A STUDY OF ROCK CLIMBERS IN JOSHUA TREE NATIONAL PARK: IMPLICATIONS FOR THE VISITOR EXPERIENCE AND RESOURCE PROTECTION (VERP) MANAGEMENT FRAMEWORK

FINAL REPORT

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JUNE, 1996

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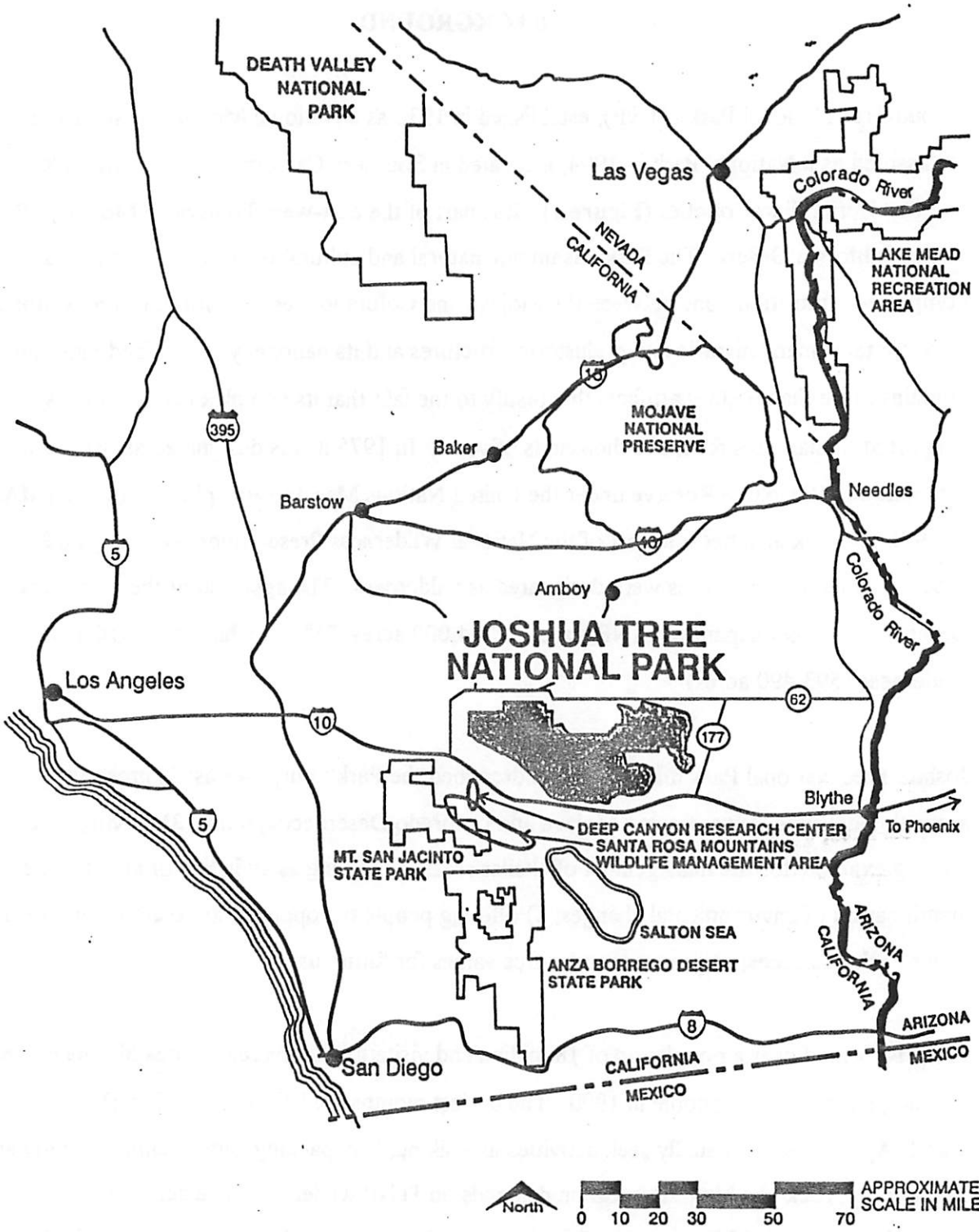
BACKGROUND

Joshua Tree National Park (JTNP), established in 1936 as a National Monument and since reclassified as a National Park in 1994, is located in Southern California and lies within Riverside and San Bernardino Counties (**Figure 1**). It is part of the east-west Transverse Mountain Range of the California Desert. The Park has unique natural and cultural resources occupying a compressed transition zone between the Mojave and Colorado Deserts. Joshua Tree National Park contains many historic and prehistoric structures and its nationally recognized museum contains more than 65,000 artifacts that testify to the fact that its complex ecosystem has supported human uses for many thousands of years. In 1975 it was designated as part of an International Biosphere Reserve under the United Nations Man and Biosphere Program (MAB). In 1976 the Park also became part of the National Wilderness Preservation System (NWPS) when 429,690 of its 560,000 acres were designated as wilderness. The approval of the California Desert Bill in 1994 expanded JTNP's area to 794,000 acres, 75% of which are legislated wilderness (593,490 acres).

Joshua Tree National Park managers have described the Park's purposes as: 1) preserving archeological sites; 2) preserving Mojave and Colorado Desert ecosystems; 3) serving as a guiding example for the management of similar areas; 4) serving as an indicator area for the identification of environmental changes; 5) offering people the opportunity to enjoy and learn about Park resources; 6) preserving resource values for future use.

JTNP is located near a population of 18 million and visitation has increased steadily since 1985, reaching over 1 million people in 1990. The busiest months are between October-December and March-April. Visitors usually seek activities like hiking, backpacking, sightseeing, camping and increasingly, rock climbing. Recreation demands on JTNP wilderness have accelerated in proportion to the rapid increases in visitation as a whole. Hikers, backpackers, rock climbers, horse users and others compete with each other and in some cases with vegetation and wildlife for

Figure 1. Location of Joshua Tree National Park.



NOTE: Management of the land added to Joshua Tree National Monument by the park legislation will be addressed in the wilderness and backcountry management plan.

REGION

JOSHUA TREE NATIONAL PARK
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DSC/Dec. '94/156/20,043A

resources (Moon, 1992).

Increases in Rock Climbing and Associated Impacts Although the collection of visitor use data has not been systematic, increases in popularity of JTNP as a climbing site have been called "explosive" by Park staff. Over 4,000 different climbs have currently been recorded within the Park. Climbers are extending their sites into more remote (designated wilderness) areas of the Park as well as "taking over" several front country campgrounds near popular rock formations. Wilderness designation is relatively new and boundaries come close to many heavily used climbing areas which complicates the situation for both managers and climbers. Climbing activities are responsible for a series of associated impacts to: (1) flora and fauna; (2) the abiotic geologic environment (soils, rocks, etc.); (3) to wilderness values; (4) and to the experience of other visitors. Managers at the Park have issued a project statement describing the need for research on which they might refine a plan for climbing management (JTNP, 1992a).

Climbing in Wilderness Portions of the Park Of particular concern is the management of climbing in the wilderness portions of JTNP (JTNP, 1992a). The Wilderness Act of 1964 (Wilderness Society, 1984) establishes that the lands under the NWPS shall be administered "...for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness;..." (Sec. 2, (a)). It therefore requires that the climbing experience within designated wilderness be of a different nature than that in other areas of the Park. Managers at JTNP wish to know if climbers differentiate between a wilderness and a non-wilderness climbing experience. To what extent and for how many is climbing a wilderness-dependent activity? It may be that some climbers can be routed to non-wilderness portions of the Park or other areas and still be satisfied with their experience.

The Wilderness Act also recognizes wilderness as "an area where the earth and its community of life are untrammeled by man...retaining its primeval character and influence...with the imprint of

man's work substantially unnoticeable;..." (Sec. 2,(c)). To resolve existing problems at the Park, it will be important for managers to establish and then communicate the norms for acceptable climbing techniques, attitudes and equipment in both wilderness and non-wilderness portions of JTNP. Top roping, hand drilling, elimination of bright colored equipment, minimized bolting (as of February 1993, there is a moratorium on bolting in wilderness in effect pending further studies) and other regulations can be utilized to protect wilderness values. There is a need to assess preferences for setting attributes within the Park as well as the normative differences (evaluative standards - to be discussed) about the various climbing and management practices that currently exist or might be initiated.

Climbing Information There has been a proliferation of climbing guide books that direct climbers to JTNP and that influence site selection and perhaps subsequent behavior. Some climbing magazines describe JTNP as the world's most popular climbing area (JTNP, 1992a). Information of this sort may need to be analyzed for its potential to influence climber behavior. Climbers themselves will be able to tell researchers about a variety of factors influencing their current and future behavior. Future trends in climbing are of concern to Park officials since they may be accompanied by additional impacts.

Resource and Climbing Management This study has, in part, been stimulated by recent correspondence from the NPS Division of Ranger Activities stating that each park with significant climbing activity will develop a Climbing Management Plan consistent with NPS policy on management of recreational uses which includes: (1) what park resources are being or may be affected and under what circumstances; (2) the climbing techniques which are necessary for the pursuit of climbing, and what their associated impacts are; (3) what levels and types of impacts associated with climbing in the area are acceptable (do not impair park resources), and; (4) the level and manner of climbing use, along with attendant levels and kinds of mitigating management actions which will leave park resources unimpaired, and assure no significant conflict with other park users (USDI, 1992). JTNP approved a tentative Climbing Management Plan in 1993, where it is clearly admitted that more information is needed to document biophysical and social impacts

associated with rock climbing - especially climbing that uses ropes, removable and fixed anchors and other aids - and the need for this and other studies is listed under its "Specific Management Objectives" section (JTNP, 1992a).

The "clean climbing" techniques favored in the 70's and early 80's, where climbers used fewer artificial aids that scar the rock (like pitons that used to be permanently hammered into the rock), have given way to an increase in the use of fixed anchors (bolts placed into holes drilled in the rock - often with power drills - which allow climbers to scale previously unclimbed faces or to descend more rapidly by rappel from many climbs), gluing and chipping to improve hand and footholds. The climbing lobby is vocal and well organized and prone to taking legal action against regulations that limit access or type of climbing activities (Jimmerson, 1992; JTNP, 1992b). At the same time, the lobby has assisted Park managers with the purchase of outhouses and trail markers and participated in planning and management work groups.

The Park Service wishes to be able to document both the biophysical and social impacts of rock climbing using fixed anchors and other aids. This study looks at social impacts and complements a sister study being done on biophysical impacts (Knight and Camp, 1994). Social impacts are those that affect the experience of visitors to JTNP and includes their perceptions of acceptable levels of environmental impact, encounters with others, the propriety of certain types of equipment, regulations and management techniques etc. Environmental and behavioral norms will differ among different types of climbers. Levels of perceived conflict among climbers themselves and between climbers and other visitors (Culhane, 1989; Gehrke and Medberry, 1992) may follow normative differences, differences in desired experience outcomes, differences in the amount of climbing experience and other variables. Managers who may wish to use a range of site specific visitor management techniques depend on good information about visitor norms, perceptions of impact (Vaske et al., 1993), motivations (Driver and Brown, 1984), socio-demographic characteristics, and reactions to proposed management techniques (Manning, 1986) in order to effectively select, implement and evaluate those techniques.

STUDY GOALS AND OBJECTIVES

The study's broad goals aim to provide managers with the part of the information necessary to: 1) reduce impacts from climbing; 2) protect historical, archeological, ecological and wilderness resources; 3) and improve the quality of visitors' experience in the Park and its wilderness areas. To do this, both the survey and the reporting of results are done in a way that relates to the Park Services' Visitor Experience and Resource Protection (VERP) planning and management framework. Increasingly VERP is being utilized by managers to address the interaction between visitor and resource needs and portions of the VERP process lend an appropriate structure to the study. In that context, the following specific objectives were addressed:

1) To identify climber characteristics such as: place of residence, age, gender, education, length of stay, party size, type of trip, source of information, activities pursued, areas preferred, experience levels and equipment used.

2) To examine climber motivations and preferred experience outcomes.

3) To examine the setting preferences of climbers, the norms they assign to each, and judge the degree of wilderness dependency among climbers utilizing JTNP wilderness.

4) To look at the attitudes of climbers regarding Park and wilderness values.

5) To establish if there are perceptions of crowding or of conflict among climbers themselves.

6) To provide climbers the opportunity to evaluate existing and proposed management practices at JTNP.

7) To use a focus group of experts (guides, writers and others in the sport) to judge future trends in climbing and associated impacts in JTNP.

METHODS USED

Research design The study population - climbers - consisted of technical climbers and boulderers, using protection such as ropes, anchors, chalk and various belay and other techniques to climb identified and unidentified routes. Scramblers (defined as all visitors who are not technical climbers, but are also on the rocks), as well as other visitors to the Park, were not included in the study due to the specificity of the information sought by JTNP staff, study efficiency and budget restrictions.

The study sample was collected during the two main climbing seasons at Joshua Tree National Park and included both periods of peak and normal usage. Each of these sampling seasons lasted one month, the first in November 1993 and the second from mid-March to mid-April 1994. An interpretive display about the climbing survey was mounted in the Park visitor center prior to each survey season. Interpretive flyers explaining the study were also handed to climbers at all entrance stations during the sampling seasons.

The list of climbing areas to be surveyed was based on the most comprehensive and popular climbing guide book at the time (Vogel, 1992). All principal climbing areas of JTNP were included in the study (**Figure 2**) : Quail Springs, Willow Hole, Lost Horse, Real Hidden Valley, Hidden Valley Campground, The Outback, Echo Rock, Barker Dam, Wonderland of Rocks, Comic Book, Sheep Pass, Geology Road, Oz and Indian Cove (Pinto Basin was excluded from the study, since it was an area with very few climbing sites and therefore not a managerial concern yet). These areas included developed (frontcountry), semi-primitive (midcountry) and primitive (backcountry or wilderness) climbing sites, as well as campgrounds. A total of 16 survey sites were surveyed and the amount of time spent in each site was in approximate proportion to their use for climbing.

At randomly selected times, climbers were approached at a mixture of climbing sites, trails, parking lots and campsites. Only one climber per party was interviewed. After determining how many climbers were in a given party (n), a number (from 1 to n) was assigned to each climber. A

Figure 2. Principal Climbing Areas of Joshua Tree National Park.

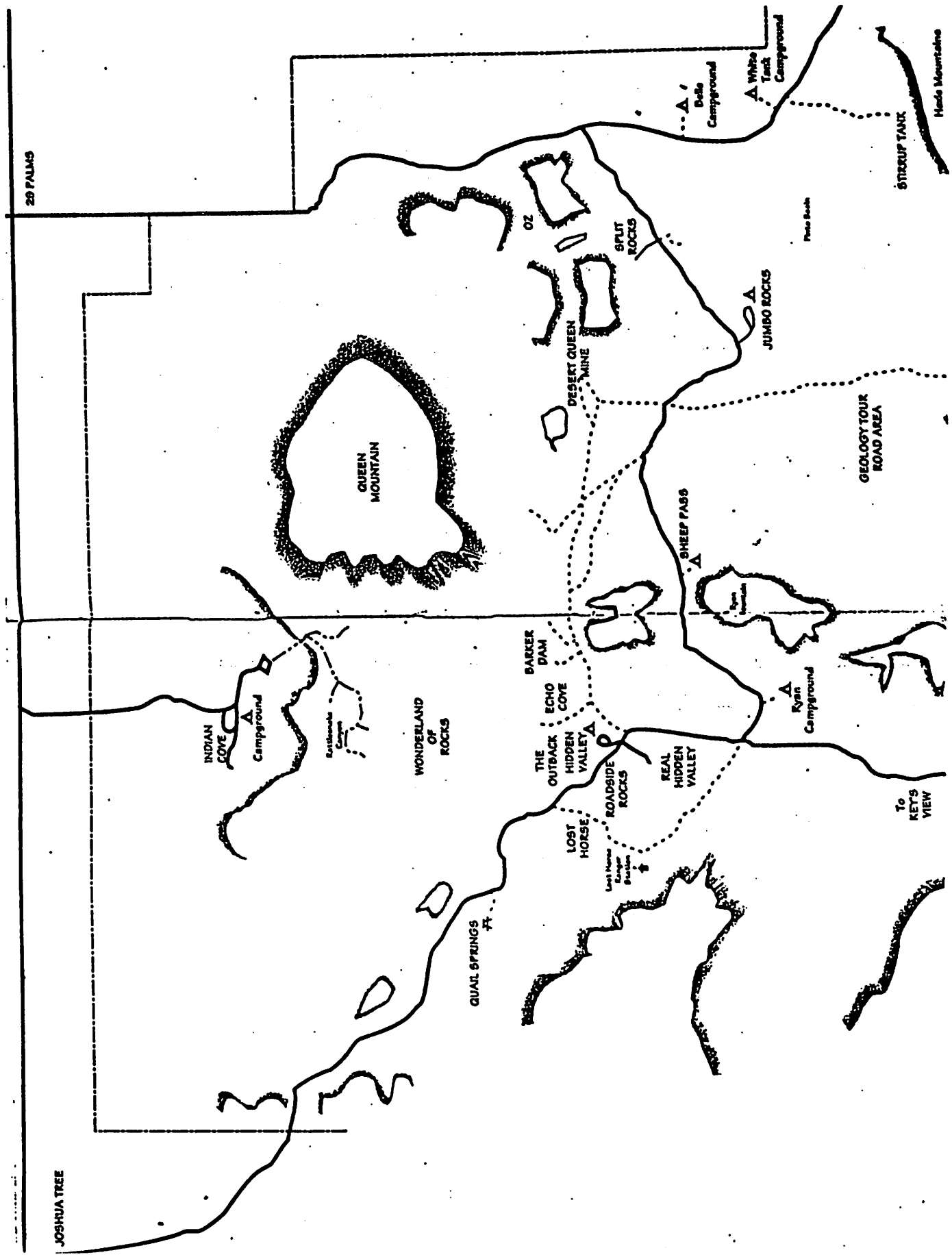


table of random numbers was then used to choose the interviewee by looking up the first assigned number to come up from the table. This ensured that the sample included male and female, beginner or expert, young and old, local and non-local, foreigner and American citizens in the same proportion that they exist in the study population (all climbers).

Sampling procedure This stratified random sample of climbers was surveyed during the week, on weekends and during different times of the day in which they were climbing. A numerical weighing ranging from 0.5 to 2 that represented a site's level of use was assigned to each site. In proportion to actual use, 40% of the sampling was scheduled to occur on weekends and 60% during the rest of the week. For each sampling season there were two interviewers who worked together in each survey site. Interviewers did field sampling for 40 hours each week during 20 survey-days distributed over a period of a one month each season. Each survey-day was divided into three time periods of 2 hours and 40 minutes each, totaling 60 time blocks per survey season, 24 in the weekends and 36 in the weekdays. Each survey site was assigned a number of time blocks proportional to actual use on both weekends and weekdays. To plan for this sampling, a matrix was created with the total number of survey-days, the three daily time periods and the 16 survey areas. Time blocks were numbered from 1 to 24 for the weekend and from 1 to 36 for the weekday. For both weekday and weekend matrices, a table of random numbers was used to select and assign time blocks to each survey site until the pre-calculated total was reached for each site.

