 1975 discussed the problem of numerous sites having been recorded twice and assigned separate numbers. Although I used the information available in the reports, I did not complete the recordations for sites not formally recorded. Based on White's draft maps, several sites had been assigned Smithsonian numbers without BLM designations. Most of the number questions were resolved after additional record searches. About 20 were determined duplicates while several had never been recorded on appropriate forms.

In addition, there are certain features such as rock art panels that local avocationalists and professionals will feel were missed in this review. Some rock art sites are so "well-known" that no one has ever recorded the site. Others may have been "lumped" into a recording form as a small part of a larger site without the recorder actually noting the presence of the panel. Consequently, one of the results of this review will be identification by reviewers of "obvious" sites that have never been recorded. A contrasting problem is the method in which features such as roasting pits were recorded as individual sites rather than contributing parts to a larger complex or district. The section on proactive management in the latter portion of this document recommends treatment of site clusters as districts, a strategy that would supercede the necessity of conducting individual recordations for these unrecorded sites during resurvey projects.

Environment In Red Rock Canyon

Red Rock Canyon Recreation Lands is located on the east side of the Red Rock escarpment. The climate and resources make this locale an oasis in an arid, desert environment. Figure 2 is a map of the recreation lands.

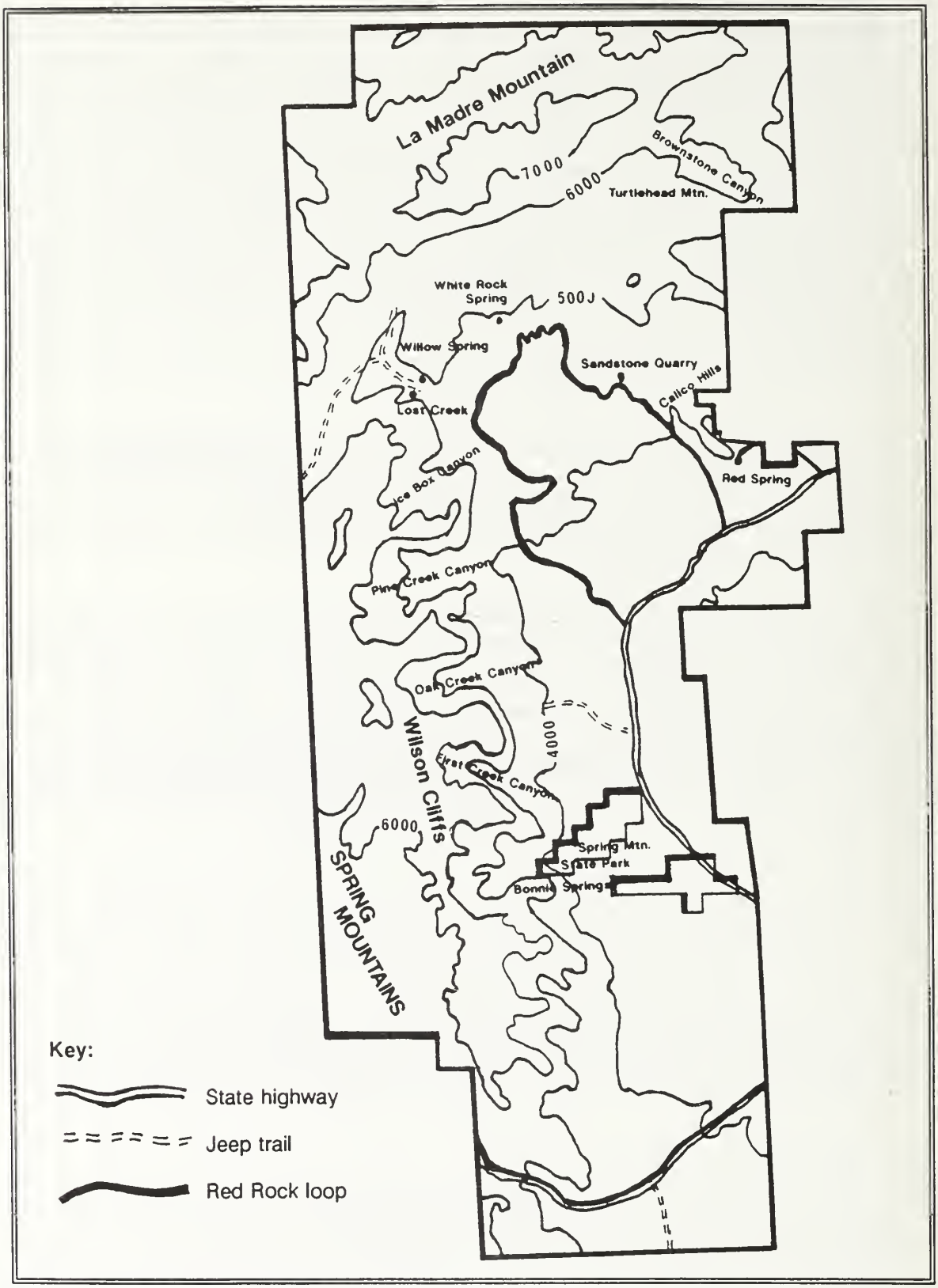

Figure 2. Red Rock Canyon Recreation Lands.

Geology. The Red Rock escarpment rises more than 5000 feet (1525 meters) above Las Vegas Valley. Although the valley is nearly flat in its interior, rugged mountain ranges frame the exterior. The McCullough Range lines the south, Frenchman and Sunrise Mountains the east, and the Spring Mountains, edging the Red Rock escarpment on the west, stretch in a northwest-southeast direction along the west side of the valley. Blue Diamond Hill is a prominent feature that borders the east portion of Red Rock Canyon, creating a valley that is two to four miles wide and 12 miles long. Elevation within RRCRL ranges from 4000 feet (1280 meters) to 7000 feet (2130 meters).

The Red Rock escarpment, also known as the Sandstone Bluffs, is composed of Aztec Sandstone. To the west of the bluffs "...an overlying thrust plate of carbonate rocks forms a continuous cliffy slope (the Wilson Cliffs) more than 2,000 feet high and about 12 miles long" (Longwell *et al.* 1965:63). Soils in the canyons are composed of colluvial and alluvial limestones and sandstones. Canyon washes are strewn with large boulders.

Vegetation. Vegetation is characterized by a spring-canyon riparian complex. Common plants are blackbrush, sagebrush, Spanish bayonet, prickly pear cactus, desert almond, and some pinyon pine and juniper stands. A major source of food to the people occupying this area was agave. This plant is commonly found in the limestone substrate, but stalks also grow on sandstone and limestone terraces within some washes.

Climate. Summers in southern Nevada are long, hot and arid, and winters are mild. The average temperature in Las Vegas Valley is 46 to 47 degrees F in winter and 87 degrees F in summer. Average relative humidity is about 20 percent. Normal annual precipitation is four inches and often occurs in cloudbursts that cause flash flooding in ephemeral washes (USDA 1980:5; USDA 1985:3). Due to the 3000 foot difference in elevation at Red Rock Canyon in comparison to the valley, temperatures are about 5 to 10 degrees cooler. The individual canyons in Red Rock usually receive winter snows.

Legal Description of Red Rock Canyon Recreation Lands

The legal description of RRCRL is within T.20S., R.58E., T.21S., R.58E., T.22S., R.58E., and T.21S., R59E. The 7.5 minute United State Geological Survey maps on which RRCRL is located are Blue Diamond, 1972, La Madre Mountain, 1972, La Madre Spring, 1984, and Mountain Springs, 1984. State Route 159 loops through the east-central portion of RRCRL and State Route 160 cuts through the south part of the park.

GENERALIZED PREHISTORY AND HISTORY OF RED ROCK CANYON

Southern Nevada is a unique region because it is situated at the interface of three distinct geographical zones: the Colorado Plateau, Mojave Desert and Great Basin. Each zone retains evidence of several cultural groups who adapted to the natural resources of the area. References that discuss established cultural associations and chronology include Lyneis (1982a) and Rafferty (1985).

Prehistory of Red Rock Canyon and Southeastern Nevada

All prehistoric native Americans employed hunting and gathering for some portion of their resource base. Collected foods include seeds and pods from cacti, yuccas, various grasses, mesquite from marsh-like areas, and pinion nuts from the higher altitudes. Hunted animals include rabbits, coyotes and rodents from lower elevations, and bighorn sheep and deer from surrounding ranges such as the Virgin and Spring Mountains. The atlatl was used as a hunting tool to throw spear points attached to shafts.

Unique to this region is the large number of roasting or mescal pits. These are circular features primarily used to roast bulbs from the agave plant. Roasting pits are defined and discussed in the section on archaeological sites types. Hunter-gatherers lived in open camps, brush structures and caves. Based on ethnohistoric sources, they moved throughout a territory in an extended family group exploiting maturing plant resources and animals on a seasonal basis (Steward 1970).

Early hunter-gatherer occupation in southern Nevada dates to about 11,000 B.C. at Tule Springs site in northwest Las Vegas Valley (Shutler 1967). Heaviest use of the region by the Archaic and Paiute peoples occurred within the last 5000 years. Gypsum Cave, located in the Sunrise/Frenchman Mountains on the northeast edge of Las Vegas Valley, yielded evidence of continual use from about 3000 B.C. into historic times. Due to the variety of resources, availability of water, and the accessibility of shelter caves, Red Rock Canyon as a resource zone was the locus of intensive use for at least the past 2000 years.

Two other cultural groups that utilized the area were the Virgin Anasazi and the Lower Colorado (Patayan or Yuman) peoples. Lower Colorado groups such as the Mojave conducted floodwater farming along the Colorado River about 70 miles south of Red Rock Canyon. They also exploited resources in surrounding ranges and valleys.

The Virgin Anasazi were concentrated along the Muddy and Virgin Rivers in the Moapa Valley. Population increased after A.D. 500 which coincides with the beginning of farming and introduction of the bow and arrow. The Virgin Anasazi lived in pit rooms dug into the earth or in pueblo surface structures constructed of brush and adobe. Although they supplemented their diet with hunted animals and seeds gathered from the region, much of their food came from corn, beans and squash grown in the floodplains of the rivers. The Virgin Anasazi left the region around A.D. 1150. Reasons for the abandonment include an increased population size, a lengthy drought during crucial times, and a heavy dependence on farming.