The Survey Instruments The survey was divided in two parts: an on-site interview and a written mailback questionnaire (**Appendix D**). The mailback being a complement to the interview, was given only to climbers who completed the interview. Prior to the Fall 1993 data collection season, the survey instruments were developed by researchers, and evaluated by a group of 7 experienced climbers in Colorado. This proved useful in validating the wording and content of questionnaire items, and the format for both questionnaires. The survey instruments were subsequently field tested for comprehension, length, and ease of administration with 25 randomly selected climbers at several climbing sites in Colorado. Final adjustments were made

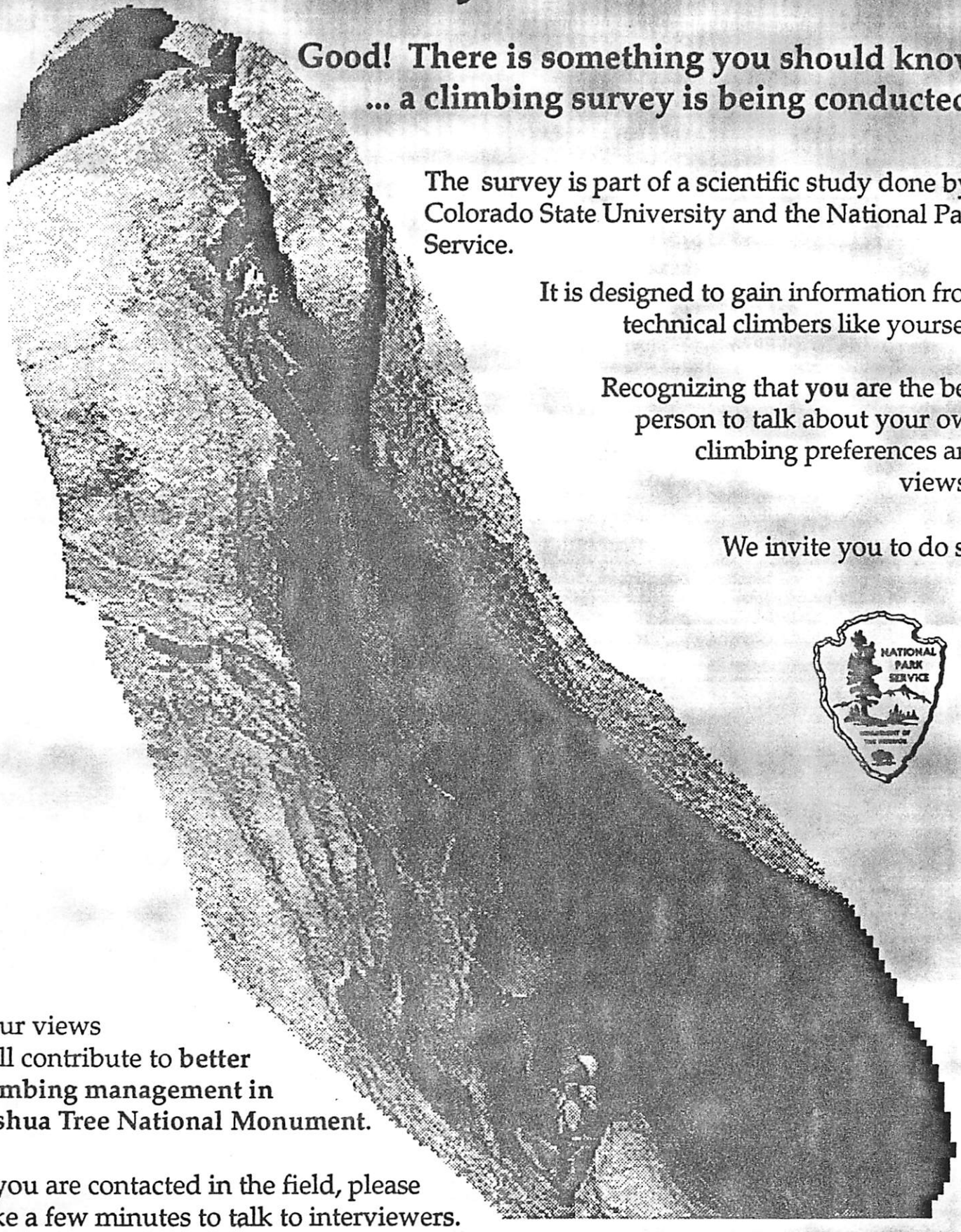
after piloting both portions of the survey with climbers at JTNP.

On-site interview items probed climber itineraries, trip characteristics, values held about JTNP, motivations, setting preferences, norms for their preferred setting, and satisfaction. Mailback surveys probed satisfaction, group characteristics and activities, climbing experience and style, perceptions about current and future management practices, expenditures and socio-economic characteristics. Interviews were designed to take about 15 minutes, and it is estimated that climbers spent another 10 to 15 minutes in completing the written portion. The "mailback" portion of the survey could actually be dropped off at boxes placed at all of the entrance stations to the Park and at the visitor center, or they could be filled out after the trip and returned by mail.

Photo cues (Wallace et al., 1990) were used to assist in the climber's selection of setting preferences. To develop these photo cues, photographs were taken at: 1.frontcountry; 2. midcountry; and 3. backcountry and wilderness locations in JTNP (**Appendix E**). The best photographs were then selected for their ability to depict the physical, social and managerial attributes characteristic of each of the above settings. For each setting, three photos were mounted, laminated and used during interviews to help climbers select the mix of settings they would prefer to climb in and also which ones they actually used. An oral description was developed to accompany each of the setting boards. These photographs were also useful as references while testing a variety of other things like the percentage of wilderness dependent climbing that occurs, norms that climbers have for different settings, possible refinements in management zones and others.

Three maps were also developed to be used as visual aids for survey items that probed information about climbs undertaken, campsites, itineraries, entrance and exit points, among others. Map 1 showed JTNP's boundaries, main roads, all entrances and highlighted the main climbing areas in the Park. Map 2 showed an enlargement of the main climbing region with the names of specific climbing areas, campgrounds, shaded wilderness boundaries and other important reference points. Map 3 then highlighted the most popular climbing area in the park along with the

CLIMBING IN JOSHUA TREE ?



Good! There is something you should know ... a climbing survey is being conducted.

The survey is part of a scientific study done by Colorado State University and the National Park Service.

It is designed to gain information from technical climbers like yourself.

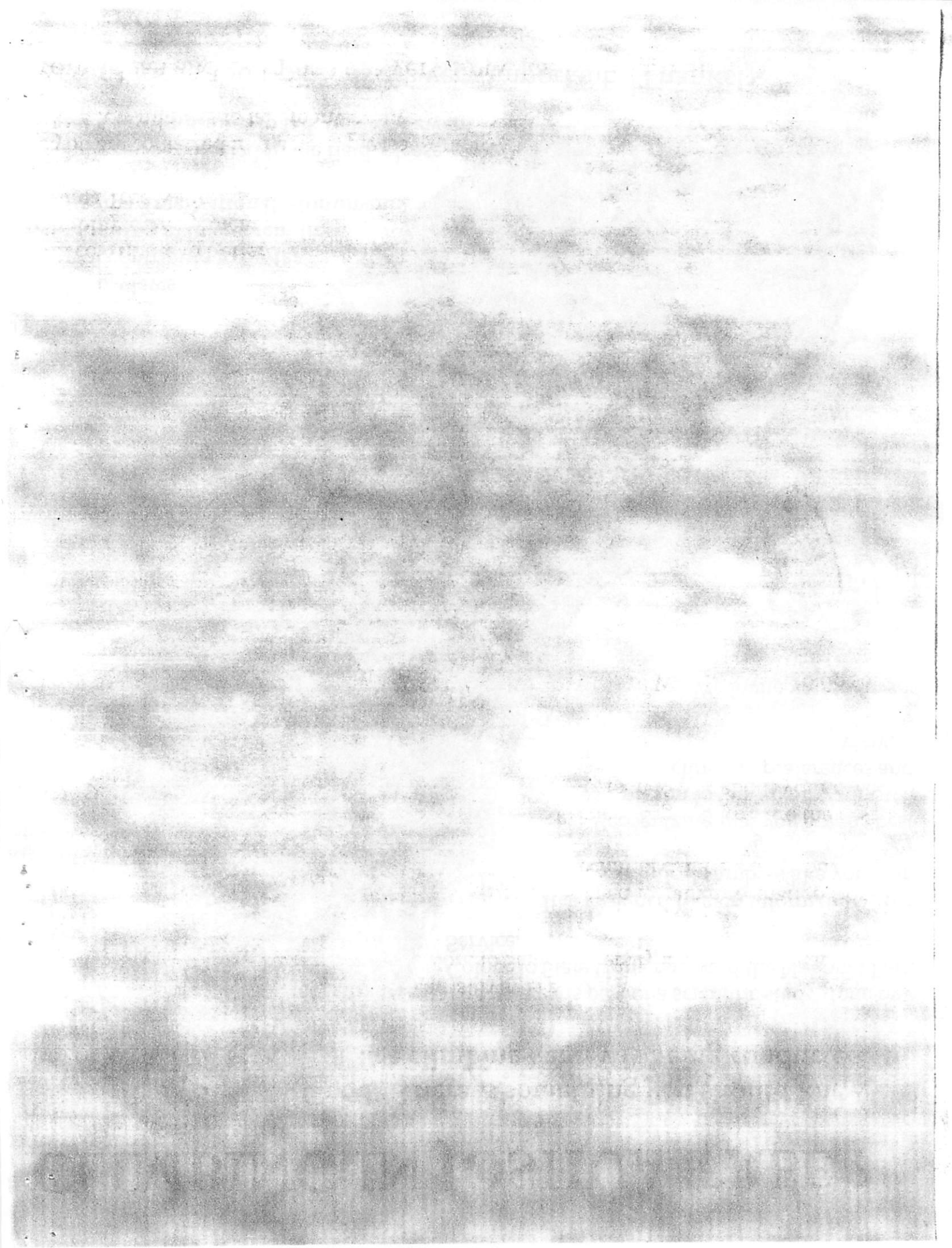
Recognizing that **you** are the best person to talk about your own climbing preferences and views...

We invite you to do so.

Your views will contribute to **better climbing management in Joshua Tree National Monument.**

If you are contacted in the field, please take a few minutes to talk to interviewers.

Your ideas and opinions are very important. **Thanks!**



most popular climbing sites allowing climbers to make reference to these sites while answering several of the questions.

In addition to the interview and written surveys, researchers used a focus group technique (Krueger, 1988; Morgan, 1988) with current local climbing experts, writers, equipment retailers and advocacy groups to discuss future trends in equipment and climbing techniques and climber education. This took place at a neutral location in the city of Twenty-nine Palms California which is North of and adjacent to the Park. These focus groups took place in June of 1994, after the two field survey seasons had been completed.

Data analysis The Statistical Package for the Social Sciences (Norusis, 1990) was utilized to analyze survey responses. Descriptive statistics (frequencies, means, standard deviations etc.) were tabulated for all survey items. The data was also sorted in order to compare climbers with different levels of experience. Bivariate and multivariate tests were utilized to analyze relationships between variables. Content analysis was utilized on open ended items (Babbie, 1994) and Focus group results were qualitatively analyzed using standardized procedures (Krueger, 1988). Specific tests will be reported with results.

RESULTS AND DISCUSSION

Results in this report will be given much as they were presented over two days to the Joshua Tree staff using the Visitor Experience and Resource Protection planning and management framework. Some discussion will be included in reporting the results even though there will be a subsequent section for recommendations. The VERP process (**Figure 3**) being utilized by NPS, includes the following steps:

1. Assemble the project team
2. Develop statements of park purposes, significance, and primary interpretive themes
3. Map and analyze resources and visitor experiences
4. Establish the spectrum (range) of desired resource and social conditions (potential management zones)
5. Use zoning to identify proposed plan and alternatives
6. Select quality indicators and specify associated standards for each zone
7. Compare desired conditions to existing conditions
8. Identify probable causes of discrepancies between desired and existing conditions
9. Develop/refine management strategies to address discrepancies

In as much as the VERP process can be utilized with Climbing Management or Backcountry Management plans as well as the park's General Management Plan, results from the study have relevance for steps 1 - 7, and the Discussion and Recommendations section will have relevance for steps 7 - 9 of the VERP process.

VERP Step 1: Assemble the project team.

With climbing being a major activity and climbers a major user group with a variety of supporting organizations (Access Fund, Friends of Joshua Tree etc.), it goes without saying that climbers should be represented on the project team. Focus Group narratives (**Appendix B**), may prove

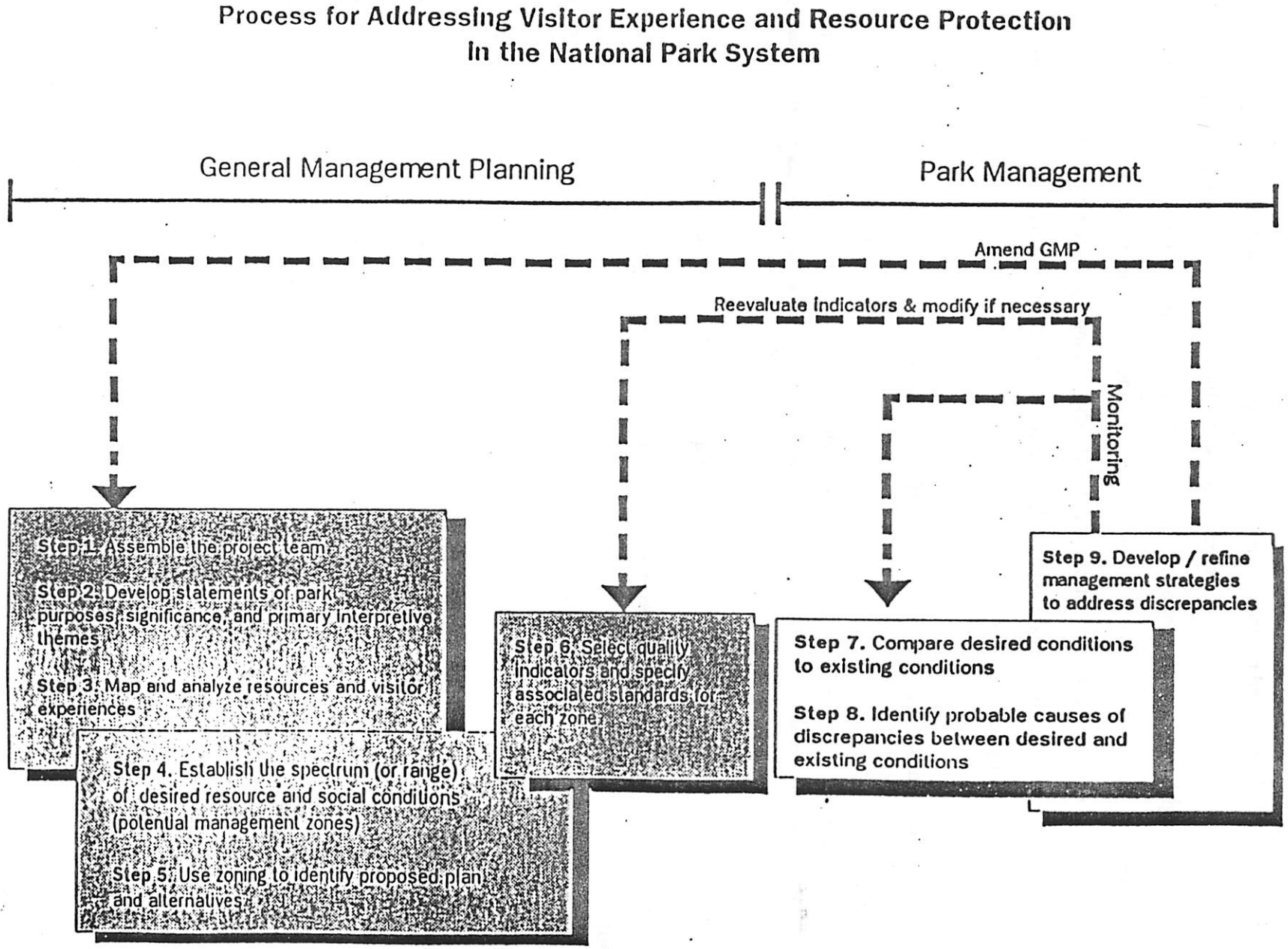


Figure 3. The VERP Process.

useful to the staff and the project team for orienting non-climbers in both groups.

VERP Step 2: Examine park purpose and significance.

"Each park will develop and implement visitor use management plans and take management actions as appropriate to ensure that recreational uses within the park are consistent with its authorizing legislation or proclamation and are not carried out in derogation of the values and purposes for which the park was established". The study included an item that asked climbers how important each of the values that occur in the Park's enabling legislation were in their opinion. As the park's purposes are examined, it is interesting to note (Table 1) how climbers assign importance to these values.

Table 1 How climbers rate the importance of park values.

	(% of importance)				
Values/Benefits	**Not at all**	**Somewhat**	**Moderatly**	**Very**	**Extremely**
Diverse & challenging opportunities to climb	0.4	1.8	6.1	33.7	57.9
See & understand cultural sites	2.4	9.1	22.9	35.8	29.9
Provide facilities for rec. & educational experience	4.3	11.1	27.3	35.4	21.8
Serve as natural laboratory to understand desert	2.4	5.5	19	35.7	37.5
Provide opportunity for desert wilderness experience	2.8	12	26.3	31	27.9
See & understand life of early miners & ranchers	15.3	33.4	30.6	14.1	6.7
Serve as sensitive natural area for detecting	2.2	7.3	20.7	38.5	31.3

Results point out that there is one major discrepancy between climbers and the park's purpose regarding the importance assigned to values associated with the ranching and mining tradition. There are minor discrepancies regarding cultural resources, facilities for other visitors, and environmental monitoring. Research assistants felt that a portion of climbers was surprised that these were purposes and values at JTNP at all, even though they recognized the importance of most. Like managers at Devil's Tower National Monument discovered, there is a need for interpretation to expand horizons.

Regarding interpretive themes, climbing itself - its history, evolution, techniques, equipment and personalities - has not yet been recognized as an important theme. Climbers, who seldom partake of visitor center and other activities, might be drawn into other themes and the circle of other users and purposes more easily once this theme was integrated into other interpretive activities.

VERP Step 3: Map and analyze resources and visitor experiences.

The study provides an in-depth look at the climbing experience in JTNP. This includes activities, motivations, areas utilized, experience levels and other variables.

Activities: Climbers engaged frequently in the following activities (**Table 2**): rock climbing, bouldering, nature observation, photography, hiking on trails and sightseeing, and much less frequently in stopping at the Visitor Center, biking, taking cultural or archaeological visits, backpacking in the wilderness, attending Park programs and presentations. Climbers tend to be focused on climbing and therefore may seem like a population apart from other visitors.

Motivations/Desired Experience Outcomes: Another important aspect of analyzing the visitor experience is to understand the motivations that people bring with them. These are often referred to as 'desired experience outcomes' by researchers. Climbers were asked to rate the importance of a set of standardized motivations (**Table 3**) that have been found in hundreds of studies to be

Table 2 Activities climbers engaged in while visiting JTNP.