Eileen Green's work (1987) on the ecological associations of rock art in the region describes petroglyph and pictograph elements in the Red Rock area. Rock art in the region is considered culturally mixed, in the sense that certain elements are attributed to the Paiute-Shoshone, others to the Patayan or Yuman, and some to the Virgin Anasazi. Green considers the red "handprints" panel at Willow Spring as extremely rare, only one of three in Clark County (Personal Communication, 1989). She considers all three panels as visually the same. Green considers the "handprints" at Willow Spring to be possibly of Virgin Anasazi origin. Patayan and Paiute rock art influences are

also found at Brownstone Canyon in RRCRL, Keyhole Canyon in the Eldorado Mountains, and sites in the Newberry Mountains.

Based on the review of recorded features and artifacts, use of the Red Rock zone is considered to date to as early as 3000 B.C. This early date in Red Rock Canyon is attributed to the report of "Gypsum Cave like" points recovered by K.K. Miller at Red Spring (Brooks 1969). Late Archaic use of the area as early as 3000 B.C. has not been abundantly demonstrated, but it is accepted that prehistoric peoples used Red Rock within the past 2,000 years.

There is contention whether the earliest users of Red Rock were the generic Archaic hunter/gatherers or more explicitly the Paiute. Lamb (1958) postulated that the Numic speakers, which include the Paiutes, spread across the Great Basin about a 1000 years ago. Lyneis (1982a) argues for an *in situ* development of the Numic languages. Rafferty and Blair (1984) and Rafferty (1989) contend that the late Archaic peoples in this region were actually the ancestors of the Paiute. Because a cultural change in the archaeological record that would indicate the Paiute initially entered the region between 1,000 and 2,000 B.P. has not been adequately demonstrated, I consider the contemporary Paiutes the descendants of the indigenous hunter-gatherers.

The Numic-speaking Paiute remained in the area through the historic settling of the region. The presence of Paiute and Virgin Anasazi pottery indicates that both cultural groups occupied the area, possibly in a symbiotic relationship (Rafferty and Blair 1984). It is probable the Patayan also visited Red Rock. Table 1 lists the chronology and referenced aboriginal cultural groups that are considered to have used Red Rock Canyon.

Table 1. Chronology and cultural users of Red Rock Canyon.

Timeframe	Cultural Group	Source
Prehistoric		
?3000 B.C.	Archaic hunter/gatherers	Brooks 1969 Brooks *et al.* 1974,1976, 1977a/b
A.D. 1	Paiute	(same as above)
A.D. 1000-1100	Virgin Anasazi	(same as above) (this report)
A.D. 1000	Patayan (in Las Vegas Valley)	(see Rafferty 1985)
Historic		
1826-1831	*Old Spanish Trail* Smith, Armijo, Wolkskill/Yount	Hafen and Hafen 1954
1844	*Mormon Road*, Fremont	Hafen and Hafen 1954 Warren 1974 Myhrer *et al.* 1990
1855	Mormon Settling of Las Vegas	Hauck *et al.* 1979
1880	Settling of Wilson's Ranch in Red Rock Canyon	Paher 1971

Historic Uses in the Area

Historic use of southern Nevada began in 1826 with blazing of the *Old Spanish Trail* by American and Mexican explorers. Fremont revised the route of the *Old Spanish Trail* through southern Nevada in 1844, for the first time cutting through the lower portion of what would become RRCRL. By 1848 this trail was abandoned for better routes north and south, but the path was used for another half century for immigration and trade from Salt Lake City to San Bernardino, and was called the *Mormon Road*. Recent field inspection and analysis of the remaining trail and artifacts indicates heaviest use of the *Mormon Road* occurred between the 1860s and the first decade of the 20th century. Archaeology of the trail is described in Myhrer *et al.* (1990).

Colonizing efforts by the Mormon Church initiated the settling in 1855 of a mission and ranch site near what is now downtown Las Vegas (Paher 1971; Hauck *et al.* 1979). This first attempt at settlement by non-Indians in the region was abandoned in 1857, but the site was later reoccupied by ranchers in 1865. The first settlement in the Red Rock lands was the Wilson Ranch, now Spring Mountain State Park, in 1880 (Paher 1971).

PREVIOUS ARCHAEOLOGICAL WORK IN RED ROCK CANYON

The Red Rock Canyon area has seen recreational use by non-Indian settlers of Las Vegas Valley and visitors to the region for about a century. Brooks *et al.* (1976:2) note that Helen Stewart, owner of the Mormon Fort from 1881-1903, "...inscribed her name in a cave on the lower slopes of the Spring Mountain Ranch in 1890."

The earliest archaeological work in Red Rock occurred in the 1930s. Mark Harrington, director of the Civilian Conservation Corps excavations for Boulder Dam, recorded the Willow Spring complex in 1939. Sometime prior to 1962 Karma Miller, an avocational archaeologist, "...received permission from the Las Vegas District BLM to carry out limited archaeological investigations at the Willow Spring complex under the auspices of the Red Rock Archaeological Association" (now Archaeo-Nevada Society) (Brooks *et al.* 1976:2-3). Miller is listed as having partially excavated the site complex. No maps or provenience records are referenced or found at the BLM District Office. Consequently, the extent of the digging at the site complex is unknown.

In 1962, Richard and Mary Shutler conducted a reconnaissance survey in Red Rock Canyon. Eighteen petroglyph, mescal pit and open campsites were recorded. Based on the kinds of observed cultural materials, the Shutlers determined that the Lost City Virgin Anasazi, the Lowland Patayan (Lower Colorado) and the Southern Paiute had used the area for at least 1500 years. "The lack of architectural features, the shallow deposit of the campsites and their scarcity indicate that this occupation was sporadic and temporary" (Shutler and Shutler 1962:24). Based on the high numbers of observed rock art sites, they also guessed that the Red Rock area had been a ceremonial locale.

A series of small archaeological surveys were contracted by BLM to Dr. Richard Brooks and the Nevada Archaeological Survey (NAS) of Desert Research Institute from 1967 to 1969. NAS later became Archaeological Research Center (ARC) of the University of Nevada, Las Vegas (UNLV). Areas with cultural debris at the base of the cliffs above Red Spring (26CK22 and 458/BLM 53-2338 and 2380) were tested by Brooks in 1969. This was the locale from which the Shutlers collected four artifacts in 1962 (Shutler and Shutler 1962:20-21).

> "Contrary to expectation, the midden is found only adjacent to the cliff and spring area and not over the whole meadow. In addition the depth of midden was not more than 30 cm, at the greatest extent tested. A total of eleven test pits were excavated during the fall in an arbitrary line along the base of the cliff area, none of which showed any depth developing. Small amounts of brown ware pottery and several late type projectile points were found near the surface" (Brooks 1969).

Brooks (1969:4) also states in the report that K.K. Miller partially dug two Calico Basin area cave sites (26CK453 and 26CK454), that are located on private lands more than a mile north of Red Spring, with "Gypsum Cave like points" found in the latter shelter. Brooks also describes preparations for forthcoming test excavations at the Sandstone Quarry prehistoric site area (26CK300). These investigations were conducted following this 1969 report, and the excavation notes are present in the Las Vegas District BLM cultural resources files.

A series of more intensive surveys for the recreational development of RRCRL was again contracted by BLM to Brooks of ARC/UNLV (Brooks *et al.* 1974, 1976, 1977a, and 1977b). Conclusions of the reports were generally limited to listing of sites determined as critical based on potential of research data and imminent danger from casual collectors. Table 2 lists the archaeological projects in RRCRL conducted for BLM.

Table 2. Summary of cultural resource projects completed in Red Rock Canyon.

Report No. 5-	Locality	Inventory Level		Acres	Sites
NAS Surveys (Overlaps in Acres and Number of Sites)					
89	General	III	N	3200	100E
89	Red Rock Summit	?		?	?
89	Red Rock Summit	III	N	100E	155
231	Visitor's Center	III	N	1530E	18
	La Madre Canyon, Willow Spring				
255	Nine Areas	III	N	3840	4+ 17*
367	General	III	N	1820	2+ 4*
728	General	III	N	600E	14
Small Compliance-based Projects After 1975					
108	General	III	L	15	0
202	Calico	III	L	40	2
222	Blue Diamond	III	N	160	0
253	Loop Road	III	L	150	1
324	Blue Diamond	III	N	10	0
612	Blue Diamond Hill	III	N	1	0
880	Highway	III	L	160	0
883	Highway	III	L	80	1
1175	Blue Diamond	III	N	90	0
1355	Calico	III	L	13	0
1361	Calico	III	L	10	0
1383	Highway	III	L	100	5
1400	Blue Diamond Hill	III	N	1	0
Proactive CRM Projects					
1726	*Stripper's Cabin*	III	N	5	1
1950	*Old Spanish Trail/Mormon Road*	III	L	100	1
1952	*Willow Spring*	EXC		1	1

Key:
E = Estimated, II = Class II Survey, III = Class III Survey, N = Non-linear, L = Linear,
EXC = Excavation, ? = Unknown information, + = new site, * = previously recorded site.

The next phase of work in RRCRL consisted of 13 surveys to comply with Section 106 of the *National Historic Preservation Act of 1966*. Finally, three proactive CRM projects in the 1980s included treatment of individual sites and areas within the park. The archaeological projects completed within RRCRL lands are discussed below in three sections: 1) those conducted by NAS that were primarily contracted by BLM for evaluative purposes, 2) small projects for compliance reasons, and 3) recent proactive CRM research. The projects are described according to the level of inventory described in Nevada BLM Guidelines (USDI 1989a), the number of acres surveyed, a

brief summary of sites identified, results, and a short critique of the report. Estimations concerning level of inventory and acreages are given for reports that are not considered clear in terms of providing data or information to answer these questions.

Nevada Archaeological Survey Projects in Red Rock Canyon

Five large inventory projects from 1969 to 1977 were contracted by BLM to NAS/UNLV under the direction of Dr. Richard Brooks. The prime purpose of the surveys was the identification and evaluation of significant sites that could be affected by increased visitor use to the park. Although the number of acres surveyed and the total number of sites are not always specifically stated in the reports, an estimation is made that about 10,000 acres were inventoried and more than 100 sites initially recorded. Many of those sites were duplicate recorded, some during the following NAS surveys. It is interesting to note in the reports the chronological development of CRM methodology and increasing levels of direction from BLM.