Activity	% (N=486)
rock climbing	98.6
bouldering	75.1
nature observation	60.7
photography	58.6
hiking on trails	56.4
sightseeing	48.6
stopping at the visitor center	18.5
biking	17.9
cultural/archeological visits	13.0
other*	12.1
backpacking in the wilderness	9.9
park programs/presentations	6.0

*Other activities mentioned: working, partying, jogging, litter lowering, camping, rescue training, wrestling, attending photographer's forum, relaxing, working as a volunteer, soul searching, drinking beer, group building, star gazing, studying botany, trail marking.

common to outdoor recreation and are referred to as the Recreation Experience Preference (REP) scales developed by Driver and associates (1977; 1984). Climbers (70% or more) gave high importance to motivations like viewing the scenery, being close to nature, being in an area where nature is protected over time, developing climbing skills, being in a natural area where there are few impacts to resources, being challenged, being with friends, escaping noise, staying physically fit, escaping crowds, doing many different routes, experiencing excitement, releasing tensions, and being with people who share the same values. Climbers (50-60%) also gave high value to gaining self-confidence, reflecting on their values, experiencing solitude, teaching and sharing skills, and learning about nature in JTNP. Climbers (70-85%) gave low importance to competing with others, gaining recognition from others, and pioneering new routes. Even though a good portion of climbers (40-48%) tended to give low importance to being with their family, and high importance to meeting new people and taking risks, no clear consensus was reached for these three items.

Table 3 Importance of motivations to climb at JTNP, based on the REP scales*.

Motivations	(% of importance) not at all	moderately	very	Valid
Being with people who share the same values	11.6	19.6	68.8	674
Being with your family	47.8	18.4	33.9	670
Meeting new people	25.7	34.3	40.1	674
Being close to nature	1.0	8.8	90.2	673
Viewing the scenery	1.2	6.5	92.3	673
Being in an area where nature is protected over time	1.5	9.4	89.1	341
Being in a natural area with few impacts to resources	5.6	10.6	83.8	341
Gaining recognition from others	79.5	13.9	6.5	674
Gaining self-confidence	15.7	22.7	61.6	674
Reflecting on your values	15.0	23.9	61.1	674
Releasing tension	11.6	18.2	70.2	674
Being challenged	2.4	14.4	83.2	674
Taking risks	35.0	26.0	39.0	674
Experiencing solitude	14.8	26.3	58.9	674
Experiencing excitement	7.7	19.6	72.7	673
Escaping noise	6.1	17.5	76.4	674
Escaping crowds	7.4	18.0	74.6	673
Teaching & sharing skills	19.3	27.3	53.4	674
Competing with others	84.4	10.1	5.5	674
Learning about nature in JTNP	14.7	33.1	52.2	674
Staying physically fit	5.1	20.1	74.8	671
Developing climbing skills	2.5	10.3	87.2	673
Doing many different routes	7.0	19.7	73.3	674
Pioneering new routes	67.7	15.6	16.8	674

* REP scales = Recreational Experience Preference scales. Frequencies based on a 5-point Likert response format, where 1 = not at all important, 2 = somewhat important, 3 = moderately important, 4 = very important, 5 = extremely important. Valid N = total number of valid responses.

Location of Use: The study also revealed how climbing is distributed in the park. **Tables 4a and 4b** show the location of the most frequently visited climbing sites and areas.

TABLE 4a Most visited climbing sites.

Climbing site combo	%	Climbing site combo	%	Climbing site combo	%
Echo Rock,etc.	44.8	Wall of Biblical	3.4	Tiger Rocks,etc.	1.0
Intersection Rock,etc.	36.9	Imaginary Voyage,etc.	3.2	Rattlesnake Canyon	1.0
The Blob,etc.	24.9	Elephant Arches,etc.	3.1	Lizard's Landing,etc.	0.9
Houser Buttress, etc.	20.2	Real Hidden Valley Area	2.7	Morongo Man,etc.	0.8
Hall of Horrors,etc.	18.9	Wonder Bluffs,etc.	2.7	Voices Crag, etc.	0.7
Saddle Rocks,etc.	18.6	Sargeant Rock,etc.	2.5	Wonderland North	0.7
Astro Domes,etc.	17.9	Hound Rocks,etc.	2.3	Echo Rock Area	0.7
Hemingway Buttress,etc.	17.7	Ellsmere Island,etc.	2.3	Zippy Rock,etc.	0.7
Ryan CG,etc.	16.8	Bighorn Dome,etc.	2.2	Mother Lode Wall	0.6
Trashcan Rock,etc.	15.8	Hidden Valley CG Area	2.1	Emerald City,etc.	0.6
Billboard Buttress,etc.	15.8	Lloyds Rock,etc.	2.0	Hollywood Area,etc.	0.6
More Funkey Than	14.2	Atom Smashers,etc.	1.9	Johnson Canyon	0.6
Slump Rock,etc.	12.0	Left Hand of Darkness,etc.	1.8	Stirrup Towers,etc.	0.5
Pixie Rock,etc.	9.9	Group Camp Rocks,etc.	1.7	Financial Wall,etc.	0.4
Cap Rock,etc.	9.6	Rattlesnake Picnic Area	1.6	Queen Mountain West	0.4
Steve Canyon,etc.	8.1	Land That Time Forgot	1.5	Towers of	0.4
Turtle Rock,etc.	8.1	The Outback Area	1.5	Munchkinland,etc.	0.4
Rock Hudson,etc.	7.3	Live Oak, etc.	1.5	The Valley of	0.4
Moosedog Tower,etc.	6.8	Candlestein Pass, etc.	1.3	Forgotten Canyon Area	0.4
Conan's Corridor,etc.	5.9	Virgin Islands, etc.	1.3	Brownie Girl	0.3
Split Dome,etc.	5.6	White Tank CG Area	1.3	The Middle Kingdom	0.3
Comic Book,etc.	5.3	Nomad Dome, etc.	1.2	Valley Of The Kings,	0.3
Barker Dam,etc.	5.3	Queen Mt. East	1.2	Dissatisfaction	0.3
Jumbo Rocks CG,etc.	5.3	Parking Lot Rocks,etc.	1.1	Indian Head	0.3
Sheep Pass CG,etc.	4.6	Mel's Diner, etc.	1.0	Magic Mountain Area	0.3
Elephant Dome,etc.	4.5	The Fortress, etc.	1.0	Roadside Rocks Area	0.2
The Candy Bar,etc.	4.3	Laugh Rock,etc.	1.0	The Aviary, X Factor	0.1

Belle CG,etc.	4.1	The Hen House,etc.	1.0	Lime Dome, etc.	0.1
Dodge City Canyon,etc.	3.5	Jerry's Quarry, etc.	1.0	Beak Boulder	0.1
Jam or Slam Rock,etc.	3.4	The Galapagos,etc.	1.0	Oz Area	0.1

TABLE 4b Most visited climbing areas.

Climbing area	%	Climbing area	%
Echo Rock Area	46.0	Comic Book Area	5.3
Hidden Valley CG Area	45.1	Roadside Rocks Area	4.9
Real Hidden Valley Area	42.1	Belle CG Area	4.1
Wonderland South Area	23.9	Queen Mountain Area	1.9
Indian Cove Area	23.0	Live Oak Area	1.5
Lost Horse Area	21.9	Oz Area	1.5
Barker Dam Area	18.4	White Tank CG Area	1.3
Quail Springs Area	17.3	Desert Queen Mine Area	1.2
The Outback Area	15.1	Loveland Area	1.1
Jumbo Rocks Area	10.4	Stirrup Tank Area	1.1
Split Rocks Area	8.7	Pinto Basin Area	0.3
Wonderland North Area	6.4	Black Rock Area	0.0

Table 5 shows that a large majority of climbers enter at the park's west entrance where there is no visitor center or stopping point that might serve for information, education or registration purposes and may partially explain the limited involvement in activities pursued by other visitors.

TABLE 5 Entrance stations used to enter and leave JTNP during that visit.

Location	First Enter (%)	Last Leave (%)
Joshua Tree	74.1	75.7
Indian Cove	10.3	9.6
Twenty-nine Palms	9.7	8.0
Cottonwood	5.5	6.1
Black Rock	.3	.3
Other	-	4

Climbing Experience: A climbing experience index was also developed, based on individual climber's perceptions of their own ability and experience with bouldering, sport climbing, rock climbing, multipitch climbing, big wall climbing, alpine/mountain climbing and unguided expedition climbing. The index was used to group climbers into 4 categories: novice, intermediate, advanced and expert (**Table 6**). The climbing experience index gives an added richness to the description of climber characteristics, which can later be tested against a variety of other variables like "support for specific management actions", etc.

Table 6 Climbing experience level, based on past experience index.

Experience level	Past experience	%
Novice	2 - 7	16.3
Intermediate	7-14	50.0
Advanced	14 - 21	27.6
Expert	21 - 28	6.2

Other Characteristics of Climbers: Although JTNP is known internationally, climbers in JTNP are mostly from the United States (87.7%) with Canada, Germany, Switzerland, Austria, England and France being the most frequent countries of origin for international climbers. California climbers were in the majority (62.1%) with the states of Arizona, Colorado, Washington, Oregon, New York, Nevada and Minnesota representing the majority of out-of-state climbers. Climbers are mostly male (80.2%), unmarried (73%) and have an average age of 30, a median age of 29 and the mode was 29. Educational levels are high with more than 90 percent

having gone to college and a good number with advanced degrees. Climbers had a wide range of income levels and a surprising number (29.3%), reported earning less than $10,000, while another sizable group (36,7%) reported an annual income of over $35,000 including 28.8 percent who earned more than $50,000. Most climbers come with friends (59.5%), 12.8 percent are couples, 8.3 percent come with commercial groups, about the same number come alone, and 8.3 percent arrive with family. Group size averages 4.4 with the a median of 3 and a mode of 2 people per group. The average length of stay for climbers at JTNP is 5.1 days but the median was 3.0 days and the mode just 1.0 day. Almost 50% of JTNP climbers have spent more than 10 days previously climbing in the park and 17% had spent more than 50 days. At the same time, the mode was no previous climbs in JTNP so there are sizable groups of Park veterans and newcomers. Many additional characteristics can be found in **Appendix A, Summary tables not included in the text.**

VERP Step 4: Establish the spectrum of management zones that define desired resource and social conditions.

Management zones ideally provide the framework for the management needed to cover the range of visitor experiences and resource conditions that are consistent with the park's purpose and significance. The study was designed to provide important information for the spectrum of zones that is appropriate for JTNP. It was the opinion of the research team at the onset of the study that there was little integrity to the different management zones or climbing opportunities. For example, wilderness or backcountry climbing was not distinguished from other opportunities or management areas. Some climbers felt that it was all right to do almost any kind of climbing anywhere. Wilderness boundaries had originally been drawn in a way that incorporated climbing areas that had a history, type and frequency of use not in keeping with wilderness designation.

This caused confusion among both climbers and staff. It was hypothesized that clarifying management zones, as the VERP process calls for, would be an important factor in addressing the concerns over climbing. The study set out to see if climbers themselves made distinctions that might help the staff to define management zones.

Setting Preferences: Looking at the photo cues of different climbing settings, as well as the on-site setting, and listening to descriptions of setting attributes for each, climbers selected their preferred setting for climbing in JTNP. Doing this, they effectively sorted themselves by preference for : frontcountry (Group F), midcountry (Group M) or wilderness (Group W), (**Table** 7). A midcountry setting was chosen by most climbers (55.1%, N=370) as the preferred setting followed by wilderness with 37.0% (N=248) and frontcountry with 7.9% (N=53). Three quarters of all climbers preferred wilderness as the setting for non-climbing activities.

In order to help managers understand what "zone integrity" might be in the eyes of climbers, that is, what physical, social and managerial setting attributes are appropriate and expected for a wilderness, midcountry or frontcountry experience, comparisons were made between the three groups for a number of variables. Analysis of variance was used to find out if means scores from the 3 groups differed from one another with regard to motivations, activities, reactions to existing and proposed management actions and social, biophysical and managerial norms that climbers selected for their preferred setting. When this information is combined with the desired or acceptable resource conditions that staff would like to achieve in each type of management zone, it is then possible to complete step 4 of the VERP process by writing setting attributed descriptions that define appropriate resource and social conditions for the spectrum of desired management zones.

Table 7 Preferred settings for climbing and non-climbing activities.

Setting	Prefer for non-climbing activities (%)	Prefer for climb (%)
Frontcountry	8.5	7.9
Midcountry	14.0	55.1
Backcountry or Wilderness	77.5	37.0

Motivational differences across settings: There were salient differences between the three setting groups (F, M and W) with regard to the importance assigned to the motivations on the modified Recreation Experience Preference scales (**Table 8**). As might be expected, Group W assigned more importance to being close to nature and escaping crowds than Groups M and F did. They also gave the lowest ratings to motives like pioneering new routes, gaining recognition from others, and competing with others. Teaching and sharing skills were rated as moderately important, but they were still rated significantly lower than in Group F.

Table 8 Motivations to climb in different settings at JTNP.

	Preferred Setting [1]		
Motivations	**Wilderness**	**midcounty**	**Frontcountry**
Being close to nature	4.60^{b}	4.40^{a}	4.43^{ab}
Escaping crowds	4.25^{b}	4.02^{a}	3.86^{a}
Teaching & sharing skills	3.41^{b}	3.48^{ab}	3.87^{a}
Pioneering new routes	1.97^{b}	2.25^{a}	2.43^{ab}
Gaining recognition from	1.56^{b}	1.74^{b}	2.23^{a}
Competing with others	1.48^{b}	1.60^{b}	2.08^{a}

[1] Mean values based on a 5-point Likert response format, where 1 = not at all important, 2 = somewhat important, 3 = moderately important, 4 = very important, 5 = extremely important.

Means with the same superscript are not significantly different.

Analysis of variance Scheffe test, significance level at probability $p <= 0.01$.

Setting Norms: By analyzing the setting norms established by climbers for their preferred climbing setting, it will be easier to write the setting attribute descriptions (frequency of encounters, party size, type of climbing permitted etc.) for management zones in step 4. **Table 9** compares the effect of selected setting attributes on the climbing experience for climbers choosing frontcountry, midcountry and wilderness as their preferred setting.

Table 9 Norms for different attributes of preferred setting for climbing in JTNP.

	Wilderness (N=248) %			Midcountry (N=370) %			Frontcountry (N=53) %		
Norms	detract	neutral	add	detract	neutral	add	detract	neutral	add
Litter & waste	99.2	0.4	0.4	97.3	1.4	1.4	92.5	5.7	1.9
Changes to soil & vegetation	90.7	8.5	0.8	88.9	9.5	1.6	84.9	15.1	0
Nearby roads	88.6	8.9	2.4	52.7	33	14.3	24.5	24.5	50.9
Nearby campgrounds	81	15.4	3.6	53.7	34.1	12.2	17	41.5	41.5
Displays	81	13.3	5.6	61.6	28.1	10.3	22.6	34	43.4
Other parties waiting to climb	76.5	21.9	1.6	68.1	29.5	2.4	54.7	39.6	5.7
Commercial or outfitted groups	76.5	20.6	2.8	70	26.5	3.5	47.2	41.5	11.3
Sound from overflights	75.6	23.6	0.8	63.2	34.1	2.7	64.2	32.1	3.8
Sound from other people	72.9	25.5	1.6	59.2	38.1	2.7	34	58.5	7.5
Ropes & slings left behind	66.8	30	3.2	54.1	38.4	7.6	47.2	32.1	20.8
Signs	62.1	27.8	10.1	38.1	37	24.9	9.4	47.2	43.4
Toilets	58.3	27.9	13.8	31.6	32.7	35.7	7.5	18.9	73.6
Other parties in climbing area	40.1	54.3	5.7	24.3	59.5	16.2	26.4	56.6	17
Chalk on rocks	32.4	61.5	6.1	25.1	66.8	8.1	13.2	77.4	9.4
Rangers	27.8	56	16.1	20.7	57.8	21.5	9.4	54.7	35.8
Designated trails	21.5	34.8	43.7	8.9	20.3	70.8	3.8	22.6	73.6
Bolts	13.8	49.8	36.4	9.5	36.5	54.1	9.4	34	56.6

Frequencies based on a 5-point Likert response format, where 1 = strongly detract, 2 = slightly detract, 3 = neutral, 4 = slightly add, 5 = strongly add. Valid N = total number of valid responses.

Climbers with a Wilderness preference (W) felt that "litter and waste as evidence of human use", "changes to soil and vegetation as evidence of human use", "nearby roads", "nearby campgrounds", "displays, "other parties waiting to climb", "presence of commercial or outfitted groups", "sound from overflights", "sound from other people" and "ropes and slings left behind" detracted from their

overflights", "sound from other people" and "ropes and slings left behind" detracted from their climbing experience in the wilderness (67-99%). Climbers in Group W (58-62%) also felt that "signs", and "toilets" detracted. They felt more neutral about "chalk on the rocks" and "presence of rangers" (56-61%), "other parties in the climbing area", and "bolts" (44 - 54%).

Climbers with a Midcountry preference (M) felt that "litter and waste as evidence of human use", "changes to soil and vegetation as evidence of human use", "other parties waiting to climb" and "presence of commercial or outfitted groups" detracted from their climbing experience in midcountry (70-99%). Climbers (53-63%) in Group M also felt that "nearby roads", "nearby campgrounds", "displays, "sound from overflights", "sound from other people", "ropes and slings left behind" detracted. Midcountry climbers (58-67%) felt neutral about "other parties in the climbing area", "chalk on the rocks" and "presence of rangers"but that (54-71%) felt that "bolts" and "designated trails" added to their experience. Even though 36-38% of climbers tended to feel "signs" detracted, and "toilets" added to their experience, no consensus was reached for these two items.

Climbers with a Frontcountry preference (F) felt that "litter and waste as evidence of human use" and "changes to soil and vegetation as evidence of human use" detracted from their climbing experience in frontcountry (85-93%). Group F also felt (54 - 64%) that "other parties waiting to climb" and "sound from overflights" detracted. They felt neutral about "nearby campgrounds", "sound from other people", "other parties in the climbing area", "chalk on the rocks", and "presence of rangers"(52 - 77%). Frontcounty preference climbers felt that "nearby roads", "toilets", "bolts" and "designated trails" added (54 - 71%). Even though 43-47% of climbers tended to feel "interpretive displays" added, "presence of commercial or outfitted groups" and "ropes and slings left behind" both detracted, and "signs" were neutral, no consensus was reached for these three items.

Means of the 3 groups differed significantly (**Table 10**) for all but one setting attribute item, "litter and waste as evidence of human use" which was perceived by all climbers as extremely negative. Norms move with the (developed to primitive) spectrum of setting preferences from more to less infrastructure, more to less managerial control, more to less social interactions, and more to less tolerance for ecological impacts. Following this pattern, Group W differed from the other groups in all items except "outfitted groups and chalk" where it was closer to sharing the norms of midcountry climbers.

For those preferring the wilderness, managerial interventions (signs, toilets, roads, campgrounds), social contacts, and human impacts to nature and visitor experience, were negative. No item except trails added to their climbing experience. Even for the use of bolts, the most controversial issue in wilderness, almost two thirds were neutral or said they detracted. Comments during the interview

Norms	Preferred Setting [1]			
	Frontcountry	Midcountry	Wilderness	F Ratio
Litter & waste	1.21	1.12	1.06	2.80
Nearby roads	3.55[a]	2.49[b]	1.53[c]	133.57**
Displays	3.23[a]	2.21[b]	1.66[c]	60.95**
Nearby campgrounds	3.45[a]	2.48[b]	1.76[c]	86.68**
Sound from other people	270[a]	2.35[b]	2.08[c]	21.36**
Signs	3.43[a]	2.80[b]	2.15[c]	47.96**
Toilets	4.00[a]	3.00[b]	2.26[c]	62.84**
Changes to soil & vegetation	1.83[a]	1.64[a]	1.45[b]	8.42**
Other parties waiting to climb	2.38[a]	2.12[a]	1.91[b]	9.61**
Ropes & slings left behind	2.64[a]	2.40[a]	2.15[b]	9.09**
Other parties in climbing area	2.92[a]	2.91[a]	2.61[b]	14.28**
Designated trails	4.11[a]	3.86[a]	3.24[b]	36.49**
Bolts	3.75[a]	3.70[a]	3.37[b]	8.58**
Sound from overflights	2.17[ab]	2.12[a]	1.91[b]	5.30**
Rangers	3.30[a]	2.96[b]	2.81[b]	7.35**
Commercial or outfitted groups	4.42[a]	2.02[b]	1.86[b]	8.89**
Chalk on rocks	2.98[a]	2.83[ab]	2.72[b]	4.27*

[1] Mean values based on a 5-point Likert response format, where 1 = strongly detract, 2 = slightly detract, 3 = neutral, 4 = slightly add, 5 = strongly add. Means with the same superscript are not significantly different; analysis of variance, Scheffe test, 0.05 level..

* Significant at probability $p \leq 0.05$.

** Significant at probability $p \leq 0.01$.

indicate that the neutrality of some items less compatible with wilderness, like chalk and bolting, does not reflect lack of norm, but an inner struggle to reconcile things that are acknowledged as impacts but which are seen as hard-to give-up elements of the climbing experience. Pioneering new routes was least important for wilderness climbers.

Climbers who preferred climbing in midcountry were more tolerant towards managerial interventions, social contacts, and a few human impacts to the visitor experience. Human impacts to nature were still negative, as were "presence of outfitted groups" and "other parties waiting to climb". Bolts and trails added to their experience and allowed more diversity to the kinds of climbs that were possible.

Climbers who preferred climbing in frontcountry were even more tolerant and positive towards managerial interventions, social contacts, and human impacts to the visitor experience. Human impacts to nature were still negative, as were "other parties waiting to climb". Crowding was perceived as a problem even in a management area where frequent encounters are expected (verified by other portions of the study). Bolts and trails, as well as roads and toilets, added to their experience.

Encounter Norms: Results from the survey item testing perceptions of crowding are also informative when broken down by setting preference. **Table 11** gives us some indication of the level of encounters that is acceptable to climbers in each setting.

Table 11 Number of encounters per day that are acceptable for climbers.

Number of acceptable encounters per day	Backcountry or Wilderness (%)	Midcountry (%)	Frontcountry (%)
0	21.9	1.0	0.6
1 or 2	18.2	0.9	0.1
3 through 4	15.9	7.3	0.3
4 through 10	34.7	46.5	15.2
11 through 20	6.3	28.8	31.2
21 through 40	1.3	7.9	23.3
41 through 100	1.2	6.6	24.2
101 or more	0.4	1.0	5.1

By way of the results reported in this section, climbers have shown that they do, in fact, have motives or preferences for experience opportunities that are more distinct than the current situation provides and which have setting attributes that range from more developed to more primitive. Even though user preferences are not the only factor in writing setting or zone descriptions, the norms chosen by climbers for a these different settings/experience opportunities should assist managers in writing these descriptions.

<u>VERP Step 5: Use zoning to identify proposed plan and alternatives.</u> One hypothetical zoning strategy based on the findings discussed in step 4 is described below (different VERP alternatives could utilize similar management zone descriptions but would differ in the amount of land allocated to each). The physical, social and managerial setting attributes are described in the context that climbers might relate to:

One Zoning or Management Alternative based on study results:

1) Frontcountry Zone (FZ)

The FZ is characterized by a semi-natural-appearing or moderately modified environment. Resource impacts are evident near major roads, campgrounds, picnic areas, trails and popular climbing sites. Impacts often persist from year to year. Some loss of vegetation and soil is common in such sites. Other visitors are frequently encountered and managerial presence is obvious.

Physical attributes - There is moderate level of modification to the natural environment through planned, managerial interventions in order to offer amenities to the visitor. There is moderate tolerance for environmental modifications caused by visitation. Changes to the natural vegetation through site spreading, facilities development and site hardening are very common. Paved and unpaved roads, campgrounds, parking lots, toilets, trash cans and recycling bins are present.

Social attributes - Sight and sound of people (in private and outfitted groups) and vehicles (cars, bikes, RVs), and climbing parties waiting to climb are extremely common. Climbing opportunities are characterized by extreme ease of access, a high number of choices for climbing routes and frequent contacts with park staff. Apart from the experiences mentioned above, this zone should offer excellent opportunities for the following climbing experiences: meeting new people, teaching and sharing climbing skills, competing with others, gaining recognition from others, doing many different routes.

Managerial attributes - Campground reservations are necessary during high use periods. There are few restrictions on the type of aid/hardware/equipment used, mild restrictions on party sizes, new climbing routes, replacement of bolts and other fixed anchors. Reservation/permit systems are in place for some high demand climbing opportunities. There is a number of designated trails that are well maintained and designated with markers and signs. There is low tolerance for social trails which are eliminated using screening, physical barriers and signage. Considerable on-site and off-site personal contact with rangers, interpreters and volunteers on roads, in campgrounds, parking lots, visitor and information centers, and occasionally at climbing sites.

2) Backcountry Transition Zone (BTZ)

The BTZ is characterized by predominantly natural or natural-appearing environment but some resource impacts may be found in certain locations like trail heads and major entry points. Impacts often persist from year to year. There may be some loss of vegetation, changes in species composition and soil loss at certain sites. Impacts are apparent to most visitors. Contact with others is moderately frequent and a fairly high level of interparty contact can occur while on the trails.

Physical attributes - Natural landscape with low level of modification to the environment. Managerial interventions are necessary in order to protect natural and cultural resources. There is low tolerance for environmental modifications caused by visitors.

Social attributes - Sight and sounds of people (including both private and outfitted groups), and climbing parties waiting to climb are less common than in FZ but still frequently occur. Climbing opportunities are characterized by access that ranges from fairly easy to somewhat difficult. There is a fair number of choices for climbing routes (including some historically important, classical climbing routes). Apart from the experiences mentioned above, this zone should offer excellent opportunities for the following climbing-related experience opportunities: viewing the scenery, being in a natural area where there are few impacts to resources, teaching and sharing skills, doing many different routes.

Managerial attributes - There are fewer but important designated trails which are well maintained and signed. Social trails are actively discouraged, removed and revegetated. There are some restrictions on type of aid/hardware/equipment used and permits may be required for new routes. There are fewer on-site interpretive contacts with the public. Regulatory signs and markers are still needed, but the emphasis is on off-site contacts, trail heads maps and educational materials. There is no camping allowed in this zone.

3) Semi-primitive Wilderness Zone (SPWZ)

The SPWZ is characterized by a predominantly natural or natural-appearing environment. Interactions between users is low, but there is often evidence of other uses. The zone is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized or mechanical use is strictly prohibited.

Physical attributes - Natural landscape with minor managerial interventions in order to protect natural and cultural resources and provide for visitor safety. Trails are narrower and more primitive. Some environmental modifications through visitation may be perceived by some visitors.

Social attributes - Sight and sounds of people (in private and small outfitted groups) are uncommon. Climbing opportunity is characterized by moderately difficult access, a relatively high degree of physical exertion and time commitment. There are many choices for climbing routes including some classic routes. There are restrictions on type of aid/hardware/equipment used, and on party size. This zone should offer excellent opportunities for the following compliments to the climbing experience: viewing the scenery, being close to nature, being in a natural area where there are few impacts to resources, being in an areas where nature is protected over time, experiencing solitude, escaping noise, escaping crowds.

Managerial attributes - There are few designated trails and some cross country travel is permitted. Signage occurs only at trail junctions. Social trails are actively prevented by revegetation and off-site visitor education. There is high reliance on off-site, non-personal and personal interpretive contact with the public, using maps and pre-departure information. Patrols and monitoring are regular but contact with rangers is reduced and occurs on trails or at climbing sites. Maximum group size is 10, registration is mandatory and designated campsites are assigned in popular areas. Popular trails may have quotas. Replacement of bolts is permitted to maintain previously bolted routes.

4) Primitive Wilderness Zone (PWZ)

The PWZ is characterized by essentially unmodified natural primeval environment. Interaction between users is very low and evidence of other users is minimal. The zone is managed to be essentially free from evidence of human-induced activity and management presence is extremely subtle. Motorized or mechanical use is strictly prohibited.

Physical attributes - Pristine landscape and natural ecosystems with few, managerial interventions. No maintained or marked trails are evident. Cross country travel is often required. Travel in the zone requires high degree of physical exertion, skill, commitment of time and challenge. Climbing equipment must be carried for some distance.

Social attributes - Sight and sounds of people (in private and small outfitted groups) are rare. Climbing opportunity is characterized by difficult access, unnamed and undescribed routes. Restrictions exist for type of aid/hardware/equipment used, party size and length of stay in campsites. This zone should offer excellent opportunities for the following climbing experiences: : viewing the scenery, being close to nature, being in an areas where nature is protected over time, experiencing solitude, natural sounds and a primeval landscape.

Managerial attributes - No designated or maintained trails. Patrols are infrequent and there is an almost total reliance on off-site, pre-departure contacts, including distribution of maps and educational materials. Contact with rangers in the field is also rare but may happen on trails or climbing sites. Registration is necessary, camping is dispersed, and visitors must employ the best "leave no trace" techniques. No bolting of any kind is permitted. Maximum group size is 6, and camps may be left in place no longer than 2 days.

5) Sensitive Resources Protection Zone (SRPZ)

The SRPZ is characterized by a natural to pristine environment with sensitive natural and/or cultural resources. Interaction between users may vary but it is often low with minimal evidence of other users. The zone is managed for specific resource protection purposes. Motorized use within the zone is not permitted unless it is for resource management purposes in non-wilderness areas.

Physical attributes - Varied physical settings but normally natural ecosystems with special management interventions to assure that sensitive natural and cultural resources are protected.

Social attributes - Sight and sounds of people (in private and small outfitted groups) are rare. Climbing opportunity is characterized by variable access, a fair number of choices for climbing routes, strict regulation of the type of aid/hardware/equipment used and restrictions on party size. Restrictions may be seasonal in order to guarantee protection to sensitive cultural and natural resources. During part of the year, some areas of the Park may be temporarily or permanently closed to climbing and other activities. Apart from the experiences mentioned above, this zone may offer good opportunities for the following climbing experiences: viewing the scenery, being close to nature, being in an areas where nature is protected over time, experiencing solitude, escaping noise, escaping crowds.

Managerial attributes - Trail standards may vary. Both on-site and off-site interpretive contact with the public may occur. Maps and educational materials distribution, contact with rangers, interpreters and volunteers, field talks, courses of informal contacts may be necessary due to the special nature of the resources found in this zone. No camping is allowed and group size will vary with the needs of the resources. Various restrictions will also occur that fit the management situation.

This hypothetical set of management zones is an attempt to integrate study results to the managerial realities discussed by staff with the research team.

VERP Step 6: Determine indicators and standards for each zone.

A synthesis of study results and field observation suggests a general set of indicators, the standards for which would often change from one management zone to another. Examples of possible indicators include:

Biophysical indicators - number of pioneered routes, evidence of climbing chalk on the rocks, number of social trails, area of denuded vegetation near climbing sites, changes in species composition, route gardening (plots), presence of human waste, abandoned climbing aid/hardware, presence or reproductive success of cliff dwelling flora/fauna of a certain species, evidence of dispersed campsites.

Social indicators - number of encounters per day, number of parties waiting to climb, number of parties in the area at one time, sound from other people, evidence of litter, climbing satisfaction, climber participation in planning/monitoring process, compliance with regulations (registration, permits for bolt placement), number of climbers attending park activities, changes in guide book descriptions.

VERP Steps 7 through 9: Comparing desired and existing conditions; causes of discrepancies and developing/refining management strategies

Climber reactions to current or proposed management actions: Climbers were asked to evaluate existing and possible management practices (**Table 12**). These data provide important information for what is often a contentious debate about certain climbing management practices. In as much as the results objectively describes what level of support exists among all climbers for this set of current or proposed management actions, it may be useful in resolving disputes and anticipating levels of support and opposition to specific VERP alternatives.

A majority of climbers (>70%) supported the following management practices: "allowing the replacement of bolts in frontcountry"; "not allowing adhesives to enhance foot holds"; "increasing information on climbing issues"; "limiting the size of commercial groups"; "managing noise levels at campgrounds after 10 PM"; "requiring permits for large groups"; "increasing information on plants, animals and cultural sites"; "requiring permits for the use of power drills"; "limiting the number of commercial groups"; and "allowing bolting in frontcountry". A somewhat smaller majority of climbers (52-66%) also supported: "reducing the impact of overflights over wilderness visitors"; "the current day use and camping permit system"; "managing some areas for a wilderness climbing experience"; "increasing information on the management zones"; "requiring permits to place bolts on a specific route"; "clarifying and marking of the wilderness boundaries"; "climbing closures near cultural sites"; "using bikes as a means of transportation inside JTNP"; and "using natural-colored bolt hangers, webbing and chalk".

Looking at what, from the climbers point of view, might be considered to be the most restrictive management actions, opposition (55-80%) emerged around the following management actions: "no replacement of bolts"; "no more bolting in the wilderness"; "removal of all slings and protection devices (except bolts)", and "banning of power drills in all of JTNP". Climbers were divided on three other controversial actions with (40-49%) of those responding supporting "climbing restrictions in areas where heavy use has produced negative impacts to the natural environment", the "banning power drills in the wilderness only", and opposing "climbers-only campsites".

Climbers, as a whole, were supportive of management actions targeted at increasing information and interpretation for the climbing community on Park and climbing management. They also supported actions that reduce the impact of climbing on other visitors, and which enhance protection of natural and cultural resources. It is interesting to note that there is more support for "climbing closures" for cultural sites than for "climbing restrictions" for natural sites. The opposition to "no replacement of

Table 12 Climber attitudes about current and hypothetical management practices at JTNP

	%			
Management practices	oppose	neutral	support	Valid N
allowing replacement of bolts in frontcountry	3.3	6.3.	90.4	480
no glue, epoxy or other adhesives	8.7	7.9	83.4	482
increasing information on climbing issues	5.2	14.4	80.4	485
limiting the size of commercial groups	8.9	10.8	80.3	483
managing noise levels in campgrounds	8.2	12.6	79.2	486
requiring permits for large, guided groups	10.4	12.3	77.3	481
increasing information on plants, animals and cultural sites	2.3	20.5	77.2	482
requiring permits for the use of power drills	16.8	10.1	73.1	476
limiting the number of commercial groups	12.7	15.9	71.4	479
allowing bolting in frontcountry	10.0	19.0	71.0	479
reducing the impact of aircraft overflights on wilderness visitors	7.0	27.2	65.8	485
current day use and camping permit system	8.8	28.5	62.7	477
managing some areas for a wilderness climbing experience (few encounters, more solitude and less evidence of others)	20.6	17.7	61.7	481
increasing information on the management zones	2.5	37.0	60.5	479
requiring permits to place bolts on a specific route	31.9	10.5	57.6	474
clarifying and marking of wilderness boundaries	12.0	32.1	55.9	483
climbing closures near areas having cultural sites	31.7	13.6	54.7	477
using bikes as a means of transportation in JTNM	22.8	23.8	53.4	483
use of natural-colored bolt hangers, webbing & chalk	24.2	23.4	52.4	475
climbing restrictions where heavy use produced negative impact to plants, animals, soil &/or rocks	37.3	13.4	49.3	477
designating campsites for climbers-only	41.7	24.1	34.2	482
no power drills in the wilderness only	40.1	24.3	35.6	469
no replacement of bolts in the wilderness	79.4	10.0	10.6	481
no more bolting in the wilderness	67.4	13.7	18.9	482
removal of all slings & protections (except bolts)	57.5	14.2	28.2	478
no more power drills in all JTNM	54.9	20.9	24.2	479

Frequencies based on a 5-point Likert response format, where 1 = strongly oppose, 2 = slightly oppose, 3 = neutral, 4 = slightly support, 5 = strongly support. Valid N = total number of valid responses.

bolts", especially the replacement of bolts in the wilderness focuses on safety concerns which were voiced time and again during the interviews and in written comments. There is also opposition, though perhaps less than expected, to a Park wide "ban on power drills" and divided support for banning drills in the wilderness even though such a ban has been in effect. There is modest support for a permit system to allow power drilling which may provide an avenue for compromise on this volatile issue. Climbers who preferred climbing in the wilderness were the most supportive of "climbing closures near areas with cultural sites". They were also more sensitive to impacts like aircraft overflights over wilderness , the use of adhesives to improve foot holds and large groups.

Differences in preference for management actions among those preferring different settings: Climbers preferring a wilderness setting (**Table 13**) were the most supportive among the three groups for: "allowing replacement of bolts in frontcountry"; "using no adhesives to enhance foot holds"; "limiting the size of commercial groups"; "requiring permits for large groups"; "reducing the impact of overflights over wilderness visitors"; "using natural-colored bolt hangers, webbing and chalk; and "climbing closures near cultural sites".

Table 13 Comparison of attitudes about management practices across different settings at JTNP.

Preferred Setting Management practices	frontcountry	midcountry	wilderness	f-ratio
Allowing replacement of bolts in frontcountry	4.27^{a}	4.60^{ab}	4.66^{b}	3.67^{*}
No glue, epoxy or other adhesives	3.90^{a}	4.51^{b}	4.40^{b}	5.42^{**}
Limiting the size of commercial groups	3.85^{a}	4.10^{ab}	4.31^{b}	3.94^{*}
Requiring permits for large, guided groups (commercial or not)	3.73^{a}	4.03^{ab}	4.27^{b}	4.81^{**}
Reducing impact of aircraft overflights on wilderness visitors	3.55^{a}	3.93^{a}	4.23^{b}	8.75^{**}
Use of natural-colored bolt hangers, webbing and chalk	3.08^{a}	3.32^{a}	3.67^{b}	5.65^{**}
Climbing closures near areas having cultural sites	3.10^{ab}	3.31^{a}	3.63^{b}	4.23^{*}

[1] Mean values based on a 5-point Likert response format, where 1 = strongly detract, 2 = slightly detract, 3 = neutral, 4 = slightly add, 5 = strongly add. Means with the same superscript are not significantly different; analysis of variance, Scheffe test, 0.05 level..

* Significant at probability $p \leq 0.05$.

RECOMMENDATIONS

Joshua Tree National Park should initiate a campaign to improve two-way communication with climbers and improve the quality of the climbing experience while simultaneously increasing resource protection. This means both incorporating the needs and preferences of climbers into management actions and communicating the broader mission, the needs of other visitors and resource protection needs to climbers. To do this is likely to require a combination of information and education, some shifts in JTNP staff responsibilities, some additional infrastructure, and a more distinct zoning system with concomitant norms, indicators and standards and regulations that are clear to users. Almost all these campaign components can be supported by results from this study. The following recommendations describe projects and management actions that have been discussed with JTNP staff in work sessions, some are already being implemented and most have been acknowledged as feasible as resources become available.

Management Zones:
Use the VERP process (possibly building on the current Backcountry Management task force) to develop a new zoning strategy that separates and gives integrity to a range of climbing opportunities, and levels of resource protection. Each zone should have clearly defined indicators and standards that are agreed upon by planning group participants. The process is crucial. If participants and representatives from the climbing community can agree on zone descriptions, indicators and standards before drawing actual lines on the map, they will understand the rationale and have a sense of ownership that will make the allocation Park land to each zone less problematic. These zones should be based on information about cultural and natural resources, climbers and other visitors. Zone descriptions and indicators and standards used in this study may be useful during such discussions. The model for the VERP process used in Arches National Park may also be useful.