NAS 1969-1970 Surveys. Three reports, somewhat similar in nature and all filed under Las Vegas District Cultural Resources Report Number 5-89 were written as a result of work carried out over a three-year period from 1967 to 1969, and included ground survey and some test excavations. They represent the initial inventory of archaeological sites within and adjacent to the proposed Red Rock Recreational Area. The methodology by which the surveys were conducted was not always clearly stated in the documents. Levels of inventory had not been established by BLM at that time, and it is estimated that the surveys were conducted at a Class III level of 30 meter or less transect spacing. Some artifacts were presumably collected and some sites "tested", although records of these specific actions are not present in the BLM files.

The first of the three reports was completed in Spring, 1969 (Brooks 1969). Based on the locations of sites recorded, it appears that intensive surveys were conducted in areas that were expected to receive high degrees of visitor uses, such as Red Spring, Sandstone Quarry, Willow Spring, and Brownstone Canyon. Although the number of acres surveyed is not stated in the document, the report map shows a minimum number of 3200 acres inventoried. More than 100 sites were identified. Several sites in areas of Snyder Quarry, Brownstone Canyon, Lost Creek Canyon, and Sandstone Quarry were listed as being critically in need of salvage or protection management due to recreational impacts. Sites were concentrated around springs, dry washes, stream beds, and sandstone outcrops. The document is a progress and recommendation report rather than a detailed analysis of archaeological data recovered from ground survey and limited test excavations.

The second CR5-89 report (Rodriques 1969) is a two-and-a-half page summary of a survey for a foot trail from Red Rock Summit to Mountain Springs along the Red Rock escarpment. The number of acres surveyed, number of sites located, and their descriptions were not given. No map is present. Site records were completed according to standards acceptable at the time. The report, though, does not offer any useful information in terms of CRM. Although the author notes that evidence of aboriginal use was not found on the trail itself, he states that numerous archaeological sites such as roasting pits, rockshelters and open camps were located near the trail alignment. A standard recommendation for salvage and protection of important sites is given.

The purpose of the final CR5-89 inventory report (Brooks 1969) was to assess the scientific value of sites, and determine their vulnerability from trail construction or increased visitor use impacts. This report is the best of the three. It describes a methodology that recorded resources one mile on either side of the trail right-of-way, and is probably a final on the Rodriques (1969) document. Yet, maps showing locations of sites, site numbers, or areas surveyed are not present. Of the 155 sites that were stated to have been recorded, 21 were recommended for preservation or salvage actions. The report also makes some tentative observations concerning cultural chronology and affiliation of Red Rock Canyon users.

NAS 1974 Evaluation Survey. The purpose of this inventory was to identify and evaluate sites in the Pine Creek and Spring Mountain Ranch areas (Brooks *et al.* 1974, CR5-728). Although five sites were recommended for additional field research. The historic ranch foundation in Pine Creek was not noted, likely because it was not older than 50 years. The document establishes an initial temporal sequence for Red Rock based on diagnostic artifacts and assessment of site types.

NAS Phase 1 Evaluation Survey. The purpose of this inventory (Brooks *et al.* 1976, CR5-231) was to survey the proposed Visitor's Center location, La Madre Canyon, and the Willow Spring/Lost Creek locale. This document marks some changes occurring in contract archaeology. A BLM memorandum specified collection of only sites with 20 or fewer artifacts. The report hints at a loose research design that notes a correlation between biotic communities and the presence of limestone that posts a high probability for roasting pit sites. A data review was also conducted, with a determination that existing site records were less than accurate. A decision was made to reevaluate old sites as encountered.

Although not stated in the report, examination of the map indicates about 1530 acres were surveyed at an estimated Class III level. The most frequently encountered archaeological site type was the roasting pit. Several roasting pit/rock art/rockshelter complexes were recorded. The surveyors noted that rock art sites and habitation locales such as the Willow Spring complex were being destroyed by recreation uses. Excellent site maps were drafted for Willow Spring and Lost Creek complexes. The recommendation was to test each site in order to obtain definitive and chronological data. There are no records in the BLM files that indicate any sites were tested.

NAS Phase 2 Evaluation Survey. Nine specific areas that were surveyed for evaluative purposes are First Creek, Oak Creek, Pine Creek, Ice Box Canyon, Willow Spring, White Rock Spring, Sandstone Quarry, Red Spring, and Brownstone Canyon (Brooks *et al.* 1977a, CR5-255). There is substantial overlap from earlier surveys. An existing data review was again conducted, and prescribed guidelines by BLM concerning collection and methodology were followed. Four new sites were recorded and 17 reevaluated. Recommendations were made to consider La Madre Canyon, Willow Spring, White Rock Spring, Sandstone Quarry, Red Spring, and Brownstone Canyon as archaeological National Register Districts. Yet, this survey and report provided little new information. Its purpose was likely linked to determinations that previous surveys and site recordation had been insufficient for changing needs. The only NRHP nomination following this report was that done for Brownstone Canyon (Rafferty and Rolf 1981).

NAS Phase 3 Evaluation Survey. This report (Brooks *et al.* 1977b, CR5-367) is of fair quality but unlike the Phase 1 and 2 surveys lacks in detailed site descriptions. Two new sites were recorded but no interpretations are given. The report mainly offers very general resource management recommendations that include midden testing and additional intensive survey for sites at Pine Creek and Willow Springs area. There is no record of any testing following this recommendation.

Small Projects in Red Rock Canyon

Numerous small compliance-based projects for mineral actions, land projects, and recreation applications have been conducted in Red Rock Canyon and associated lands. Nine linear inventories covered 568 acres and recorded 10 new sites. A total of 262 acres were walked in five non-linear surveys with the recordation of no new sites. Table 2 also lists these projects.

Three Recent Proactive CRM Research Projects

From 1987 to 1989, three proactive CRM projects were completed within RRCRL. One was an evaluation and analysis of a unique trash site east of White Rock Spring, another a linear survey of an historic trail that crosses the south end of RRCRL, and the last was data recovery of a component of a shelter site for a preservation project.

Clean-up at Stripper's Cabin. In 1987 the Red Rock Park Manager requested I submit a recommendation to the Area Manager concerning archaeological significance of a unique trash site east of White Rock Spring. If the site was not considered eligible for nomination to the NRHP, the locale would become recipient of the annual Red Rock clean-up in April, 1988. The trash site was composed of four automobile hulks, the remnants of a poorly-made sandstone two-room structure, remnants of a makeshift stove and icebox, and approximately two hundred artifacts consisting of nails, ceramics, metal, and auto parts. The site was initially recorded by Kevin Rafferty in 1981 as 26CK3487/BLM 53-3461. Due to the isolated nature of the area and the potential for solitude, Rafferty named it "Hermit's Cabin".

Members of the Veteran Motor Car Club of America investigated the autos and some of the associated auto parts in 1982. I examined a sample of the remainder of the objects in 1987. The combination of the results of the two analyses provided a cultural interpretation of the site (Myhrer 1987). I concluded that at some time during the 1950s the fault canyon wash east of White Rock Hills was chosen as the locus of an auto stripping operation. The secluded nature of the canyon would have provided a natural cover for the operation, after which the auto hulks were abandoned on site. The paucity of domestic artifacts and the presence of a very poorly-made structure indicated use of the site was very short, perhaps only months. The autos were likely transported from Las Vegas, stripped at the site, and the parts taken back to Vegas or other areas to sell. I felt the name "Hermit's Cabin" was no longer appropriate in view of the new interpretation and I renamed the site "Stripper's Cabin".

An agency determination that *Strippers Cabin* site did not qualify for nomination to the NRHP under 36 CFR 60.4 was reviewed by the Nevada State Historic Preservation Office (SHPO). A clean-up in April, 1988 resulted in the removal of the loose trash. The auto hulks and the remains of the sandstone structure were left in place.

Inventory of the Old Spanish Trail/Mormon Road. As a result of a compliance-based inventory in 1987 of lands north of RRCRL, 1.5 miles of the ***Old Spanish Trail/Mormon Road*** were walked by BLM archaeologist Stanton Rolf and I. At this point we formulated a plan to walk the remaining trail from Las Vegas to the California border on a recordation and evaluation project. This CRM undertaking took two years to complete. A two-mile portion in the south part of RRCRL, which is part of a larger five-mile segment of the route in Cottonwood Valley, was determined to have retained integrity and is considered eligible for nomination to the NRHP under 36 CFR 60.4 (a). Artifacts collected from this section of trail were incorporated into an heritage display and the document describing the survey was published by the BLM Nevada State Office (Myhrer *et al.* 1990).

Excavation at Willow Spring. In 1987, Red Rock Rangers noted that a pictograph panel composed of five red handprints was being defaced by recreational climbers. The pictograph panel is located above a shelter midden in the Willow Spring archaeological complex (26CK370/BLM 53-486). As a method to deter people from climbing on this particular rockface, rangers suggested planting a cactus beneath the panel. This plan was adopted and a treatment plan (Myhrer 1988) that included excavation of the midden beneath the shelter/panel was written and submitted to SHPO and the Advisory Council on Historic Preservation. Concurrence on the plan was received from both agencies. The treatment plan was designed to obtain data on chronology and the cultural associations of prehistoric users of Red Rock.

In May, 1989, Stanton Rolf and I excavated a unit measuring 0.5 X 1.5 meters to bedrock at 75 centimeters below datum. Las Vegas District Cultural Resources Report 5-1950 (Myhrer 1989) describes the work and results. From this relatively small excavation exercise, 23 ceramic sherds, five projectile points (whole and incomplete), two grinding implements, four lithic tools, and 247 flakes were recovered. Three research questions were addressed in this investigation. First, concerning cultural tradition, the presence of 21 Paiute sherds of 23 total implys most use at this site complex was by Numic-speakers. The remaining two sherds are Virgin Anasazi. Second, concerning chronology, three of the points are Desert Side-notched (DSN) and the remaining two

are either DSN or Rose Spring. The diagnostic analyses of the both the points and the sherds fit with established time frames for occupation by both the Virgin Anasazi during and after A.D. 1000 and the Paiute after A.D. 1000. Third, the presence of obsidian flakes and mica material presumably used for tempering Paiute pottery indicates that the aborigines were carrying materials for distances up to 40 miles, probably on their routes of seasonal rounds.