Zones should integrate, and not separate, frontcountry and backcountry/wilderness management. In wilderness, zones can include transition, primitive and pristine types of management areas. Popular traditional climbing areas that were bolted prior to wilderness designation, for example can be zoned as transition or special use areas where replacement of bolts is allowed and managed by a committee of Park staff and climbers. By the same token, some areas in wilderness (including challenging climbing areas) should be free of fixed anchors for the sake of higher wilderness values and those climbers who seek such a setting and climbing experience. As recommended by the Knight and Camp (1994) study of biophysical impacts from climbing, an inventory of sensitive cliff sites is also needed for the VERP exercise and decisions about the actual allocation of land to each management zone (management alternatives).

Management actions/regulations to address specific problems related to climbing:
The results show that climbers seem supportive of a good many needed management actions. Strong opposition remains, however, to restrictions on replacement bolting and to a lesser degree the wilderness bolting ban, a requirement to remove all protection and a park-wide ban on power drills. Climber safety depends on the occasional replacement of bolts or fixed anchors, especially those used to descend.

The study suggests that outside of wilderness, a committee and permit system approach seems appropriate to deal with issues for which there are solutions like the replacement of bolts, new routes and the removal of poorly placed anchors. A standing committee of climbers and staff should also address the collections of abandoned slings and webbing, the designation of trails, the removal and renovation of unwanted social trails, as well as other issues and opportunities related to climbing. It may not be possible to get climber support for all needed management actions (no new bolting in much of the wilderness etc.) The bolting controversy may be best addressed via the compromises that will be possible during the rezoning (VERP) exercise which would broaden the context of the discussion and perhaps put bolting in a Park-wide perspective.

Backcountry campground reservation systems and area or trail quotas for some high-value areas will be needed to be able to achieve the density (number and type of encounters) and reduced levels of impact desired by NPS and many climbers in both mid-country and wilderness zones. The emphasis with climbers in these areas could utilize study results to justify the focus on providing quality experiences and improved resource protection. High value (rationed) climbing experiences, trails with quotas, designated or wilderness campsites could be managed via backcountry offices at West-side and main visitor centers or via a self-registry system during certain periods.

It may be advisable to identify a few more "group climbing sites" for commercial groups given the data about the effect of large or commercial groups on the experience of other climbers and number of open-ended comments about the same issue. Commercial groups using wilderness areas should be prepared to adapt to a smaller group size.

Improving outreach and contacts with climbers:
It will be important to develop a visitor facility (kiosk, information center, etc.) at the West entrance to JTNP, where contacts can be made with most climbers and where information and interpretation can be provided. The following activities and interpretive themes might be initiated in both visitor centers (and elsewhere) to build respect, inclusiveness among visitor types, and communicate important messages to climbers:

* Interpretation about climbing history, techniques, famous/notable characters and in general acknowledge climbing as an important activity in the Park and legitimatize climbers and climbing management in the eyes of all visitors (see focus group narratives in **Appendix B** for ideas).

* Interpret Wilderness history and the importance of wilderness values as part of the Parks mission, and the uniqueness of the specific desert ecosystems protected by wilderness designation in JTNP. Provide good maps with clear wilderness boundary descriptions in problematic areas.

* Describe clearly the different types of climbing opportunities in JTNP, the refined approaches to zoning, the norms or standards for each management area. Make sure that Wilderness is seen as a special resource within the spectrum of climbing opportunities but clearly describe the special nature of traditional climbing areas with replacement bolting and which are located in Wilderness. Explain the fact that they are "non-conforming uses" that have been allowed to remain within transition areas but which do not represent how climbing is managed in other portions of the wilderness.

* Include interpretive themes to heighten climber appreciation of the full range of Park values, especially those which were rated lower in the study or about which climbers were surprised.

It will be important to continue the portion of the campaign that promotes climbing ethics with climbers themselves taking the lead in the development, endorsement and dissemination of information. Displays should emphasize the role of climbers in developing ethical standard and other projects they have undertaken. Results from the Knight and Camp (1994) biophysical impacts study should be incorporated into interpretive materials about climbing ethics to reveal the insidious effects of small but continual impacts like "gardening" (removal and rearranging of rocks and vegetation along climbing routes, etc.).

Personal contacts with climbers during the study were rewarding and tended to heighten the level of dialogue about and awareness of climbing related issues.. The Climbing Ranger program that was in use in JTNP should be reinstated and patrolling should occur at a high level until all new changes and regulations are institutionalized among staff and in the climbing community. The Forest Service has made good use of uniformed volunteer rangers among climbers, horse users, hunters and other special issue groups.

Other recommendations for improving communications with climbers include: placing an information center and self-registry board (if/when this system is employed) at Hidden Valley campground. To address the problem of overflow camping, information on alternative camping areas may make it less likely that climbers will go just outside campgrounds and camp in "transition" or midcountry areas. Finally, since climbers do make good use of climbing guidebooks, it will be important to work with guidebook authors to refine descriptions of JTNP in accordance with the above changes and to incorporate updated sections on climbing ethics.

Monitoring the social and biophysical impacts of climbing:
Baseline data established by both CSU studies, can be used to begin a monitoring program (see list of suggested indicators and standards) Indicators can be linked to the most important issues to emerge during the early stages of the VERP process. So doing can assure that management actions are tied to the desired future conditions that were agreed upon. Data on satisfaction, quality of experience, perceptions of crowding, and experience trends, support or opposition for x management practices etc. can be utilized for monitoring social impacts.

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APPENDIX A

SUMMARY TABLES NOT INCLUDED IN TEXT

APPENDIX B

NARRATIVES FROM FOCUS GROUP SESSIONS

APPENDIX B. PORTIONS OF THE NARRATIVE FROM TWO FOCUS GROUPS: ONE WITH CLIMBERS FROM JOSHUA TREE AND ANOTHER WITH OTHER CLIMBERS ATTENDING A WILDERNESS EDUCATION CONFERNENCE

FOCUS GROUPS

First Focus Group Session: "Future Climbing Trends". The following is a transcription of the first focus group session which was recorded simultaneously by two volunteer assistants. The session took place in the city of Twentynine Palms, near Joshua Tree National Park, in June 21, 1994. Four participants attended the session: Bob Carter (BC), Craig Carter (CC), Jeff Cooper (JC), and Bob Gaines (BG). Dr. George Wallace (GW) was the mediator, and Kathy Billings (KB) and Kesia Trench (KT) were the volunteer assistants.

GW: Statement of the goals for the Focus Group (FG) session. Asked participants to introduce themselves as climbers.

CC: I help my dad in the Cottonwood Store. I climb a lot.

BC: I work in the Cottonwood Store. I also work with the marines and other climbers. A lot of them get into climbing. They come from a lot of places, all levels. I grew up here.

JC: I started climbing in Joshua Tree (JTNM) in the 70's. Since then I've seen a lot of difference. I climb from September through May in JTNM. I'm also a climbing guide to at least 7 different areas other than JTNM.

BG: I've been climbing for 20 years. I have a climbing school (Vertical Adventures). I climb from September to May. I've seen a lot of changes. I will be able to help discussing future trends in climbing tonight.

GW: I started climbing as a kid, with unsophisticated equipment, a long time ago. I'm comfortable with climbing, but at the 5.7 or 5.9 levels only. I also climb with my son as a means to get to a lot of different landscapes. I'm a professor at Colorado State University and the Principal Investigator in the Climbing Study here in JTNM. Kesia here is the one that has done most of the field work so far.

KB: I'm with JTNM and I've been with the park for the last 2 years now.

GW: How about an overview of climbing in the last 25 years (since 1969)?

BG: El Capitan (in Yosemite Valley) was first climbed in 1958. There are now over 70 routes on that rock formation and it has been climbed at least 1000 times.

JC: The early 60's were the golden age of rock climbing in Yosemite. Pitons (expansion bolts made of hard steel) were used for protection instead of anchors and bolts. But there was a problem: crack displacement and the destruction of the rock. Climbers realized it and switched to clean climbing in the early 70's, using chalk and camming devices (on their own without a push from the National Park Service or anything else).

GW: Who are those people who climb big walls?

BG: A new school was created in Yosemite, different from the European schools and from mountaineering climbing because of the technical needs of Yosemite routes. It developed on its own as a subsport with people like Yvon Chounaird. They were unfamiliar with other schools, developing their own style and methods.

JC: In the beginning of 25 year period Yosemite was the Mecca of climbing (in the 60's and 70's). The question then was: can we do it? The answer was yes, they could bang pitons in and climb anywhere. The question then became: how to do it? Clean climbing and aid climbing came up as the answer. The next question was: Can we get up the big walls by free climbing?

BG: Clean climb and free climb went hand in hand.

JC: Change to clean climbing was a concern for resources and a new challenge.

GW: How many people were climbing then?

BC: A couple of dozen people were climbing here in JTNM then. The first class I had was with BG and his school. Before we had no technique and equipment; we scrambled up anywhere.

GW: How many people were climbing in Yosemite and was it a personal thing or for resources?

JC: Not many people were climbing then. They were a special breed: get dirty and stay dirty, be hungry...

BG: In the old times climbers were confused with the hippies. Climbers formed a group that hung out and was not part of the mainstream society. They were groupy. Now it is a weekend recreation. There are a lot of people and also different kinds of people. Some have to become athletes for nowadays hard climbs, be on a special diet, etc.

GW: Let's hear a little bit about the different climbing styles.

JC: In clean climbing the gear is used to protect the climber from a fall but it goes in and out of the rock (removable) as opposed to the old equipment (the piton) that hurt the rock. Free climbing as a style is opposed to aid climbing, where the climber uses the gear to climb up the rock.

BG: Free soloing uses no protection or rope. Accidents are rare but fatal. Free climbing uses all equipment for safety but you don't rely on the gear to climb up, just to fall. When leading above the last piece of protection, you fall twice that distance.

GW: How have you developed as a climber over the years (personally)?

JC: The initial years had a lot of influence over my development (as heroes and style go). It was different from nowadays, you had to survive. I would probably imitate sport climbers nowadays with safe equipment and hard routes. Before there was a lot of pioneering and adventure climbers, they didn't have cams and worried about their safety. Climbing split into many branches: ice, expedition, mountaineering, etc.

GW: Are you well-rounded climbers?

BG: I have concentrated on rock climbing for the last 6 years. I have done some mountaineering. But I know a lot of well-rounded climbers that do all styles. Other people concentrate a lot on bouldering. There is a guide book just about that in JTNM. There are a lot of subsports in climbing, shifts in different directions, like gymnastic bouldering, free solo, traditional climbing and sport climbing protected by bolts. Some look for some instances in which no removable protection might be necessary. This is the wave now but it changes. Some are also into traditional climbing. Sport climbers, the weekend type, are not going to last long because they get tendinitis and they don't get the whole experience. Some people in the future might enjoy traditional climbing again.

GW: How important is the site?

JC: Climbing is the vehicle to enjoy the realm of the site, enjoying it as reverently as possible.

GW: Will young climbers get to appreciate the place?

BG: Climbers with first experience indoors come to JTNM and they are in awe as I was when I was a kid. Some of those don't have respect for the environment but I think they only have a bad reputation. Climbers in JTNM organized trash pick up collections, trails, toilets: they love the rock and want to preserve that for the future. Most of the routes are done (over 4000). The issue is how to preserve it for future generations. Climbing is not gonna change a lot in the future. Don't worry about some sport climbers going to the rocks like Nazis and spoiling the rocks.

CC: New people branch off in their own subsport as they get more experience. They start with traditional and crave to do big wall and mountaineering; some people go for the physical aspect and go into bouldering; some switch from sport to trad. It's a personal thing.

GW: Tom Gavin's (JTNM staff) information from the Access Fund : Climbers stay in the sport for 4 years. Is this true?

BG: People check it out and decide to stay or not. A lot more people have gotten into the sport, most don't go into it for life.

JC: I don't know if 4 years is a real number. In my classes, only 10 to 20% of the people got advanced classes.

BG: Only 1 in 100 stay in the sport.

JC: Something happened in the middle of the 80's that increased climbing: ABC Sports broadcast a climbing event, the first competition in Utah and French Patrick flashed. There were a lot of ads in magazines, commercials and movies, etc. and people wanted to try it out.

BC: It has gotten easier and safer. Good equipment, media presentation. There are two stages in climbing (in your 20's and 40's with your kid)! We took classes (my son and I) for the store and we scrambled hills before but I knew nothing about technical climbing.

JC: Some climbing schools were started and that made a difference. Before that there was only "Rockcraft", a thin paper publication, part guide, part comics. There was also improvement of ropes (became dynamic), harness, spring loaded cams, safety, information. The sport became more user-friendly because of technology.

BG: The equipment got better, there was more media and people who were backpacking in the 70's also became climbers (rocks are there and you may not have to hike far).

BC: If the economy goes bad, people stay closer to home (time factor). If people have two days and no money, they come to JTNM. The climbing business has been steady through economic changes.

GW: What is it about JTNM that is so popular? It is accessible, there are a lot of climbs. What else?

JC: You can bag a route in a short time.

BG: It is a unique environment for rock climbers in California.

CC: There are very demanding, short climbs. There are three types of climbers in the beginning: boulderers, sport climbers and trads. There are about 30% each in JTNM nowadays. Boulderers are into physical fitness; trads stay around, it takes longer, there are long run outs, but some of those go into sport climbing.

BG: JTNM used to be the most traditional area in ethics. It has big history in that.

JC: Traditional climbers have deeper reasons for climbing. They are more spiritual (than sport climbers).

BG: A lot of people who start in gyms and sport climbing realize that the other outdoors type is deeper and switch to traditional climbing.

BC: People are stressed out with their jobs and pump the rock to release tension. People we train start with rappeling. You need an instructor.

CC: You have to be taught the basics first. Someone has to teach you and you have to experience it. It is the only safe way.

BG: You are singling out sport climbers. I'm a sports climber and I care for the environment. Some of the JTNM climbs are slab climbs as opposed to face climbs. John Gill (boulderer and into gymnastics, a subset of the sport) is also very spiritual. There are no distinctions between spiritual and sport climbers. You can't make distinctions between climbers (subsports).

BG: (to JC) Have you seen a lot of teenagers, young sport climbers with no respect for the environment?

FC: I have not seen any of that. Most of the kids in beginner classes have never climbed before and they get the environmental introduction in the class. Gyms are new in California (three opened up in the last year). Even the ones that had a gym experience first do not have an attitude problem. They are open to reverence.

GW: How has JTNM changed since you started climbing?

BG: There have been little changes, just more people are out there. The Access Fund helped a lot with trails. There isn't a lot of trash, climbers are respectful. JTNM is a clean climbing area compared to other areas. There are also a lot more routes.

JC: It has pretty much been the same for the last ten years. Numbers changed. Before we could go

to JTNM any time and find a campground. But this is happening at all parks. It is the only park with weekend access. There was a change in ease of access: some climbs are very easy to get to (by boy scouts and other recreation groups).

BG: It is like in Yosemite: get away from the paved roads and as miles go, people diminish in numbers. The same thing here, always the same places are crowded and it is easy to get solitude just by walking a little. People congregate at the most popular places.

JC: Climbers have grown up and they are working against a bad reputation. I don't see other users helping in any way. Scouts have a lot of impacts (and I don't have anything against them). Climbers grew up and are being pro-active.

GW: How did the bad reputation happen?

BG: Bad press, newspaper articles.

JC: Back in the 60's, climbers were in the campgrounds in Yosemite and the hippies were lying in the meadows, hanging out wherever. The hippies had to be cleared out by the rangers who beat them ("The Fate of Heaven"). Climbers got associated with that.

BG: It is a counter-culture thing. Climbers and rangers have been at odds since then. But climbers matured. They know what the regulations are and they respect them.

BC: JTNM hasn't changed. It has looked, felt and been the same since the 30's. There are better roads, more money in some periods. JTNM has been a traditional wilderness area and therefore not a lot of development is found in the park. Locals used to go to Barker Dam to swim and there were a lot of trails everywhere. The community didn't know what a climber was before our store (Cottonwood Camping).

BG: There aren't a lot of marines in JTNM, which is strange with the Marine Base so close...

BC: The West Coast is their chance to do climbing. A lot of these guys do it here and stick with it when they go home. Young marines have a transportation problem to get into the Monument: they either have a family or are single. I've been trying to show the community that JTNM can help the economy, especially when the Marine Base is empty. Yucca and Joshua Tree are trying to invest in JTNM and other things too as a backup.

JC: With the increase in visitation and all cars going through the Monument, the fee is paid but the money goes to a pool. Therefore, there are no increases in resources, but cuts, especially in rangers (since the 70's).

KB: We had the money but not the people.

BG: In terms of the evolution of JTNM as a climbing area, JTNM is in a mature state. There are so many routes out there (and bolts). As there are more and more climbers, let's focus on preserving the beautiful, safe climbing activity. Let's maintain what we have, I don't think numbers are increasing much. It has been pretty steady in the last 5 years. It will stay at the same constant increase. People drop from it so we are talking about a 10% or 20% increase a year at the most.

JC: Looking at the sport as a whole, gyms are going to grow (I agree with BG, they will grow for at least 3 to 5 years) and mature and mellow out. Then climbers are going to decide if they want to see more. Pioneers are going to other obscure places.

BG: You see less world class climbers here in JTNM now because there are other areas. JTNM is not on the sport climbers circuit anymore. Many other areas developed now which are more conducive to the sport climber. Those areas have less regulations.

JC: It is no displacement, it's like Yosemite, that is not in the circuit anymore. Other areas have been developed as sport climbing areas and this has taken climbers away from JTNM. It took pressure off of JTNM.

BG: Young, 5.7 and 5.10 climbers from LA, weekend climbers come here.

JC: There are other climbing areas since the mid 70's, like DWP area, where only the staff and climbers go. There is no impact on other people and no dissatisfaction.

BG: Europeans come on vacation to visit several places other than JTNM.

JC: You don't see a lot of Yosemite climbers in winter time here anymore. They are a small population compared to the general increase in the popularity of climbing.

BG: El Dorado State Park in Colorado is a good place. They came to terms with climbers. JTNM has to allow climbers to take more responsibility. The Park Service does not want to deal with the bolting issue.

BC: A lot of the problems here come from Yosemite. They (seasonal rangers) go back and forth and bring their problems when they run into the same groups. There was a lot of trash there in the hippies' time and memory is long...

CC: I heard how climbing progressed. It's a hell of a physical sport, it's growing, I'm into trad climbing and bouldering, the general picture of nature, fun, relaxation. I hear all those stories about dope smokers, etc. and there are memories about the hippies' time.

GW: What does wilderness mean to you?

JC: It is a matter of levels. A jet flies, I see contrails and the wilderness feeling is lost. A trail has a lot more impact.

BG: I took a wilderness correspondence course recently and their definition is: wilderness is 2 hours from roads... In JTNM it is not true wilderness but it is pristine. There is no real wilderness. There are no established trails in a lot of areas. There is a lot of hikers (50%) and hiking climbers (50%).

JC: Wilderness for me is a "no mistake" zone. The eastern part of the Monument that climbers never reach is wilderness.

BG: You don't feel as if you are stretching your neck too much in JTNM.

JC: A "no mistake" zone is different. I went to one in Canada and for ten days we saw no one. The same in Alaska. You are on your own. It's one way to look at wilderness. It doesn't mean I don't enjoy naturalness, and flowers ... It feels like protected resources.

BC: The terminology is a lot of it. An LA kid might think Hidden Valley Campground is wilderness.