Using the information gained from the excavation exercise at Willow Spring in combination with the field descriptions from the test pits by Brooks at Red Spring (1969), I ranked in this excavation report (Myhrer 1989) three research questions by priority for future work at Red Rock Canyon. Because it appears that most use of Red Rock may have occurred within the last 1000 years, a priority research question yet remains to identify earliest use of Red Rock Canyon. Was there indeed use of the zone as far back as 3000 B.C.? Second, was exploitation of the Canyon confined to the Paiute and Virgin Anasazi? If so, were the Paiutes the principal users? Although we know the Virgin Anasazi were in the Canyon around A.D. 1000, the Paiutes seem to have most intensively exploited the area over the past 2,000 years. Recent mitigation work on BLM lands in north Las Vegas Valley indicates the mesquite dune environment on the Eglington Escarpment may have been primarily used by the Virgin Anasazi (White *et al.* 1990). Perhaps the Paiute stayed closely to seasonal rounds that in this specific area used major water sources such as Big Springs, Duck Creek, Las Vegas Wash in Las Vegas Valley and the Red Rock environment. These two questions can be studied both in surface and subsurface work. The third research question concentrates on ceramic manufacture in Red Rock. Were the Paiute obtaining local or non-local tempering minerals and clays and firing their wares on-site? Recovery of unfired ceramics and other tempering minerals to explore this question would likely be limited to excavations.

Summary of Archaeological Research in Red Rock Canyon

There have been sixty years of archaeological research in the area defined as RRCRL. It is estimated that in Red Rock 10,800 acres were inventoried at Class III level standards. This is based on an estimation that about 10,000 acres were inventoried during the NAS surveys, and another 820 acres covered in small, compliance-based projects after 1975. Of the total 63,110 acres in RRCRL, 17 percent were surveyed for cultural resources.

The purposes and direction for archaeological work have changed through the past 25 years due to the maturity of CRM and as a response to the dramatically increasing use of the area for recreation needs. Harrington's 1930 recordation of Willow Spring and the Shutlers' (1962) documentation of sites served to tantalize professional and avocational archaeologists into further exploration of the rich cultural heritage in the canyon. The late 1960s surveys by NAS attempted to continue the previous interest-oriented desires of their forerunners. The later 1970s NAS reports show that the perceived needs had changed, and that the initial direction of CRM as we know it today was beginning to influence archaeological research. Recordation of sites for informative purposes had taken second place to evaluation of cultural resources in terms of preservation and protection from recreational impacts.

The decade of the 1980s was directed by CRM for compliance purposes. Construction of an interpretive Visitor's Center required a surface survey and evaluation. Horse endurance rides and the paving of the loop road required linear inventories. Proposed trails needed survey by qualified archaeologists prior to surface disturbance.

The evaluation for clean-up of *Stripper's Cabin*, the walking inventory of the *Old Spanish Trail/Mormon Road*, and excavation at Willow Spring by BLM archaeologists in 1989 indicates there is a new trend for the 1990s. This direction is one of detailed evaluation, testing, data recovery, and proactive management for preservation. Although a minimal number of new surface-disturbing actions should be required for management of RRCRL, evaluation and preservation activities should be increased.

The management direction prescribed for RRCRL is the same as that for SRA as described in the data review document of 1990 (Myhrer 1990). BLM Manual 8111.21 provides direction for assigning uses of cultural resources for management direction. Significant sites in isolated areas that are not presently in danger of impacts will be managed for conservation. Districts or sites that may be adversely impacted from Federal actions and are not likely to qualify as representative samples will be managed for information uses such as data recovery efforts. Sites that are in areas of high recreational impacts, have interpretive potential, but lack integrity or have been subjected to data recovery exercises, will be managed for public uses such as interpretive exhibits-in-place. Some sites may qualify for more than one purpose, but in such cases a leading use will be assigned.

The following section discusses in a general sense the number and kinds of sites recorded in RRCRL. This information was obtained from a thorough data review of BLM archaeological base maps and site records.

RECORDED ARCHAEOLOGICAL SITES IN RED ROCK CANYON RECREATION LANDS

A total of 153 recorded sites were identified in Red Rock Canyon Recreation Lands from a review of base maps and records filed in SRA of Las Vegas District BLM. The sites were categorized by type and their locations plotted on surface management maps at a scale of 1:100,000. The maps and the list of categorized sites are in the cultural resources files of SRA. A description of subzoning for locational distribution, site type ranking, and site type definition is presented below.

Subzoning and Locales

The concept of site patterning is used in archaeology to aid in predicting areas of sensitivity. Delineation of a region into smaller areas based on geographic variables provides a basis for comparison. SRA was divided into 19 "zones", of which RRCRL was one, in the summary of the SRA data review (Myhrer 1990). As a means of comparison for this document, RRCRL is subdivided into three "subzones", consisting of *Red Rock Summit*, *North Red Rock Escarpment/La Madre Mountain*, and *South Red Rock Escarpment/Cottonwood Valley*. Red Rock Summit includes the top of the Red Rock escarpment and the land on its west side. North Red Rock Escarpment/La Madre Mountain and South Red Rock Escarpment/Cottonwood Valley zones are on the east side of the escarpment and divided north/south by Oak Creek Canyon. These subzones are further divided into 18 "locales". Figure 3 illustrates these divisions in RRCRL.

Site Types

The recorded sites in RRCRL were categorized under seven major types: 1) Roasting Pits/Complexes, 2) Rockshelters, 3) Rock Art, 4) Camp sites, 5) Prehistoric Structures, 6) Historic Structures or trash scatters, and 7) Rock Features such as a rock rings or alignments. Many sites possess more than one feature, for example, roasting pits are often found in association with rockshelters. A few sites have features of all categories. The information from the recording forms was used to place each site into only one category based on a ranking, described below, that primarily selected for the best management potential.

Because a rockshelter is considered to have the most potential for management uses, its presence at a site dominates the ranking of all other types. Roasting pit sites are ranked second, primarily due to the unexplored potential, especially considering the plethora of roasting pits in RRCRL. Due to its high potential for public uses, rock art is third ranked. Rock art that is associated with a rockshelter site is also highly ranked. A pit structure is fourth ranked. An open site with artifacts or hearths is called a camp site and is ranked fifth. Historic remnants are placed into the sixth type. Finally, a rock feature is ranked seventh. Table 3 lists the distribution of sites by type, subzones, and locales.

Roasting Pits. Sixty-five sites possess one or more features that reflect distinctive cooking activities, called roasting pits. These circular pits, constructed mainly of limestone rocks, were primarily used to roast bulbs from the agave plant. A hole was dug into the ground, the food placed within, a fire started above the edibles, and limestone rocks placed on top. Limestone is ideal for retaining heat but once used turns white and will no longer function as an efficient heat-conductor. Consequently, each time new foods were roasted fresh limestone had to be gathered and the pile of rocks that comprised the roasting pits grew through time.

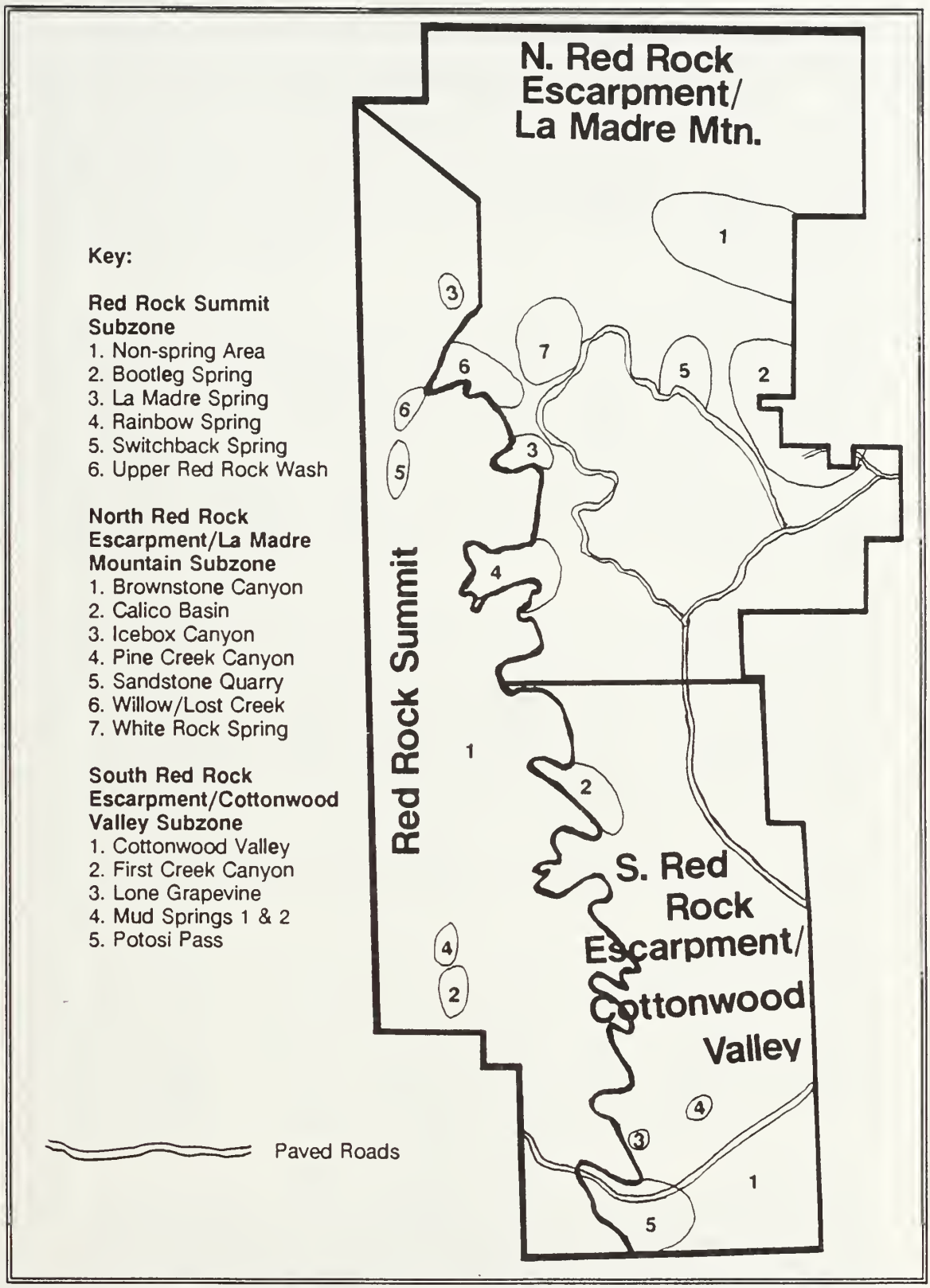

Figure 3. Delineation of subzones and locales within Red Rock Canyon Recreation Lands.

Table 3. Distribution of site types by subzones and locales in Red Rock Canyon Recreation Lands zone.

Subzones/Locales*	Site Types								
	RP	RS	RA*	RA	CP	ST	HT	RR	Total
RED ROCK SUMMIT SUBZONE									
1. Non-Spring Area	25	4			17				46
2. Bootleg Spring	1	1			4				6
3. La Madre Spring						1			1
4. Rainbow Spring	10	1			4				15
5. Switchback Spring	1								1
6. Upper RR Wash	3	2	2						7
Number in Subzone	40	8	2		25	1			76
Percent of Subzone	53%	11%	3%		33%	1%			
Percent of Site Type	62%	31%	20%		78%	17%			
Percent of Total Red Rock Sites								50%	
NORTH RED ROCK ESCARPMENT/LA MADRE MOUNTAIN SUBZONE									
1. Brownstone Canyon	7	3		2					12
2. Calico Basin			2	3	1			1	7
3. Icebox Canyon		1			1	5			7
4. Pine Creek Canyon	1				1				2
5. Sandstone Quarry	4	2	4	2			2		14
6. Willow/Lost Creek	2	4			2			8	
7. White Rock Spring	3	1					1		5
Number in Subzone	17	11	6	7	5	5	3	1	55
Percent of Subzone	31%	20%	11%	13%	9%	9%	6%	2%	
Percent of Site Type	26%	42%	60%	78%	16%	83%	75%	100%	
Percent of Total Red Rock Sites								36%	
SOUTH RED ROCK ESCARPMENT/COTTONWOOD VALLEY SUBZONE									
1. Cottonwood Valley	5	5		1			1		12
2. First Creek Canyon					1				1
3. Lone Grapevine			1		1				2
4. Mud Springs 1 & 2		2	1	1					4
5. Potosi Pass	3								3
Number in Subzone	8	7	2	2	2		1		22
Percent of Subzone	36%	32%	9%	9%	9%		5%		
Percent of Site Type	12%	27%	20%	22%	6%		25%		
Percent of Total Red Rock Sites							14%		
ALL RED ROCK TOTALS									
Total Quantity	**65**	**26**	**10**	**9**	**32**	**6**	**4**	**1**	**153**
Total Percentage	**42%**	**17%**	**7%**	**6%**	**21%**	**4%**	**3%**	**1%**	

Key: * = Locales within subzones are numbered to correspond with divisions shown in Figure 3; RP = Roasting Pit, RS = Rockshelter, RA* = Rock Art component, RA = Rock Art, CP = Camp site, ST = Structure, HT = Historic, RR = Rock Feature.

Blair (1986) notes that in California Wash, an area presently lacking agave, other plant resources and animals were cooked in roasting pits. Milling or food processing equipment, lithic materials and ceramics are often associated with these features. Excavations conducted on roasting pits in Hidden Valley west of Valley of Fire and in the Virgin Mountains yielded numerous artifacts but the pits generally lacked internal structure (Ellis *et al.* 1981, 1982). This is considered a problem for stratigraphic recordation. Because charcoal was mixed by the aborigines during repetitive cooking episodes, radiocarbon analysis can yield questionable single-use dates. Other methods of providing chronological data must be used, such as ceramic correlation studies, possible dendrochronological analysis, or alternate ways of using the mixed charcoal dates. Roasting pits have best potential for yielding scientific data on subsistence practices and chronology and will be managed for information uses until such studies are completed.

Rockshelters. A total of 26 rockshelter sites are present in RRCRL. A rockshelter is a cave-like opening in rock that has resulted from erosional or faulting processes. Aborigines commonly used caves for shelter from the natural elements. Evidence of their fires can be found in the blackened staining on the walls and ceilings of the caves. Many cave openings are partially blocked by walls constructed of brush and boulders. Intensively occupied caves contain midden deposition within the floor and in the apron surrounding the entrance consisting of carbon-blackened soil filled with artifacts and bones. An undisturbed midden has excellent potential for yielding significant information on the prehistory of the region. Potential for stratigraphic interpretation and the yielding of charcoal for radiocarbon dates is high. The remnants of cooking, food processing, and toolmaking activities are found in the forms of ceramic sherds, seeds, remnants of corn, grinding implements, and lithic stone materials such as flakes and formed bifaces. Pieces of basketry and rope have also been recovered from shelters.

Rock Art. Nine rock art sites were recorded in RRCRL. There are some unrecorded sites that are presently being investigated by members of Archaeo-Nevada Society, in particular Grace Burkholder and LaRae Bringhurst. Rock art panels are common in certain areas, usually associated with water sources such as springs or catchments. Rock art is one of the earliest types documented in this region. Shutler and Shutler (1962) illustrate several petroglyph sites in RRCRL. Cunningham (1978) conducted research work at Lone Grapevine Spring in the south portion of RRCRL. Green (1986) discusses rock art at Willow Spring and other Red Rock complexes. Rock art is defined as the modification of a rock wall or face by pecking or painting figures or designs. Sandstone with a patinated surface is perhaps the best vehicle for illustrating this type of aboriginal visual creativity, but limestone and basalt were also commonly used. Some rock art panels are associated with rockshelters, roasting pits, artifacts, or other features. Although rock art designs have been attributed on a general level to all groups over a long period of time, there is at present no positive method of dating individual sites. Rockshelter sites with associated rock art are placed into a Rockshelter/Rock Art site type. Ten sites are classified as Rockshelter/Rock Art.

Camp Sites. There are 32 sites classified as Camp Sites in Red Rock. Camp site locales possess lithic material such as flakes or formed bifaces, ceramics, faunal bone, or milling equipment, and are often associated with stained soil from years of repeated habitation. These often reflect relatively temporary stops on a path from spring to spring, resource to resource. Potential for yielding important data varies from low to high depending on the presence or absence of diagnostic artifacts and subsurface deposition. The Paiute, Virgin Anasazi, and Lower Colorado aborigines all manufactured distinctive kinds of pottery within the past 1500 years. Camp sites and lithic scatters are found in all areas but are most prevalent on terraces overlooking major washes and surrounding springs.

Prehistoric Structures. Six unverified Structure sites were recorded in this area. Structures were presumably dug or constructed by the Anasazi but it is possible they could have also been built and occupied by hunter-gatherers. Rooms for storage or cooking and sleeping that were dug wholly or partially into the ground are called pit structures. Stratigraphy is excellent in undisturbed pit rooms. Rooms constructed with the floor on the surface are referred to as pueblos. Potential for obtaining significant information is high at such sites. Analysis of data from buried strata on floors

of pueblos has yielded significant information on room size, artifacts, and plant remains at sites in the Lost City region of southern Nevada (Shutler 1961; Myhrer and Lyneis 1985; Lyneis *et al.* 1989). All six unverified structure sites were recorded by one archaeologist as "pithouses" in Icebox Canyon.

Rock Features. One recorded site is composed of undefined stone features, a site type that may have potential for scientific uses. Ferraro (1982:42) refers to these rock features as fragile pattern sites. Because rock rings are usually found near locales of resource concentrations including the terraces above Meadow Valley and Las Vegas Washes, and artifacts such as milling equipment and flaked lithic materials are sometimes found in association, it seems plausible to suggest they may have been used for caching plant resources. Determinations have been made in some circumstances that such undefined sites be preserved for times when better scientific techniques are present to retrieve data. Although there is a paucity of such sites in RRCRL, a massive complex of more than 50 rock rings (26CK3373/BLM 53-5369) was recorded by Nevada Department of Transportation archaeologists about one mile east of the southeast RRCRL boundary. It is likely that the habitants of Red Rock Canyon were making base camps at the shelters in the canyons and conducting collection activities along the major washes east of the escarpment.

Historic. Four Historic sites are present in Red Rock. Historic rock foundations from a mining site at Sandstone Quarry and the remains of a ranch in Pine Creek Canyon are present. What appears as an old dirt road in the south portion of the park is actually the remnant of the *Old Spanish Trail/Mormon Road*. The remaining site is an historic isolate. Potential is often high for the yielding of important data on chronology, subsistence and other cultural processes.

Distribution of Site Types in Red Rock

Inspection of Table 3 reveals some interesting points concerning distribution of site types within Red Rock as a whole. Of the 153 recorded sites, 42 percent are composed of one or more roasting pits, classified as roasting pit sites. Rockshelter sites comprise 17 percent of the total. Rock art sites without rockshelters account for six percent, while rock art/rockshelter sites constitute seven percent of the total number of sites. Camp sites comprise 21 percent of the total. Four percent are unverified structure housepits. Only one site is composed of rock features. Finally, three percent of the sites are historic. None of the recorded sites are isolate artifacts.

Examination of Table 3 also yields a view of site types by subzones. The greatest percentage of roasting pit sites (61 percent) are in the Red Rock Summit subzone. Rockshelter sites are somewhat evenly divided among the three subzones, with a slightly larger percentage in the North Red Rock Escarpment subzone. The highest percentage (68 percent) of both rock art/rockshelter and rock art site types are present in the North Red Rock Escarpment subzone. Most camp sites were recorded in the Red Rock Summit. And as could be expected, most historic sites are in the North Red Rock subzone surrounding Sandstone Quarry.

A general summary is that roasting pit sites are most prevalent in the Red Rock Summit subzone, rockshelter and rock art sites in the North Red Rocks, and a variety of sites are found in the South Red Rocks subzone. All subzones show a tendency for users to favor water sources, but other factors must be linked to the differential placements of roasting pit and rock art/rockshelter sites. The most obvious explanation is attributed to specific geologic areas. The presence of a high number of roasting pits in Red Rock Summit is linked to a limestone alluvium, an abundance of agave, the presence of several springs, and an elevation above 5000 feet. The sandstone cliffs with their shallow caves and patinated faces on the east side of the escarpment likely facilitated the occupation of rockshelters and the creation of rock art. I interpret the data on the distribution of site types in RRCRL as an indication that future CRM should place priority on the research of roasting pits and rockshelter/rock art sites in these two subzones.