<u>Second Focus Group Session: "Climbing Ethics in Wilderness".</u> The following is a transcription of the second focus group session which was recorded by one volunteer assistant. The session took place at the Wilderness Education Association Conference at the Colorado State University campus in the city of Fort Collins, in March 31, 1995. Four participants attended the session: Eddie Dowd, Bob Feller, Greg Hawkins, Ryan Hembre, Adam Holmes, Jenniffer L., Mick Lautt, Jeff Liddle, Kevin Moses, Jon Myers, John Rogers, Tim Shaffer, Mark Simon, and Cecilia Wuller. Dr. George Wallace (GW) was the mediator, and Kesia Trench (KT) was the volunteer assistant.

GW: What's wilderness in your opinion (legal wilderness)? What's different about it from other multiple-use area?

Bob: Area in pristine state.

Greg: No mechanized or motorized use.

Mark: Wilderness-dependent activities should be favored in wilderness. Activities you can only get there, in solute, natural environment. Not exclusively, but these things should be favored.

GW: What does wilderness mean to you?

JC: It is a matter of levels. A jet flies, I see contrails and the wilderness feeling is lost. A trail has a lot more impact.

BG: I took a wilderness correspondence course recently and their definition is: wilderness is 2 hours from roads... In JTNM it is not true wilderness but it is pristine. There is no real wilderness. There are no established trails in a lot of areas. There is a lot of hikers (50%) and hiking climbers (50%).

JC: Wilderness for me is a "no mistake" zone. The eastern part of the Monument that climbers never reach is wilderness.

BG: You don't feel as if you are stretching your neck too much in JTNM.

JC: A "no mistake" zone is different. I went to one in Canada and for ten days we saw no one. The same in Alaska. You are on your own. It's one way to look at wilderness. It doesn't mean I don't enjoy naturalness, and flowers ... It feels like protected resources.

BC: The terminology is a lot of it. An LA kid might think Hidden Valley Campground is wilderness.

Second Focus Group Session: "Climbing Ethics in Wilderness". The following is a transcription of the second focus group session which was recorded by one volunteer assistant. The session took place at the Wilderness Education Association Conference at the Colorado State University campus in the city of Fort Collins, in March 31, 1995. Four participants attended the session: Eddie Dowd, Bob Feller, Greg Hawkins, Ryan Hembre, Adam Holmes, Jenniffer L., Mick Lautt, Jeff Liddle, Kevin Moses, Jon Myers, John Rogers, Tim Shaffer, Mark Simon, and Cecilia Wuller. Dr. George Wallace (GW) was the mediator, and Kesia Trench (KT) was the volunteer assistant.

GW: What's wilderness in your opinion (legal wilderness)? What's different about it from other multiple-use area?

Bob: Area in pristine state.

Greg: No mechanized or motorized use.

Mark: Wilderness-dependent activities should be favored in wilderness. Activities you can only get there, in solute, natural environment. Not exclusively, but these things should be favored. For example, no large groups that could do top roping elsewhere.

Jon: Solitude without many encounters, fire rings, etc.

Adam: Leave no trace principles, education at trail heads, etc.

John: It is the uniqueness of the area that set it apart from other areas.

GW: If you were a manager, what other things would you have to manage for in a wilderness area that is different from other areas?

Kevin: The search and rescue issue and means to do it. Human life comes first and you should break the law to rescue a person.

Greg: To allow for greater commitment for an activity and to take chances.

Kevin: How to deal with risk and challenge and injury in wilderness.

Jeff: Maintain a baseline of understanding of how nature works.

Tim: Education on how to have minimum impacts, rescue, etc.

GW: Is wilderness the only place you manage for naturalness?

Mark: Yes, protect the resources should be the guide post. Not for user convenience (the group agrees).

Kevin: There is also the issue of access. Maybe there is no trail to a rock but social trails are created and the resource is impacted.

Mick: What is the priority of use? Is it for preservation or use? Where do you draw the line? There should be acceptable limits.

Ryan: The biological diversity of wilderness is important and not only the fact it is an inaccessible area.

Jennifer: Is wildlife included in the concept of wilderness?

GW: Yes, flora; fauna and abiotic elements.

Bob: The unique location, like big, large tracks of land and no view of urban areas or noise.

GW: If we really want to protect ecosystems you might have to compromise size (group agrees).

GW: How is the wilderness climbing experience different in your mind as opposed to that in other places? What do you expect?

Greg: Poor rocks and sparse protection because routes have not been cleaned up. Higher level of personal commitments.

Bob: No bolts and slings left behind.

Mike: Absolutely. Look at Yosemite with all the pitons.

Bob: Place any protection you want as long as you don't deface the rock. No bolts, no chalk, etc.

John: In some areas maybe there is a no-climbing period because climbers clean up the area and rip off plants, knock off rock, etc.

GW: It is an interesting issue because it does limit where you climb and how you climb. Some climbers agree you should meet nature in its own terms. Some others don't.

Mark: Don't touch the style of a climb or how they are developing a climb. At the base of a

climb there is impact so we recognize that there would be impacts by developing a route. We should focus on the density of routes and limit that.

GW: Here are some issues that are tackled in the wilderness: number of encounters, evidence of previous climbing, development of routes in a number of ways (bolts, descriptions in books). How much of that is acceptable to you?

Tim: The number of contacts varies a lot. It is area-specific. When you are climbing a route, in your mind you are the first.

Adam: Not necessarily. It's a luxury. Many times you basically need to put up your route. As far as bolts, when you see them, it's more a question of where it is and why. Many times it is a wise approach. It probably was put with a hand drill.

Greg: The question is not bolts but style and ethics. There needs to be some policy as far as how to do those things.

Kevin: Reward is more important than prestige. It's much more of an experience to climb a route that Royal Robbins did than one that I put up.

GW: How long should wilderness last? A bolt here, a route description there, slowly it is developed.

Greg: Limitations on number of people take care of that.

Eddie: Wilderness should be unmapped, no guide book descriptions, no trace of people, no bolts.

GW: There are some traditional areas where things are established and will be an exception for management. We are talking about new areas. How about the safety issue?

Bob: No bolts in wilderness and period. I'm totally opposed to that.

Adam: Are we discussing sport climbing or sparse bolts?

Bob: Is sport climbing a wilderness-dependent activity?

Adam: I don't know.

Kevin: I don't think so.

Jeff: The bigger pressure is when the sport climbers don't have any wilderness ethics and want to climb there. If you want to climb in wilderness, don't use bolts. Climbing like this is an urban experience. The guide book issue will draw more people to a route and it will be trashed, but bolts are more important in attracting people.

Tim: If you say no bolts, people will do it anyway. There are safety and liability issues.

Ryan: Guide books take liability away from the park.

Mick: Bolts or not: won't it depend on the kind of mission the area has?

Kevin: Regardless of location and significance, if it is wilderness, it is already decided and it should be pristine.

KT: Ethics are more important. Let's talk about it.

Mark: Bolts, anchor chains at the top and limit routes to a small area.

Bob: Bolting is not a solution. There should be a sense of discovery and bolting defeats it.

Adam: Fanned out trails disturb me a lot. Follow one trail and make your impact sparse. Throwing packs on plants is not acceptable.

Mick: Where should you cook, put up the tent and dispose of waste? High use areas should concentrate impacts.

Kevin: Selfishness is involved in route-naming. When you climb a route you have to review your motives. Just put up a route, be done and talk about it? Route-naming is not necessary for undeveloped areas. This doesn't apply to a established area.

Mick: How about the historical view?

Kevin: Royal Robbins was interviewed over and over and shared his experience but he didn't do self-advertising.

Tim: Chalk is a problem because of the visual impact.

GW: How about gardening?

Greg: Gardening is not an acceptable practice. No toothbrush or removing big blocks of rock but some cleaning do happen.

Kevin: Each climber has an obligation to minimize gardening and get educated.

Bob: Route selection is important too. Pick the route with least impact.

Kevin: Guide books are needed by some people to be able to rate a route.

Adam: You have a choice to look at a guide book or not, see the rating, the name, etc. It impacts more the area when it is released.

Bob: Other people will see them and go there and impact the area.

Mark: A guide book could be a management tool to concentrate use and impact. List just a few climbs and do not allow climbing in the other areas.

GW: Would zoning within wilderness help in providing a wilderness climbing experience?

John: Some wilderness areas are way over-used and are heavily impacted. I don't go there anymore.

Bob: No.

Eddie: If we have to, yes.

Mick: Zoning gives people options.

APPENDIX C

COMMENTS FROM OPEN ENDED QUESTIONS ON MANAGEMENT ACTIONS

AND CONTENT ANALYSIS OF COMMENTS

APPENDIX C: OPEN ENDED COMMENTS ON MANAGEMENT PRACTICES AND ANALYSIS OF COMMENTS

COMMENTS: Climbers comments in response to the open-ended question: "Do you have any comments about the management practices mentioned above?", item 9 of the mailback survey (the following is a literal transcription of each climber's own comments).

1. No new routes are necessary in JTNP. If a climber can't find anything to do out of the 35000 climbs here they can just leave. Replacement of existing bolts may be necessary to prevent any accidents, but let's not just let anyone go replace bolts unless they know exactly what they are doing. Access Fund trails or Park Service trails can really help the natural vegetation and protect it from getting trampled. More may need to be established in heavy use areas. A brochure to hand out to climbers at the entrance gate may be helpful; emphasis on low impact hiking, camping and climbing, CLIMBING ETHICS.

2. If you only allow bolting in the front country things could get ugly. Allowing bolting in the back country will help spread things out. Allowing only hand drilling (on lead -->very important) will help slow bolting. Colored chalk may not be as visible but it doesn't seem to wash OK in my experience.

3. Enough bolts!! There are damn few crags in JT that are too large to top rope. If you have to have a string of bolts with runners in place to lead something, then you have not led it. Top roping would do for all but the most ego driven, destructive, rude, give-a-bad-name-to-the-sport buttheads that comprise less than 5% of all climbers, but may end up ruining everything for everybody. If the placement of new bolts were banned, the renegade sport climbers would have to find other digs, and the problems they create would go with them. Notice I said NEW bolts. Existing bolts should be allowed to remain, in some instances be replaced if necessary. New routes put up without bolts would not be affected by this regulation. There are far too many (3000+) routes up already in JT to justify any more bolt ladders up blank faces.

4. I believe that JTNP is managed very well and everyone who works here is friendly and helpful.

5. Somehow work out a method of allowing a limited number of climbers per day in a limited number of climbing areas to reduce impact, i.e., Echo Tee, Real Hidden Valley, etc..

6. JT is crowded to an extent where if I came here to enjoy the wilderness and climb, my wilderness experience would be hindered by the amount of people I encounter. I no longer come here to get away from people. I come here to climb and climb only. I like to climb and don't want to be limited on the amount of climbing that I can do at JT. I fond of no more bolting in the wilderness yet I think replacement of those in place should be allowed.

7. It is extremely dangerous to outlaw replacement of old bolts, making climbing unsafe and opening JTNP to huge law suits. Removal of all slings is another dangerous practice. I feel that the safety at climbing needs to be maintained. To maintain the natural beauty of JTNP how about enforcing litter laws. Most people are attracted to JTNP to climb or to watch climbers. Natural colored bolt hangers are often difficult to see and they are less safe than the silver. If you want to limit the number of climbs you could not allow new routes to be bolted but the replacement of old bolts is absolutely essential.

8. I support the practice of power drill routing within JTNP. Safety should be the number one concern in fixed protection and power bolting encourages better placements and stronger gear utilization.There are still far too many/4" spinners around JT, many on quasi-grade routes. These need to be REPLACED with good 3/8" SS bolts and hangers. I don't much care about the prospect of new bolting and extreme routes - I'm too damn old to get up any of the 5.1+ anyway - but I do care about good quality, competently placed fixed pro and belay/rap points.

9. Encouraging mountain bikes use as means of transportation inside JTNM ON ROADS. Increasing information on plants and animals, historical and archeological sites - TALK ABOUT THAT BUT DON'T TELL HOW TO GET THERE! Increasing information on the management zone in JTNM - WHAT IS REALLY GOING ON HERE? Climbing restrictions in areas where heavy use has produced documented negative impacts to plants, animals, soil and/or rocks - THAT WOULD BE AT THE BASE OF EVERY CLIMBING SITE. Limiting the number of commercial groups using JTNP - HAVE THEM TAKE A TEST ON HOW TO TREAT THE ENVIRONMENT. Requiring permit for use of power drills in JTNP - TO REPLACE BAD BOLTS AND ANCHORS. Let's see if I can re-structure the comments I have made so far. In the nine years I have been coming here I have seen a change in 2 things: first is the popularity of rock climbing and second the destruction of the natural environment. Because I have made life out of being in natural areas I have chosen a career whereby I can be outside and hopefully educate people on ow to care for the land.Yes, I am a climber and with that comes some abuse to the environment, but my hope it to make just with mother nature y taking novices out and steer them on the path of minimum impact. I have certain concerns regarding user groups here in JT if there is too much regulation. I stand to lose income needed to survive. Yes, I have bills just like 9-5 workers. On the other hand I have come across other groups and have seen such violence to the land. Perhaps what we need is a way to test people on how to live with the land, not off of it. Have groups pass a test in order to get access to use permits for JT. For those who don't pass have a program by which they can get educated in order to pass. Just like a driver's test, we don't let everyone drive here in the USA, perhaps we shouldn't let every user group use our remaining natural areas. As far as the general public, which is by far the largest user group, we need to better educate these people too. Much effort is needed here, perhaps all those administrative people could be put to work doing this. Bolting ban - well, from my stand point there are enough climbs in JT to keep anyone and everyone busy forever. What we do need is to replace old, unsafe bolts and rap anchors,

because nothing should come before a person's safety (* on previously bolted face routes and rap anchors - NOT NEW ONES!). Not new climbs because then mother nature comes FIRST! Perhaps not every rock should be a climb in the making,maybe if we could just look with eyes of admiration, not eyes of progress. All in all, who is to say what is right or wrong, good or bad. What we need to do is start somewhere in a positive direction. Let's hope it will happen soon.

10. Can we please get some composting outhouses? The current ones are so vile that I have chosen to go the bathroom outdoors (bagging toilet paper, of course). There should be recommendations on fixed anchors, i.e. natural colored bolts and rap stations. No more "American triangle" slings set ups. These are very dangerous. Retro-bolting and new bolting should be on a permit basis. Retro-bolting should be actively encouraged since lives may be lost due to old, unsafe fixed protection. Any info on how to minimize impact would be appreciated and is essential for climbers to understand their relationship with the rock.

11. Yes-something needs to be done about camping-I'm from San Diego and I can never find a campsite at JT unless it's off season (charge $5.00??). Many people hiking and bouldering are <u>not</u> technical climbers (i.e., kids and families). Many people in most of our Nat'l. parks are foreigners; particularly Germans and Europeans/Asians. Bolting and slings can be colored to look like natural rock. <u>All</u> of my climbing friends are environmental conscious and concerned about wilderness. Climbing can be a challenging experience for inner-city kids, who'd be doing drugs instead. Climbing is one of the most rewarding experiences in my life. Just charge for camping!! 5-10/night.

12. JTNM is a great place and a beautiful place to climb. In the last 4 years I've seen more and more people taking up climbing. I'm alarmed on how many inexperienced and ignorant some of these climbers are. I was climbing a popular route called "Walk on the Wild Side" 3 pitches, the party prior to us rappelled down while we were climbing up. They could of rappelled down the adjacent route. they kicked rocks and threw over stones. as a result I try to avoid the more popular front country climbs. there needs to be more information geared for safety and environmental impact. Maybe have climbers sign an educational pamphlet once a season on the dos and don'ts of climbing. Offer climbing classes. I think bolting should be allowed only with a permit. If you allow a free for all on bolting you are asking for trouble in an ever-increasing # of climbers entering the sport. My opinion, in conclusion, climbing education and bolt permits.

13. Bolts reasonable in number are like vertical trails. they re critical to safety in many instances. the only limitations on bolts should be driven by concerns of creating "walls

of steel." Given climbing's popularity and the huge number of routes, some sort of permit system that isn't violently hostile to development is fine. there are lots of routes as is, and climbing does affect others. What is most important is that existing bolts be maintained so people do not die!!!

14. I think there should be more campsites in JTNM. I think a few more signs would be helpful as to where climbs are and their level of difficulty.

15. More campgrounds that take reservations.

16. The current superintendent has acted unwisely in his decision to take action against climbing in an autocratic decision process. I believe that J Tree has been historically a climbing area and is utilized primarily by climbers. I believe that the use and tradition merit a climbing oriented administration. A new superintendent would be in order. I am, however, against the use of power drills to aid in climbing. I strongly support the use of necessary bolts for protection, i.e., anchors and even for some face climbs, but believe that if the route is worth doing it is worth doing under one's own power. A campground for climbers only would be most appreciated.

17. Climbers should be given the opportunity to help maintain the park. Previous examples include the annual clean ups, Access Fund trail maintenance and outhouse purchases, etc. Climbers are genuinely interested in helping maintain the environment in which they climb and are more than willing to do their part. Instead of climbing restriction in certain areas, restoration projects or trail construction (so as to avoid damaged areas) can help rebuild or save areas and at the same time allow the climbing to continue.

18. For safety reasons all bolts should be dated and periodically checked and replaced. Rangers should be in charge of bolt replacement. Climbers should not take it upon themselves to replace old bolts. They should report it to park officials who should promptly replace the worn bolt.

19. I support the Access Fund. They are grassroots and speak for the people who use the park the most. They are level-headed and work for true conservation and enjoyment unlike the Sierra Club that has become a political monster (John Muir would be in the Access Fund and oppose the Sierra Club). I feel betrayed by JT management and the Sierra Club with the bolting ban. since the Access Fund had worked so hard to work out a realistic climbing plan. I have been on many JT clean-up and volunteer work and will only support plans approved by Access Fund.

20. I think bolting should be regulated, not eradicated. It is shame to see over bolting on routes that really are no good or in areas that detract from other visitors experiences. Rappel stations with slings and bolts are real nice and for the most part are not visible from the ground. With low impact slings, they really don't pose a problem. Replacement of old bolts should be allowed as they become dangerous (replacement or removal). Someday someone will clip that bolt, take the plunge, and pay.

21. With regard to power drills: It is my understanding that power drills are currently illegal in all of the Monument. The use of power drills is a necessary evil to replace aging bolts. If the power drill ban continues, then perhaps a permit system to use power drills for bolt replacement would be a good idea. In response to use of power drills vs. hand drills: 1)Noise: Hand drilling is actually noisier because it takes longer (30 mins. vs. 30 sec. with a power drill). there fore, from a noise pollution standpoint, power drills make more sense, as the noise level is much less noticeable to non-climbers seeking quiet serenity. 2)Safety: No question, power drills provide a greater margin of safety for climbers as they allow for larger bolts. Power drills are necessary for bolt replacement; without them no one will undertake the task. Climber must have the right to maintain bolts and fixed anchors. To ban bolts and bolt replacement is to in effect ban climbing on 50% of Joshua Tree routes.

22. What I'd like to see is the replacement of old bolts when safety of climbers is compromised.

23. I support "climber only" campsites if there are also "family only" campsites, or "non-climber" campsites. Would be great to be able to spend 30 days at campgrounds. Low flying jet aircraft (military)greatly detract from my experience. Heavy climbing we tends to center around already heavily impacted camping areas (i.e., Hidden Valley) so climbing restrictions wouldn't change impact much. Climbing closures "on" archeological sites is a good idea, "near" is not well defined enough to support. I lead groups of 8-10 students at a time in the backcountry for PCOBS and other schools. We follow strict minimum impact procedures and any permit system requiring guided groups to follow minimum impact practices is a great thing. The current number of commercial groups seems good, very rarely do I see anyone else in the backcountry. Requiring natural colored webbing should take care of casual problems, requiring removal of all slings will leave people stranded on top. Requiring removal of "poot" slings is good. Old 1/4 bolts are extremely dangerous, allowing their replacement with 3/8" bolts drilled with power drills will enhance safely.

24. Joshua Tree is an unparalleled climbing resource in the U.S. The need for recreation is crucial. I think it is vital to protect the resources in the National Monument. Limiting group size of climbing sites is a good idea. the new Access Fund trails are great. I

think it is crucial that climbers be more responsible and care for the park resources better. I would like more information about resource issues, climbing safety and impact on the Monument. I strongly believe that climbers are the largest user group in the JTNM. I met climbers who traveled from Sweden, Japan, and New Zealand just to climb in joshua Tree Climbers deserve to be treated as a responsible user group and given input into management decisions. Too often parks are managed without input from major user groups. I think the Monument places too much emphasis on RV campers (who in my experience make up a tiny minority of actual users). I think that camping facilities should remain as rustic as possible. Please No RV Parks!! I think it is important to regulate climbing in the wilderness so that sue complies with the Wilderness Act of 1965. I also think it is crucial to replace old bolts so climbers aren't killed. I think it is important that the Park Service take all points of view before making management decisions. The Loop Road Proposal is a classic example of one-sided decision making. The Park Service often acts as an advocate for RV's and any other users have to fight to even be considered legitimate. Those 1 million visitors are climbers by and large, give us say.

25. JTNM is a wonderful place and management practices appear to be working well.

26. Climbers should be able to climb without Park Service rules as to how and where we should climb. Climbers, as other users (bike, hike, hors), should, of course, take care of the Monument, but excessive gov. regulations are <u>not</u> the answer. bolting has been established already as a legitimate and reasonable thing to do for climbers safety and enjoyment. bolting should be allowed in <u>all</u> areas of the monument and self-regulated by climbers and not the gov. I also feel power drills are ok. They allow climbers to place safer and longer lasting bolts; safety/enjoyment is key element...not restriction and regulation.

27. I believe that bolts are fairly low impact when placed purposely and blending in with the rock color. I believe some sort of responsibility should be taken for replacing old and dangerous bolts.

28. I've found many routes without fixed anchors for descent and no easy way down. I find this just plain dangerous. Rules regarding bolting and ethics for bolting shouldn't come before safety. Having to put a bolt in with a hard drill while hanging from a sky gook is fine but if it means a shoddily installed bolt that may blow out and kill someone in the future I do NOT consider ethical. I do see the problem with too many bolts on the rock and would advocate the need for permits giving parks control over the number, location and person placing the bolts to ensure the individual knows what they are doing. If power drills mean more solid bolt installation they should be allowed by permit- which could also be used to specify hours to reduce impact on non-climber

visitors. What's with this SNOW! (Nov. 14)

29. J Tree has been a traditional area ever since climbing began in the Monument. The climbers have self-governed the routes established: removing excessive webbing, chopping bolts on routes that were not put up in a traditional sense or not needed (like on a traditionally top rope area). This survey is an excellent idea. The climbers and the administration need to work together to come up with guidelines to ensure that J Tree remain a traditional climbing are that's safe and aesthetic for all who visit the Monument. Natural colored bolts are a good idea, but colored chalk stains the rock, where as magnesium carbonate washes off in a good rain. bolt replacement is as important as trail maintenance. some of the bolts are 20 years old and need replacing to ensure the safety of those who climb.

30. We're from Oregon and not familiar with the controversy over the use of the park by climbers. However, I did read about the ban on new bolting inn Climbing magazine. Based on my background in Smith Rock, I clearly favor free access to bolting, complete open access, with natural color bolts and no sling leaving. In general, I believe that climbers are the most low impact visitors to a park, other than bolts. (i.e., litter, animal dropping, loudness, inconsideration to others.) That's about all I need to say.

31. I think it is important for the wilderness to be preserved as much as possible for the enjoyment of future as well as existing generations. Climbers are only one group of people that like to use JTNM's natural resources. Since there are already established routes, they should be considered "trails" up the rock and should be maintained so that they are safe for climbing. New routes should be allowed only by permit, and be allowed to be bolted only by experienced parties. Discretion should be used as to where bolting is permitted. I think it would be ok if the route didn't disturb any nesting wildlife, etc. I have been a part of a commercial group using JTNM and I think they generally do well in educating people about proper conduct (environmental, climbing, camping...) in the wilderness. For this reason, they should be allowed, but limiting the sizes of the groups to a manageable number would be beneficial to both JTNM and the group. Power drills should not be banned. The technology should be used to provide safe bolt placement in a short amount of time. the drills are no more bothersome than the jets flying overhead.

32. Generally, practices are good. Climbing technically aided routes should be limited somewhat to replacement bolts, and to areas where impact is not "great" to environment (this of course is a subjective term depending on person point of view). I encourage climber's freedom to challenging climbs, while respecting future generation right to view the beauty of the Monument and/or climb.

33. Developing "walk-in" campgrounds!!-would be nice! Limiting large commercial climbing groups.

34. Josh has enough routes bolted to keep its sufficient # of campsites busy climbing. It needs no more and deserves no more. But old bolts must be replaced-that's only common sense. Safety. Removable protection is great, but wildlife info. is necessary directed at climbers to inform them of their impact on wildlife such as birds nests and feeding animals bad food. The front country should be treated as reverently as back country. Stiff, stiff fines for environmental damage or littering.

35. Unfortunately this is my first time at JTNM. I do believe that park can maintain and sustain both a learning natural environment and a recreational area for rock climbers.

36. I feel very strongly that we, as climbers, should be allowed to replace pulled or mangled bolts. The impact from the initial bolt will always be there, and not replacing the bolt may eventually lead to injury or death, something we <u>don't</u> need any more of in the Monument.

37. Josh is fine as it is- if it's not broken don't fix it!

38. I wage formation of a bolting permit committee comprised of JTNM and climber community folks. Climbing is as safe as we make it-and we need to 1)replace some faulty bolts now and 2)allow placement of safe descent anchors (rappel stations). I strongly support efforts to educate climbers regarding low impact wilderness practices and urge more information/education regarding safe climbing practices.

39. I feel it is necessary to enforce certain policies perhaps, but all angles must be called into view. Closure of areas to climbing due to "wilderness" stature are questionable at best given the facts that exist-1)large centers of population very close by. 2)Constant human traffic by vehicle and on foot. 3)Aircraft flying overhead. 4)Smoke, smog and visual pollution-i.e., lights and/or glow from lights at night. Given the fact that the majority of climbs at Joshua Tree are well within a 1-2 hour hike of a road or well used trail it would be ludicrous to declare this "wilderness" as such. The exception to this would be in the eastern portion of the Monument where there is relatively little traffic due to the lack of decent roads. Bearing in mind what I've just pointed out-it seems rather silly to ban bolting in the "so called wilderness" areas. The majority of people who will travel back among the rocks are climbers (tell me honestly how many of the motor home drive through sightseeing crowd are going to hike more than 1/2 mile, at best, from the paved road?) so why restrict their means of safety and enjoyment? should it be necessary camouflaging of anchors would allow a more wild experience, but with the hordes of climbers about, one can never truly have a

wilderness experience. The impact of bolts is minuscule compared to that of campgrounds, roads, and the thousands of visitors every year.

40. Keep climbing open and safe. Allowing people to place anchors, bolts, etc. to make climbing safe with the least impact on the environment. Requiring groups (classes) to make reservations and acquire permits. Schools should be charged a fee or required to give something back to the park. No gluing or doing unnatural things to the rock/environment. If it's not meant to climb, then leave it be. Don't make it into a gym. Guests of the park should be educated through signs, etc. of the etiquette of the park.

41. In regards to bolting, I found many of the frontcountry routes poorly protected (i.e., not enough bolts, 1st bolts too high, no double bolts for rappelling/top roping on top). I climber safety a management concern or is it left to the individual climber?

42. Thank you for taking the time to put this together and for the opportunity to participate. We all need to communicate and work together. This is a step in the right direction!!

43. Do we need bolts at all? Sport climbers want easy access and lots of safe bolted routes. If they want that in "Frontcountry" that is ok with me. Some occasional bolts on a backcountry crack climb may be needed to complete a climb. We do not need "sport climbs" in the wilderness. That is what "top roping" is all about, and for. I would not like to see commercial busses in JT. They would ruin the air, solitude, and environment. do not want to see another Yosemite.

44. JTNM is a very special place and should remain so. It should be left as it is. this means that people can discover things for themselves rather than be told what to expect. It seems to me that things have reached an equilibrium. Where the people are limiting themselves. By he limited camping space and the facilities, this keeps it primitive and an effort to camp. These are the people who generally respect the environment. Marked trails are good in the areas adjacent to roads. No need in the wonderland as this remains an unspoiled area. There should be no camping other than in the campsites anywhere in JTNM. Any restrictions to areas will put pressure on other areas. It seems ok at the moment. Just monitor over next 5 years. Support low impact equipment. Normal chalk blends ok with rock. JT is special in that there are a local body of climbers who keep an eye on developments and the style in which a route was put up, e.g., bolts placed next to a crack that takes protection would get removed. Power drills are necessary in placing safe bolts larger than 1/4" rawl drives. they make a better hole than a hand drill especially when using 3/8". As said before, monitor how things go without changing anything as there is a good balance now

between people and environment. do not make roads better. Do not have water. Leave things as they are.

45. I believe routes which are very popular and fairly easy to access should be retro-bolted if need be. The addition of new bolts on existing routes is necessary. Poor anchors (i.e., bolts when no other Route is available) should be replaced. There are already 3000+ routes here-please limit future bolting, enough is enough.

46. More bolts. Stande (German) = holds.

47. I have poor eyesight. White chalk, visible hangers, bright colored slings allow me to see routes. I would like more roads into new areas. (What ever happened to Project 66?)

48. Replacement of bolts on the frontcountry is a safety issue due to the high use. Would like to see a more workable system of camping permits (reservations?) to minimize the live-in factor.

49. I think a bolting permit system is the most realistic option. It makes everyone happy. Keep on working with the Access Fund. I hope the JTNM status does not turn this great place into a zoo. Continue to mark trails. i found the rangers to be very helpful and friendly. Thank you.

50. No one seems to think dogs or RV campers are problem here. Your management practices seem to be focused on making it hard for climbers to do much here, but not worrying about all the people who leave trash and dog shit everywhere. There are climbers who are no better, but I think for the most part the climbers take care of the place. I feel there is too much concentration on climbing and not enough on the <u>real</u> problems in JT.

51. Climbing and bolting are traditional uses of JTNM and have a place here. Information rather than regulation is the best way to control conduct here. Fort reasons of safety I feel power drills should be allowed to craft routes and to replace old dangerous bolts. Bolts placed with a power drill are much safer due to the more precisely sized hole. If we are not allowed to maintain routes at our discretion will the govt. do so and assume liability? I think not. Why, with increased usage and demand at Hidden Valley campground were the inner loop sites closed and the note board removed?

52. Besides the comments after many of the preceding items, I'd say I've cleaned up more trash after non-climbers in the Monument than anyone else there (i.e., campers and hikers seem to leave more of a mess than climbers do). climbers are very visible and

hence seem to number in the majority of users, but they seem in general to be the most conscientious, whatever their numbers. What other "user group" has put out any effort to regulate itself and contribute $$ to aid JTNM mgt? Dogs in the Monument: too loosely regulated. Climbers as well as other users let their dogs run unattended (off leash), and the dogs chase wildlife and bother other visitors. Heavier penalties? More frequent patrolling by rangers? In my years of hiking in the Sierra and other places, including JTNM, I've seen that horses have far more impact than mountain bikes do on trails and surrounding vegetation. Yes, bikes should be restricted to trails, but why not allow them on the same trails that equestrians use in the Monument? Mtn. bikers don't eat native vegetation nor leave huge manure piles, like horses do. Nor do they bring in non-native seed in their feed bags, like equestrians do. Furthermore, it's downright hazardous to be on a bike on a paved road in the Monument (west of, say Queen Valley) when a RV rolls by. How feasible would it be to widen the road, say, 2-3 feet, to make it safer for all users?

53. The bolting ban in the wilderness was a slap in the face to all climbers- as well as those organizations that had been constructed for input into the plan. those organizations (Access Fund, Friends of JT) acted in good faith and most people involved thought the original plan balanced the needs of both climbers and management. In putting the bolting ban in the plan, Cup. Moore alienated both the organizations and most climbers.

The park management should realize that climbing has been a legitimate activity in NPS areas for over 50 years and that the use of fixed anchors and bolts as necessary to protect climbers from injury or death. (Which saves the Park Service money.)

54. Bolt placement should be possible to do by climbers that want to push their own limits (that's in all possible levels).

55. We found that certain bolted routes lack regularity (security)- properly placed protection at start and less protection near finish (Stitcher Quits). We find it rather ridiculous that some routes have belay bolts but no chains- requiring added welding which is more dangerous and also more unsightly. (for rappels) (Locomotion Rock) In general, we would like to see rappel points with chains for improved security.

56. I would like to have a managed camping situation. I've never been able to get a site in JTNM even though I've come in the middle of the week. I don't like "death routes." I did 2 climbs, Lickety Splits and Diamond Dogs that were excellent but had runouts where if you fell you would deck. I don't believe these should be made into sport climbs with many bolts, but in a popular area I don't like climbs where a fall means you die. Don't allow bolting where there is natural pro.

57. Permit to bolt no matter where in JT.

58. NPS over regulation is evident in many Park areas. Too often you find the Park Service "managers" do not know anything about the issues they are "managing." They are motivated by politics and liability. the seasonal rangers in JT for the most part (I would think) are climbers. The permanent rangers and administrators are not. So- they make decisions affecting an activity they know very little about and care very little about. NPS can not competently "manage" climbing activities.

59. Perhaps we should concentrate on not building on and destroying wilderness. So we have less impact by the evil park (really do not need them anyway) service.

60. I have tried to answer these questions honestly, without second-guessing how the information will be used. I do not think that permanent alterations to the rock, i.e.e, bolts is a real concern, as is impact to the flora and fauna. However, I do have several comments relating to bolts: Many of the bolts placed on established climbs in the Monument are 1/4" bolts and have experienced some corrosion and fatigue. Not allowing replacement of these bolts would potentially jeopardize the assumed level of safety of a climber. I do think that placing any bolt should be a serious consideration, and using Echo Rock as an example, some crags have probably been overbolted. Anchors with slings- some descents require a rappel where downclimbing is not safely possible. In the case either slings or chains or shuts must be in place. I'm all for rock colored slings and hangers. Natural colored chalk- In my experience, natural colored chalk, unless it is very closely matched to the rock color is still quite visible. also, this chalk does not wash off the rock very well when it rains. Hueco Tanks does not allow colored chalk for this reason. Public education/information- I think handing out pamphlets to climbers and all suers on how to minimize impact would be extremely useful. It seems like more and more "sport climbers" don't have the respect for the environment that some of the traditional climbers have. Establishing trails- what the Access Fund has done is great. Even more can be done to avoid cris-crossed trails going in every direction. I love Joshua Tree. I speak for myself and the small group that I climb with. We pick up trash when we see it, try not to walk on any plants when we can and not throw our packs down on vegetation. In my experience, when I go back into the Wonderland, I see few (or no) people. I have often been on a day outing where my partner and I have not seen a soul. I'm not sure it's necessary to issue wilderness permits yet. I am opposed to improving the facilities, increasing camp spaces, etc. because I believe it would attract more people and place a greater strain on the heavily used areas. I hope this information will be useful. Thanks,

CONTENT ANALYSIS OF PRECEEDING COMMENTS Sixty respondents chose to write an open ended response to this item on the mailback survey. Each concept touched on by a respondent has been put into content categories which summarize. Multiple concepts were categorized from a single individual if they were present. This should be replicated with several reviewers. A preliminary set of categories are given below along with the number of times that climbers alluded to each. They are displayed in an approximate rank order.

a. the importance of being able to replace existing bolts, anchors and chains - especially those needed to descend. 27

b. support for requiring a permit before new routes are put up or bolts replaced. 16

c. that JTNP had too many routes/ or that no new routes should be put up. 13

d. that more information on climbing ethics, impacts, and how to minimize impacts should be provided to climbers. 12

e. that climbers are conscientious, should be included in the planning process, cooperation between climbers and managers is needed. 11

f. that there should be knowledge and skill requirements for climbers. 8

g. that JTNP should be managed to reduce encounter, impacts and development in some areas. 9

h. opposition to ban on bolting 6

i. support for the use of power drills, largely for replacement of bolts. 6

j. that there should be better compliance with the wilderness act or spirit of wilderness. 5

k. that climbers can regulate themselves, NPS should stay out of it. 5

l. use designated trails to popular climbing sites. 4

m. support for using slings and anchors having natural colors. 4

n. observation that colored chalk is harder than white chalk to wash off. 4

o. reduce or don't increase the level of development at JTNP. 4

p. comments giving general support for rangers and management. 3

q. gratitude for the survey to provide managers information. 3

r. need to regulate the size of commercial groups. 3

s. need for more campsites. 3

t. need to use a reservation system for campsites. 3

u. use drills for bolt replacement only. 3

v. should NPS be in charge of monitoring and replacement of fixed anchors? 3

The following were mentioned only twice: support for a ban on the use of power drills; support for the removal of slings and webbing; that bolts should be allowed in backcountry or wilderness; that some slings are necessary; that naturally colored protection is dangerous because it is hard to see; that litter needs to be controlled; that composting toilets are needed; that RV's and buses should be controlled; that wilderness should be explained better; that more access/roads are needed; that climbers are the most important user group in JTNP;

Mentioned once were: need for information on other park themes; limit mountain bikes to roads; allow mountain bikes on trails too; provide opportunities for climbers to help with projects; allow a longer stay in campgrounds; support for a "climbers only" campground; support for archeological site closures; objection to aircraft overflights; objection to impacts caused by dogs.

APPENDIX D

SURVEY INSTRUMENTS

Joshua Tree National Monument CLIMBING SURVEY 93/94
Part A - Interview Questionnaire

Hello!

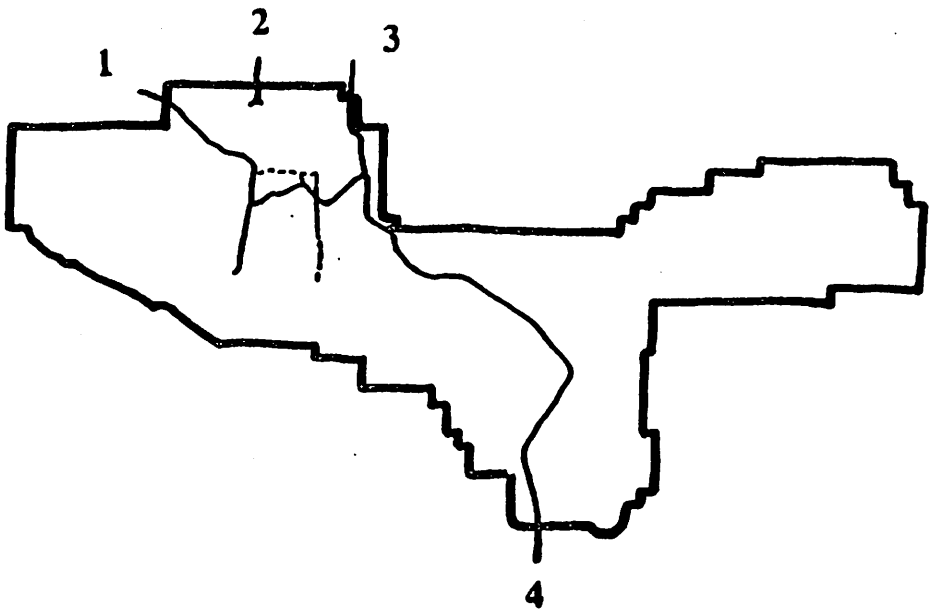
National Park Service managers are presently working on improvements to a **climbing management plan** for Joshua Tree. To do this, studies of animal and plant communities, as well as cultural and archeological resources near climbing sites are underway. Another fundamental element is to get better information from climbers themselves.