RECOMMENDATIONS FOR CULTURAL RESOURCES MANAGEMENT IN RED ROCK CANYON RECREATION LANDS

There are three questions to be encountered before planning for the future CRM in RRCRL. First, does the 17 percent total area surveyed in Red Rock represent a biased or non-biased sample? For example, can we expect to multiply by six the number and kinds of recorded sites to assume a projected total for Red Rock, or does the sample represent an intuitive bias on the part of the surveyors and an assumption that most sites have been found and recorded? Second, how well were the sites recorded? Recordation standards and styles have changed immensely since the late 1960s and inspection of the site records for this data review indicates certain environmental and site descriptive information is missing. Can present workers use those site records to address questions on National Register nomination eligibility? Third, how much has recreational use of Red Rock changed or impacted archaeological sites?

Sampling Accuracy and Value

What kind of sample inventory was taken of RRCRL? An estimated 10,000 acres were inventoried during the 1969 to 1977 NAS/ARC surveys, and another 820 acres sampled for compliance-based surveys after 1975, for a total of 17 percent inventoried.

The NAS/DRI reports indicate those projects had objectives to record and evaluate sites in areas proposed for increasing recreational uses. They are considered intuitive in the sense that archaeologists chose areas for inspection that had potential for visitor use, but areas that also were selected for prehistoric occupation. The assumption is accepted that the kinds of attributes that make certain locales appealing for recreationalists today are the same traits that attracted prehistoric hunter-gatherers in the past. These attributes include the abundance of floral and faunal resources, water sources, relatively cooler temperatures in summer, and aesthetic beauty. Consequently, I consider the pre-1975 surveys to have been intuitively biased, but with positive results.

The post-1975 compliance surveys in RRCRL were also biased, but in a different fashion. Areas that required inventory were those proposed for surface disturbance. For the most part, these areas are not ideal for contemporary visitors and results of the surveys indicate they were also not chosen for prehistoric uses. The areas include locales of alluvial deposits for sand and gravel pits, an area in Red Rock Wash for a detention basin, and segments of land for roads and off-highway trails. Two factors facilitated the selection of these areas for recent construction projects. First, the designation of Red Rock Canyon as a park and recreation area prohibited most surface-disturbing projects in user-friendly areas. Second, the design of roads, gravel pits, and detention basins generally require flat, low-lying areas that are easily accessible by machines, areas that are not ideal for recreationalists or aboriginal users.

I conclude that the sample inventoried in Red Rock reflects a bias, but one that has been checked and balanced through time. The pre-1975 intuitive surveys were designed to record the bulk of sites in the most sensitive areas in Red Rock Canyon. The post-1975 surveys were directed by Federal actions that were restricted to areas determined as non-sensitive through preliminary RRCRL planning designations. The latter inventories validated the accuracy of the intuitive surveys because only 4 of the 153 recorded sites in RRCRL were found during these actions. In a general sense, the inventories that covered 16 percent of the land in RRCRL are considered valid in terms of having identified most, if not all, of the sensitive locales.

The question that follows concerns quality and accuracy of the surveys on a locale-specific scale. For instance, the clustering of several roasting pits and complexes around springs in the Red Rock Summit zone implies that these features may be better analyzed in terms of archaeological districts.

Additional recordation of the sizes of individual roasting pits and distances between individual features in conjunction with data on present numbers of agave plants may provide information for analysis on the length of use of sites and districts.

I conclude that on a broad scale the Red Rock zone has been adequately sampled to identify most areas of sensitivity. But within these areas, or subzones, there is a need for consistency and accuracy in recordation.

Site Recordation: Quality Control

How well were the sites in Red Rock Canyon recorded? During the first twelve years of inventory in Red Rock sites were poorly recorded, at least in terms of contemporary standards. Emphasis at the time was centered on noting the locations of sites on maps, not on obtaining accurate measurements of features. Inspection of the site recording forms from the Red Rock Summit surveys shows a lack of consistency in recorded data. Evidence of a shift in emphasis on recordation techniques occurred around 1982 when Sandstone Quarry received intensive documentation, and a CRMP and a NRHP nomination for Brownstone Canyon were prepared under the initiative of Kevin Rafferty, Area Archaeologist at the time. Because few additional sites have been discovered in Red Rock since the early 1980s, and agency funding for proactive work to update files has been severely limited, recording forms from 20 years ago remain the principal records for most sites in Red Rock.

How useful are the recording forms for most sites in Red Rock? Beyond providing relative locational information, they only identify site types. Also, the records are not worthwhile in terms of research nor do they address questions helpful for evaluating for eligibility for nomination to the NRHP.

Recreation Management and Impacts to Archaeological Sites

How has recreational use of Red Rock changed or impacted archaeological sites? The initial management actions for RRCRL incorporated recreational use patterns that had been established prior to the implementation of a CRM program in 1975 and before the development of the Red Rock Master Plan in 1978. Established trails and roads were designated and maintenance programs developed without the benefits of review by cultural resources specialists. In particular, two existing trails and two recreational areas that cut across and wind through complex archaeological sites were accepted and improved. The sites in which these trails and picnic/parking areas are located are described below.

Lost Creek (26CK1394/BLM 53-371). This prehistoric archaeological complex recorded in 1976 during the Red Rock Archaeological Inventory (Brooks *et al.* 1976) consists of two roasting pits, one shelter with red pictograph staining, and a midden in the apron of the shelter. Figure 4 is a map of the site initially created by the survey archaeologists (Brooks *et al.* 1976). I redefined the map in 1990 based on present trail uses. The trail winds around the roasting pits and through the midden-deposited apron of the shelter, and back into the wash of the canyon. The site was "built" by aborigines onto the sloping colluvial Willow Canyon wall escarpment. Roasting pits erode naturally in this kind of environment. Maintenance of the trail has actually shored up one of the pits and in a manner aided in preservation. In contrast, placement of the trail through the midden in the apron in front of the shelter has likely impacted the top layers of deposits. The midden locus has not been explored and its depths are unknown.

Willow Spring (26CK486/BLM 53-370). This site is composed of six roasting pits, a shelter with five red-stained aboriginal handprints, and a midden, and is situated at the base of the north escarpment wall of Willow Spring Canyon. Figure 5 is a site map initially drafted in 1976 (Brooks *et al.* 1976), updated by Archaeo-Nevada volunteers in 1988 under my direction, and revised after my reevaluation of the site in September, 1990.

Figure 4. Map of Lost Creek archaeological complex.

According to Brooks *et al.* (1976:2-3), an avocational archaeologist partially excavated the site complex in the 1960s. Later in the decade the site was incorporated into a picnic area. Two roasting pits at the west end were leveled for picnic tables and an outdoor toilet was placed into the subsurface of another large roasting pit. There have been attempts to proactively manage the intensive recreational use at Willow Spring site complex in terms of turning the site into an interpretive exhibit-in-place. The last endeavor in 1985 was the placement of numbered posts that corresponded to information on a handout. The bulletin was not professionally written and the posts placed into the ground were destroyed by visitors.

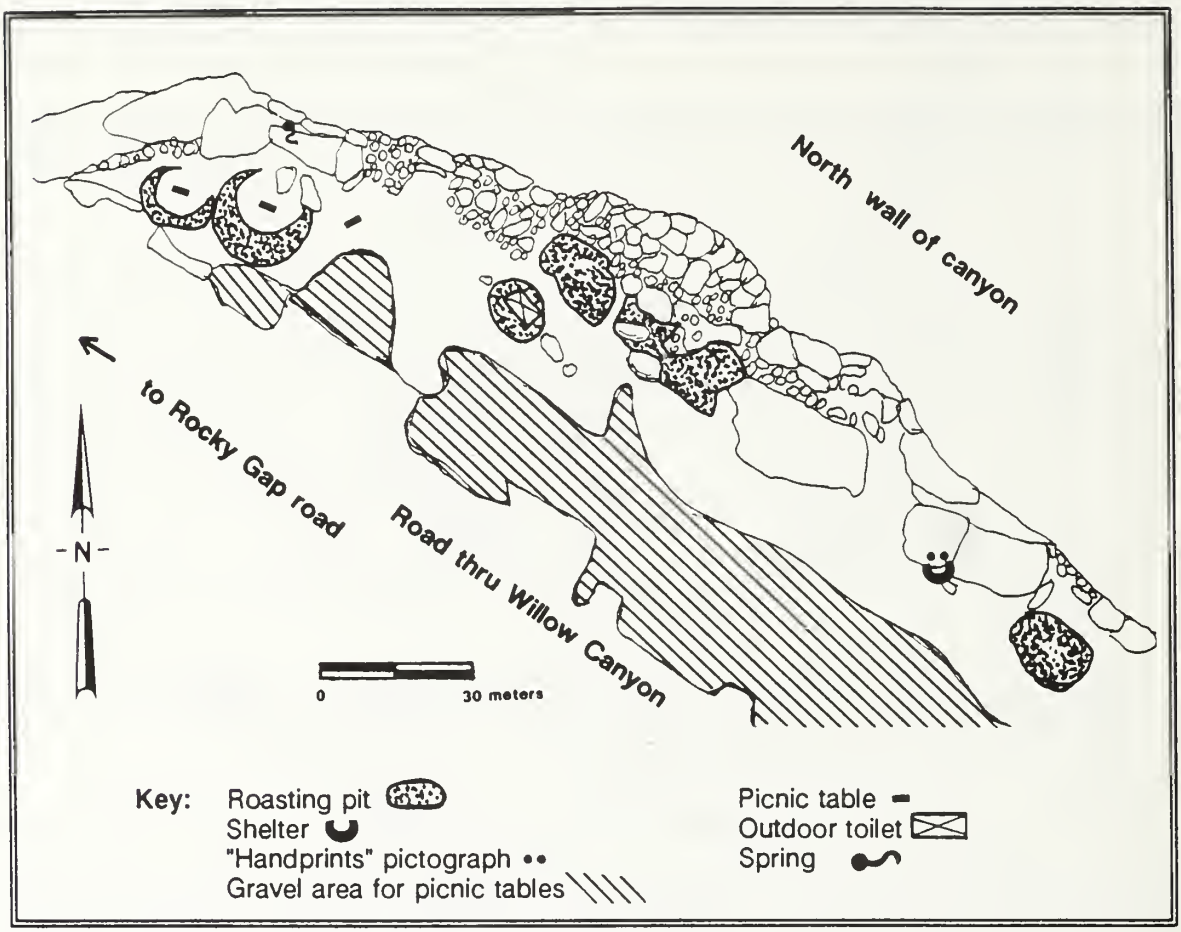

Figure 5. Map of Willow Spring archaeological complex.

As a result of noted defacement of the shelter handprints from recreational climbing, RRCRL staff members proposed planting cactus at the base of the pictograph panel to discourage this kinds of activity on this rock. Because the cactus was proposed to be planted in a midden, I wrote a research design for data recovery, conducted consultation, excavated the midden, and documented the results (Myhrer 1989). The cactus was planted in 1990 and the defacement from rock climbing stopped.

Red Spring (26CK458/BLM 53-2380). Red Spring prehistoric complex is composed of small shelters, a possible midden area, a rock ring feature, a meadow that might have been used for ceremonial purposes, and numerous petroglyphs. Shutler and Shutler (1962) collected two manos, a chopper, and a hammerstone from the complex, and designated the artifact locus as 26CK224/BLM 53-2338. The site was tested in 1969 with 11 pits excavated along the base of the escarpment (Brooks 1969), but the notes are not in the files. Other shelters and rock art loci around the spring were given Smithsonian numbers of 26CK449-452. Three to four circular rock features (BLM 53-377) were recorded during a powerline inspection in 1976. This locale is intensively used for recreational purposes. Figure 6 is a map of the site created from a composite of topographic maps, my sketch maps, an aerial photo, and an on-site revision by Susan Murphy of Archaeo-Nevada Society working under my direct supervision.

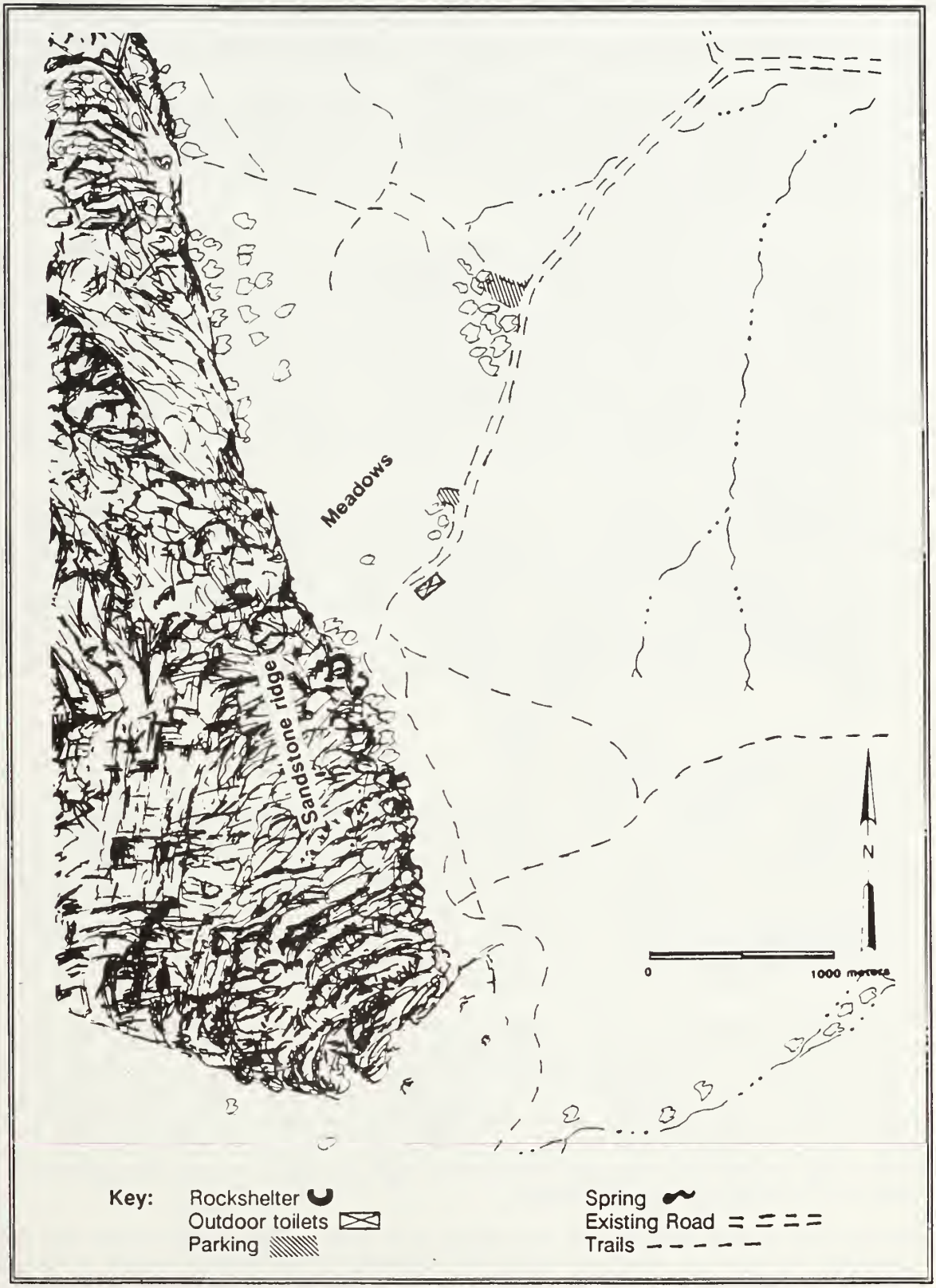

Figure 6. Map of Red Spring archaeological complex.

Picnic tables have been placed into the meadows, two small parking areas cut and graveled, outdoor toilets installed on the east edge of the site, and thousands of visitors every year climb the west rock wall that exhibits numerous petroglyph panels. In August, 1990, I conducted eight trowel probes into the site to determine exact locations for further probing/testing activities. In September, 1990 I spoke with Richard Brooks concerning his 1969 test pits. He noted that although the pits were sterile at about 30 centimeters below datum, there is the possibility that deeper test units could reveal evidence of earlier occupational episodes buried beneath years of spring riparian soil deposition.

Sandstone Quarry (26CK1427/BLM 53-455). Sandstone Quarry was an historic sandstone-block mine that operated from 1905 to 1912, and was recorded by Rafferty in 1982. A short road leading to a parking area with an outdoor toilet cuts through the site. The road is the widened trail used in 1905. Edges of two structural foundations, originally along the historic road are presently flush with the wider, contemporary road cut. Although it has not been documented, it is likely that deterioration to the foundations along the road cut is occurring. Another historic trail, a quarry, and the foundations of three additional structures are situated on the east side of the access road. The remnant of another structure is located north of the others. Several of the structural foundations have been dug by unauthorized people. Figure 7 is a composite map of the site created from topographic maps, my notes and sketches, a sketch map by Rafferty, and an aerial photo.

Other Recreational Impacts. Visitor use of RRCRL has tremendously increased in the past ten years, with projected increases for the next decade. In addition to the designated roads and trails within site complexes, described above, impacts have occurred from other recreational uses such as hiking. Although consequences of this activity have not been investigated, it is likely that minor impacts to isolated roasting pits, lithic scatters and other features have occurred in subzones such as the Red Rock Summit. The historic house foundation and associated trash scatter in Pine Creek is another resource that may have suffered impacts. Yet, due to the fact that vehicles are not permitted on most of the trails it is actually possible that only a small degree of impact has occurred.

Recommendations for Proactive Management

The answers to the questions directed above indicate that the sample inventories have located most areas or locales of sensitivity in RRCRL. Although the recording forms are not adequate for most sites, they have value in the sense they provide baseline information on locations and site types. Recreational uses of two trails and two activity areas have impacted in varying degrees certain cultural complexes in Red Rock, but the nature of these impacts cannot be ascertained without knowing more about the subsurface depositions of each site. In the absence of studies on impacts to cultural resources in RRCRL from general recreational use, I estimate that cultural resources outside of the designated trails discussed above have suffered relatively little.

A Management Strategy for Lost Creek, Willow Spring, Red Spring, and Sandstone Quarry. There are two immediate management alternatives for the trails and recreational areas at the associated archaeological sites. One choice is to close the trails both administratively and physically due to the acceptance that impacts have and will continue to occur to the sites. This alternative is unacceptable. These are widely-known, established trails that attract thousands of people every year. The agency does not have the resources to effectively close popular trails of this kind. Also, there is high potential that disgruntled visitors would walk the trails in trespass and vandalize the sites out of a sense of irritation or revenge.

The four sites have not been formally evaluated by BLM. Until the consultation process has been completed, the sites are considered eligible for nomination to the National Register of Historic Places under criteria in 36 CFR 60.4. Lost Creek, Willow Spring, and Red Spring complexes are eligible under criterion (d), the potential to yield information important in the prehistory of the region. Sandstone Quarry is eligible under (a), associated with a unique regional mine, and is also eligible

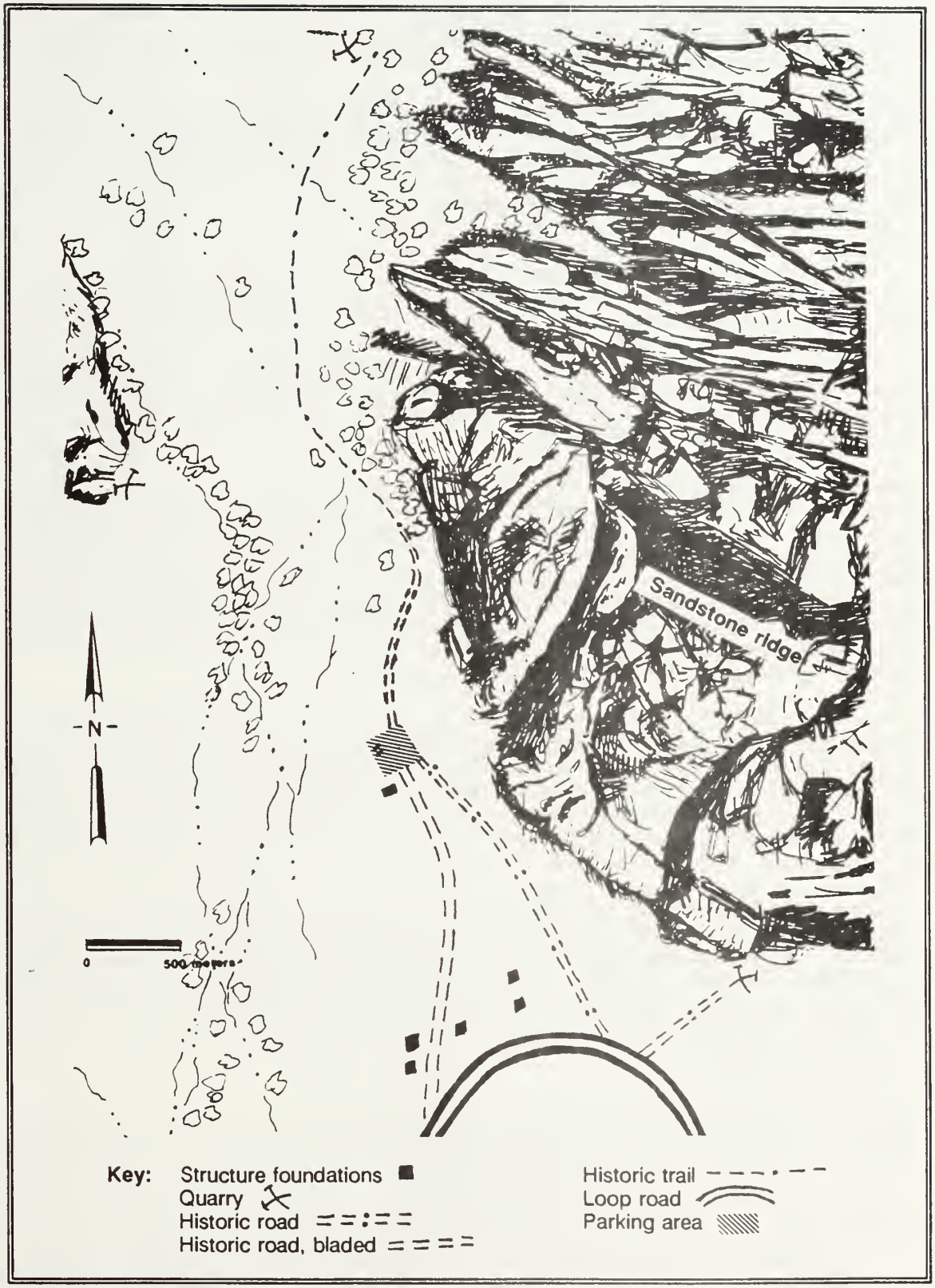

Figure 7. Map of Sandstone Quarry archaeological complex.

under (d). Further investigation at each site is necessary to complete a formal determination on significance. Whatever the determinations become, these sites additionally qualify for management for public values described in BLM Manual 8111.

Due to the present degree of high intensive public uses, the sites should be treated under Section 106 consultation as if adverse effects are occurring. The management strategy should consist of the following steps: 1) test for eligibility, 2) consult on initial determinations, 3) conduct a data recovery program if needed, 4) complete consultations on final determinations, and 5) develop project plans to manage for public uses. Project plan could be relatively simple and similar for each site.

In order to make determinations on eligibility, three of the sites require further probing and testing, and one should be determined not eligible without any further work. Based on the lack of remaining stratigraphic deposition documented during excavation of a midden unit (Myhrer 1989), and the fact that the site has been severely impacted from recreational uses including installation in the 1960s of an outdoor toilet in a roasting pit, and leveling of two other pit features for picnic tables, the Willow Spring complex is considered to lack integrity and should be formally determined as not eligible for nomination to the NRHP. If SHPO concurrence on this determination is received, the site should then be managed for public uses.

The midden outside the apron of the shelter at Lost Creek should be probed and tested for subsurface deposition under Nevada BLM guidelines (USDI BLM 1989). If stratigraphic deposition is found and integrity is present, then a data recovery plan should be written and implemented for the entire site. Although Red Spring was tested in 1969, there are no detailed results present in the BLM files, consequently, the site should be probed. An evaluation that may include testing is also needed at Sandstone Quarry. If analysis indicates that intact structural foundations are present at the site, a determination of eligibility should be written. At that point a decision should be made to determine whether additional protection measures are necessary or possible, or if data recovery or even reconstruction of the foundations is the most manageable alternative.

Until probing, testing and evaluation procedures are implemented, and formal determinations are submitted for SHPO review, educational interpretation should be continued. I propose that an existing draft interpretive brochure that describes cultural resources and associated Federal laws be finalized for distribution at the Visitor's Center. A great deal of recreational climbing is also conducted in the park and the first stages of an interpretive program for the organized climbing group members was initiated in 1990 by Red Rock Rangers. This program should be continued and expanded.

A Research Strategy for the Red Rock Summit Subzone. Based on analysis of the site recording forms written during the 1970s surveys for RRCRL, a large district or several smaller prehistoric districts are present in this canyon. The Rocky Gap/Potato Ridge road follows the canyon west of Willow Spring with numerous roasting pits, camp sites, and a few rockshelters located along its sides. The road is presently impassable for motorized vehicles. I propose that the Rocky Gap road be managed as a primitive hiking trail without any future maintenance. Another canyon runs north from Mountain Springs and contains numerous rockshelter/roasting pit complexes associated with Rainbow and Bootleg Springs.

The archaeological resources of the Red Rock Summit subzone are in many ways archaeologically similar to those in the South Virgin Peak Ridge in the Virgin Mountains, a canyon that holds several prehistoric roasting pit and rockshelter complexes. Both settings provide an excellent research potential to compare and contrast roasting pit complexes in different mountain ranges. Based on the results from the present amount of archaeological work in the RRCRL zone, I propose that most occupation in the Red Rock zone was by the Paiute with only limited use by the Virgin Anasazi and Lower Colorado groups. Occupation in the Virgin Mountains area was presumably dominated through time by the Paiutes, with intensive uses by the Virgin Anasazi from about A.D. 700 to 1150. The locus of the Anasazi occupation was the lower Moapa Valley, located about 25 miles west of

the South Virgin Peak Ridge. A research topic that focuses on interrelationships among the Paiute, Virgin Anasazi and the Patayan in both Red Rocks and the Virgin Mountains can be studied by a graduate student for a master's thesis. Fieldwork would consist of resurvey and recordation of sites identified during previous surveys in each of those areas. The sites should be analyzed in conceptual terms of archaeological districts. Roasting pits could be subjected to a variety of investigations using some examples of methods that are discussed in the section on archaeological site types in this document.

Following the distribution of the draft of this document in September, 1990, UNLV graduate intern Connie VonSleichter conducted a reconnaissance survey of the Rainbow/Bootleg Springs locales in the Red Rock Summit subzone. The results of her survey (VonSleichter 1990), in which sites were relocated and recorded as an archaeological distict on an IMACS form, indicate that there has been only moderate impacts, as a result of recreational activities, to archaeological sites near Rainbow and Bootleg Springs.

Uses for Brownstone Canyon National Register District. Brownstone Canyon (26CK462 through 470/BLM 53-476 through 485) is already listed on the National Register of Historic Places. I propose two management uses for this district. First, those features that are highly visible by the public, such as the roasting pits, Civilian Conservation Corps (CCC) dams, and the pictograph panel should be managed for public uses. This includes signing and interpreting the importance of the dams, the roasting pits, and the rock art panel. Second, the shelter and midden site located on the north edge of the east-west trending canyon should be probed or tested to determine depth and information potential. If testing indicates that integrity has been lost, or if the deposition has limited information potential, then the shelter should be managed for public interpretive uses. If the midden shows potential to yield significant scientific information, then the site should be managed for conservation and monitored on a weekly basis. If monitoring indicates the shelter is being impacted, then additional protection measures or evaluation for a data recovery plan should be implemented.

Summary of Recommendations

Red Rock Canyon Recreation Lands have been intensively used for recreational purposes for at least 25 years. Inventories for cultural resources have been conducted within the past 20 years. Although those surveys have located most areas of sensitivity, present uses for the site records are limited to locational and site typing information.

Management of the area as a park setting has fostered certain kinds of use by recreationalists. Existing trails run through sites that are significant for public uses, and possibly for information potential. The trails will not be abandoned, consequently, I recommend probing, testing, and evaluation of each site, and for those sites determined eligible, implementation of data recovery programs. Finally, those sites should be managed for public uses under BLM Manual 8111. With the exception of new recreational proposal projects, all presently sanctioned activities in RRCRL are non-destructive in nature. Continuing education for cultural resources preservation should be adequate to inhibit impacts to archaeological sites from recreational activities such as climbing and hiking.

I propose a research strategy that compares and contrasts the roasting pit/rockshelter sites in the canyons of Red Rock Summit with those in South Virgin Peak Ridge. The canyons are similar in terms of the kinds of sites present, but were presumably used by a slightly different mix of cultural groups. This project is ideal for a thesis project by a graduate student.

Brownstone Canyon National Register District should be managed in two parts. The rock art panel, roasting pits, and CCC dams should be signed for interpretation. The shelter should be tested and if there is potential for scientific research the feature should be managed for conservation.

Red Rock Canyon Recreation Lands is a unique geologic and biologic inset into the juxtaposition of the Mojave Desert and Great Basin. The environment was and is rich in resources including those cultural or human-caused in nature. RRCRL is one of only two designated geographic zones in SRA that are highly significant for cultural resources and that have also received an adequate amount of inventory to determine most areas of sensitivity. Although the recordation of most of the sites in the park was accomplished in the early 1970s and with methods that no longer meet most needs of CRM, the documents do provide baseline data sufficient for making general strategic management recommendations. I recommend that sites that are in heavily utilized areas in RRCRL be tested, evaluated, and subjected to data recovery procedures, then managed for public uses. Sites or features in less utilized areas that have potential for information uses should be managed for conservation.

Review by Interested Parties

Copies of the draft version of this document were submitted for review in November, 1990 to interested parties that included local professional archaeologists and the Moapa Band of Paiutes. The designated representatives of the Moapa Paiutes, the Cultural Committee, agreed that the intent of the document was a positive and constructive approach to preservation of representative samples. Although no written responses were received from local professionals, there were several positive oral responses. There were no negative responses.

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