The purpose of my work is to **interview climbers** like yourself and learn more about your visit, your preferences and reactions to different climbing management practices in JTNM. This is a good opportunity for you to participate in the planning process by making **your points of view** known.

You are part of a sample representing **all climbers** and your answers are important in helping the Park Service come up with the best management strategy.

We would like to interview you for few minutes and leave the rest of the survey with you so that you can fill it out at your leisure. The second part of the survey can be dropped off when you leave the Monument or you can mail it back. All your answers will be kept strictly confidential.

Thanks for helping us.



1 = Joshua Tree Entrance 2 = Indian Cove Entrance
3 = 29 Palms Entrance 4 = Cottonwood Entrance

Have a look at the smaller map of JTNM:

1. **Where and when did you <u>first</u> enter JTNM for <u>this</u> visit ? (→ in)**

   Month:____ Day:____

2. **Where and when do you plan to <u>last</u> leave JTNM for <u>this</u> visit ? (← <u>out</u>)**

   Month:____ Day:____

3. **This trip to JTNM is (please, choose only one):**

   _____ your primary/end destination
   _____ one stop over from a longer, climbing trip
   _____ one stop over from a longer, general trip
   _____ a side trip (e.g. business in the area)

   Other (please specify): _____

4. Where are you staying overnight ? Indicate all that apply to the whole duration of your visit..

___ Designated JTNM camps: # days _____
___ Backcountry JTNM camps: # days _____
___ Outside camps: # days _____
___ Outside lodgings: # days _____
___ I just came for the day: # 1 day Other: _____
(please specify)

Now look at the two bigger maps. They show the campgrounds, climbing areas and major climbing sites in JTNM.

5. How long are you staying at each camp inside JTNM ?

# days:	____ Hidden V.	____ Ryan	____ Sheep P.	____ Jumbo R.
# planned:	____	____	____	____
# days:	____ Indian C.	____ Belle	____ White T.	____ Cottonwood
# planned:	____	____	____	____
# days:	____ Black Rock		____ Other: _____	
# planned:	____		____	

6. How long are you staying at each backcountry camp inside JTNM ? Please, indicate the approximate location of the camps on the map:

(actual or closest climbing site #)

# days:	____ - _____	____ - _____	____ - _____
# planned:	____	____	____
# days:	____ - _____	____ - _____	____ - _____
# planned:	____	____	____

7. Where have you or your party been climbing and bouldering during this trip ? **(actual or closest climbing site #)**

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

8. Where you or your party still plan to climb and boulder during this trip ? **(actual or closest climbing site #)**

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

9. How important do you think each of the following are as values or benefits that should be provided or managed for at JTNM ? **Please, indicate one answer for each item.**

	Not at all important	Somewhat important	Moderately important	Very important	Extremely important
Providing diverse & challenging opportunities for climbing in a beautiful setting.	1	2	3	4	5
Allowing people to see & understand cultural sites formerly utilized by Native American groups.	1	2	3	4	5
Providing facilities (campground, visitor center, displays, personnel) that help people have an enjoyable recreational & educational experience.	1	2	3	4	5
Serving as a natural laboratory for understanding Mohave & Colorado Desert ecosystems.	1	2	3	4	5
Providing the opportunity for a desert wilderness experience where there is solitude & little evidence of human changes on the landscape.	1	2	3	4	5
Enabling people to see & understand what life was like for early miners & cattle ranchers.	1	2	3	4	5
Using JTNM as a sensitive natural area where environmental changes can be detected and studied.	1	2	3	4	5

10. How important to you are **each** of the following experiences when you are climbing at JTNM ? (Please, indicate one answer for each item)

	Not at all important	Somewhat important	Moderately important	Very important	Extremely important
Being with people who share the same values	1	2	3	4	5
Being with friends	1	2	3	4	5
Being with my family	1	2	3	4	5
Meeting new people	1	2	3	4	5
Being close to nature	1	2	3	4	5
Viewing the scenery	1	2	3	4	5
Gaining recognition from others	1	2	3	4	5
Gaining self-confidence	1	2	3	4	5
Reflecting on my values	1	2	3	4	5
Releasing tension	1	2	3	4	5
Being challenged	1	2	3	4	5
Taking risks	1	2	3	4	5
Experiencing solitude	1	2	3	4	5
Experiencing excitement	1	2	3	4	5
Escaping noise	1	2	3	4	5
Escaping crowds	1	2	3	4	5
Teaching&sharing skills	1	2	3	4	5
Competing with others	1	2	3	4	5
Learning about nature in JTNM	1	2	3	4	5
Staying physically fit	1	2	3	4	5
Developing climbing skills	1	2	3	4	5
Doing many different routes	1	2	3	4	5
Pioneering new routes	1	2	3	4	5

11. How important is climbing as a source of satisfaction in your life? (Pick one)

1	2	3	4	5	6	7	8	9	10
Not at all important		Somewhat important		Moderately important		Very important		Extremely important	

Look at the following settings and consider the environment, people, equipment and general atmosphere.

While the photographs were really taken in JTNM, and you might even recognize the places, keep in mind that the described settings are only hypothetical for the purposes of this survey.

12. Now indicate what percentage of your time you spend climbing & doing other activities in each type of the described settings, while at JTNM:

Note: %A + %B + %C = 100%

Setting A _____ % of your time
B _____ %
C _____ %

13. Which of these settings do you prefer for <u>non-climbing</u> activities like hiking, sightseeing, photography, etc. ? Pick one:

____ A ____ B ____ C

14. Putting the degree of ease or difficulty of the rocks in the pictures aside, in which of them do you <u>prefer to climb</u> ? Pick one:

____ A ____ B ____ C

15. How many <u>people</u> is it OK for you to encounter <u>in a day</u> while climbing in settings A, B & C ?

Setting: A - Up to _____ (#) people/day
B - Up to _____ (#)
C - Up to _____ (#)

You might have noticed that A is frontcountry, B is midcountry and C is backcountry or wilderness. Take a few seconds to picture the setting you prefer for <u>climbing</u> in your mind (Setting ...).

Take a few seconds to picture the setting you prefer for climbing in your mind (Setting ...).

16. Now, please tell us how each of the following characteristics add or detract from your climbing experience. (Please, pick one answer for each item).

Preferred Setting:	Strongly detract	Slightly detract	Neutral	Slightly add	Strongly add
Bulletin Boards/displays	1	2	3	4	5
Signs (inform.,direc.&regulatory)	1	2	3	4	5
Presence of Park rangers	1	2	3	4	5
Nearby campgrounds	1	2	3	4	5
Nearby roads and parking lots	1	2	3	4	5
Designated trails to climbing sites	1	2	3	4	5
Toilets	1	2	3	4	5
Litter & waste as evidence of human use	1	2	3	4	5
Changes to vegetation & soil as evidence of human use	1	2	3	4	5
Chalk on the rocks	1	2	3	4	5
Hanging ropes & slings left behind	1	2	3	4	5
Fixed anchors (bolts)	1	2	3	4	5
Sound from aircraft overflights	1	2	3	4	5
Sound from other people&activities	1	2	3	4	5
Commercial/outfitted groups	1	2	3	4	5
Other parties in climbing area	1	2	3	4	5
Other parties waiting to climb	1	2	3	4	5

Take another look at the big maps. Where did you go for your most recent climb?

Name: _____ Close to climbing site #: _ _ _ _

17. Overall, how would you rate today's climbing experience in that site? Pick one.

_____ poor (so many things went wrong)
_____ fair (it just didn't work out very well)
_____ good (but I wish a number of things could have been different)
_____ excellent (only minor problems)
_____ perfect (I wouldn't change one bit)

What was missing for your experience to be perfect ? (If perfect, please explain)

_____

_____

18. About how many other people did you see while climbing in (name) today? _____ (#) people

19. Do you think this site was crowded today ? (Pick one number)

1 2	3 4	5 6 7	8 9
Not at all crowded	Somewhat crowded	Moderately crowded	Extremely crowded

20. How many <u>people</u> is it OK for you to encounter <u>in a day</u> while climbing in t... (name) ? ____ (#) people/day

21. Would you like to be informed about the future results of this survey and the developments of the climbing management strategy in JTNM ?

____ No ____ Yes **(go to Q. # 22)**

We would need your name and mailing address (eventually to contact you about Part B of the survey. Please, realize this is optional and you are not obliged to do so, but it would greatly help us):

22. First name: _____

23. Last name: _____

24. Street name: _____

25. Street #: _____ 26. Apt.#: _____

27. City: _____

28. State/Country: _____ 29. Zipcode: _____

30. Area code: _____ 31. Phone #: _____

Here is Part B of the survey to be completed at your own leisure. (Show survey). Here you will have an opportunity to talk about your climbing qualifications and evaluate some climbing management practices.

You can drop it off in boxes located at all Entrance Stations & JTNM Visitor Center or you can use this stamp to mail it back to us.

Make sure you seal the survey before dropping it off. (We would prefer to have it dropped off in one of the boxes in JTNM so that we save time in getting results and you save a stamp!)

Thank you very much for answering the survey!!!

Space reserved for the Interviewer

Climbing Site: _____

Date: _____ ID# _____

The interview was done: ____ on the way to a climb
____ returning from a climb

Where? ____ parking lot
____ trail
____ climbing site
____ campground

How long did it last? _____ minutes

Other:

DROP-OFF BOXES Locations:

Climbing Site: _____

Date: _____ ID# _____

Visitor Center
Joshua Tree Entrance Station, 29 Palms Entrance Station,
Indian Cove Entrance Station, Cottonwood Entrance Station

Joshua Tree National Monument CLIMBING SURVEY 93/94
Part B - Drop-Off/Mailback Questionnaire

Thank you for taking time to fill out this portion of the survey. The Park Service is really counting on this information from climbers and appreciates your cooperation. Results will be used to improve the climbing experience while protecting the resources that make those experiences possible.

Like the interview, the best answer is the one that most closely reflects your own feelings and beliefs. Again any information you make available to us is strictly confidential and shall only be used for scientific purposes.

This questionnaire is divided into sections to make it easier for you to answer. Please, answer each question. Thanks for your help.

Dr. George N. Wallace
Késia Trench
CSU

David Moore
Jerry Freilich
JTNM

Before you begin: please, check (√) the answer that applies to you and complete the correct number of days:

___ I am still in JTNM and this is the _____ (#) day of my trip to JTNM.
___ I have already left JTNM. I spent a total of _____ (#) days in JTNM.

First we would like to ask about your previous and recent/current visits to Joshua Tree National Monument (JTNM).

1. How many visits have you made to JTNM altogether ?

_____ (#) visits
This is my first visit _____ [Check (√) , if applicable]

2. In what year did you make your first visit to JTNM ? 19 ___ (year)

3. Since your first visit, the overall quality of the experience has:
(Please, check (√) one)

_____ improved
_____ remained the same
_____ gotten worse
_____ N/A (does not apply)

4. How many days have you climbed and bouldered in JTNM since your first visit ?

_____ (#) days

5. How many different routes have you climbed and bouldered in JTNM since your first visit ?

_____ (#) routes

6.a. During which seasons have you climbed and bouldered in JTNM ?
Please, check (√) all that apply.

___ Winter (Jan - Mar)
___ Spring (Apr - Jun)
___ Summer (Jul - Sep)
___ Fall (Oct - Dec)

6.b. Please, rank the above checked (√) seasons, starting with " 1" for the one in which you have climbed and bouldered most in JTNM.

7. How many different routes did you climb and boulder during this recent/current visit to JTNM ?

_____ (#) routes

Now we would like to ask some questions about your climbing party.

1. How many people were/are in your party (including yourself) ? ___ (#) people

2. How would you describe your party ? Please, check (√) only one.

____ Group of friends ____ Family group ____ Class/Guided group
____ Single individual ____ Other: _____
(please specify)

3. What is the general climbing ability of <u>your party</u> ?
Please, check (√) <u>all</u> that apply.

_____ Novice (5.6 routes or below)
_____ Intermediate (5.7 - 5.9 routes)
_____ Advanced (5.10 - 5.11 routes)
_____ Expert (5.12 routes or above)

4. Apart from rock climbing, which activities did <u>you and your party</u> engage in JTNM? Please, check (√) <u>all</u> that apply.

__√__ Rock climbing
_____ Bouldering
_____ Photography
_____ Sightseeing
_____ Biking
_____ Hiking on trails
_____ Nature observation
_____ Backpacking in wilderness
_____ Stopping at the Visitor Center
_____ Park programs/presentations
_____ Cultural/archeological Visits
_____ Others: _____
(please specify)

5. What sources of information did <u>you and your party</u> use in selecting your climbing routes at JTNM? Please, check (√) <u>all</u> that apply.

_____ Word of mouth
_____ General climbing books
_____ JTNM Visitor Center
_____ Climbing magazines
_____ Local retail/rental climbing stores
_____ Climbing guides
_____ Maps
_____ Others: _____
(please specify)

We would also like to ask about YOUR climbing experience and style.

1. How long have you been climbing ? _____ (#) years _____ (#) months

2. What is your ability and experience for the following? Please, mark only one answer for each item:

	No experience	Novice	Intermediate	Advanced	Expert
Bouldering	0	1	2	3	4
Sport climbing (bolted routes)	0	1	2	3	4
Rock climbing (removable protection)	0	1	2	3	4
Multipitch rock climbing	0	1	2	3	4
Big wall climbing (Grade 5 or 6)	0	1	2	3	4
Alpine/Mountain climbing (some combination of climbing, hiking, skiing, etc.)	0	1	2	3	4
Unguided expedition climbing (more than a week)	0	1	2	3	4
Other (please, specify):	0	1	2	3	4

3.a. How many days do you **boulder** (indoor walls included) each year ?

_____ (#) days per year

3.b. How many days do you **boulder at JTNM** each year ?

_____ (#) days in JTNM

4.a. How many days do you **climb** each year ? ___ (#) days per year

4.b. How many days do you **climb at JTNM** each year ? ___ (#) days in JTNM

5. How many climbing areas around the state, country & world have you visited for climbing purposes ?

_____ (#) climbing areas

6. How frequently you do the following while in JTNM? Please, mark only one answer for each item and check (√) the items which were done on this most recent trip to JTNM):

	Never	Seldom	Sometimes	Frequently	Always	Done on this trip
Bouldering	1	2	3	4	5	
Free climbing with no protection	1	2	3	4	5	
Clean climbing using only removable protection	1	2	3	4	5	
Top roping WITHOUT fixed anchors	1	2	3	4	5	
Top roping WITH fixed anchors	1	2	3	4	5	
Lead climbing where some protection is necessary	1	2	3	4	5	
Climbs where fixed anchors are necessary in order to descend	1	2	3	4	5	
Aided climbing	1	2	3	4	5	
Face/Sport climbing that requires fixed protection	1	2	3	4	5	
Place bolts or fixed anchors WITH a power drill	1	2	3	4	5	
Place bolts or fixed anchors WITHOUT a power drill	1	2	3	4	5	
Other (please, specify):	1	2	3	4	5	

7. Do you belong to climbing organizations or clubs ?

____ No ____ Yes. Which ones?

_____

_____

8. Do you belong to conservation (environmental) organizations or clubs ?

____ No ____ Yes. Which ones?

_____

_____

9. a. Which climbing magazines do you read ?
Please, check (√) <u>all</u> that apply.

____ Alpine	____ Flash Communique
____ Climbing	____ Sport Climbing (Connection)
____ Rock & Ice	____ Summit

Others (please specify): _____

9.b. Please, rank the above checked (√) magazines, starting with " 1" for the one you read <u>most</u>.

10. What well known climbers do you admire?

Name: _____

Why ? _____

Name: _____

Why ? _____

Name: _____

Why ? _____

None ____ [Check (√), if applicable]

Now we would like your opinions about climbing management at JTNM.

1. Park managers are looking at current management practices and thinking about the value of others that could be used.

How do you feel about the following actual or hypothetical management practices at JTNM ? Please, mark one answer for each item.

	Strongly Oppose	Slightly Oppose	Neutral	Slightly Support	Strongly Support
Designating campsites for climbers-only	1	2	3	4	5
The current day use & camping permit system	1	2	3	4	5
Encouraging mountain bikes use as means of transportation inside JTNM	1	2	3	4	5
Managing noise levels after 10 p.m. in campgrounds	1	2	3	4	5
Reducing the impact of aircraft overflights on wilderness visitors	1	2	3	4	5
Clarifying & marking of wilderness boundaries	1	2	3	4	5
Managing some areas for a wilderness climbing experience with few encounters, more solitude & less evidence of others.	1	2	3	4	5
Increasing information on climbing related issues (safety, low impact techniques, etc.)	1	2	3	4	5
Increasing information on plants & animals,historical & archeological sites	1	2	3	4	5
Increasing information on the management zones in JTNM	1	2	3	4	5

	Strongly Oppose	Slightly Oppose	Neutral	Slightly Support	Strongly Support
Climbing restrictions in areas where heavy use has produced documented negative impact to plants, animals, soil &/or rocks	1	2	3	4	5
Climbing closures near areas having cultural &/or archeological sites	1	2	3	4	5
Requiring permits for large, guided groups (commercial or not)	1	2	3	4	5
Limiting the size of commercial groups using JTNM	1	2	3	4	5
Limiting the number of commercial groups using JTNM	1	2	3	4	5
Requiring use of natural-colored bolt hangers, webbing & chalk in JTNM	1	2	3	4	5
Requiring removal of all slings & protections (except bolts) in JTNM	1	2	3	4	5
No glue, epoxy or other adhesives (to improve hand/foot holds) in JTNM	1	2	3	4	5
Requiring permit for use of power drills in JTNM	1	2	3	4	5
No more power drills in all JTNM	1	2	3	4	5
No power drills only in wilderness	1	2	3	4	5
Requiring permit to place bolts on a specific route in JTNM	1	2	3	4	5
No replacement of bolts in wilderness	1	2	3	4	5
No more bolting in wilderness	1	2	3	4	5
Allowing replacement of bolts in frontcountry	1	2	3	4	5
Allowing bolting in frontcountry	1	2	3	4	5

2. Do you have any comments about the management practices mentioned above ?

3. Do other climbers or climbing groups ever detract from your own experience? Please, mark only one.

1	2	3	4	5
Never	Seldom	Sometimes	Frequently	Always

If applicable, what kinds of climbers/groups and why ?

Next we would like to ask about your climbing and general expenses.

1. Approximately how much did you spend on climbing equipment in the last 12 months ?

$ _____

2. From the time you left home to the time you will return (or returned), estimate the dollar amount that you spent so far & will still spend (or the total you spent) on each of the following during your most recent visit to JTNM:

A. Transportation (gas, oil, repairs, etc.)	$ _____
B. Lodging (hotels, motels, campgrounds, etc.)	$ _____
C. Food & Beverages (restaurants, markets, etc.)	$ _____
D. Film, Gifts & Souvenirs	$ _____
E. Equipment purchases & Rentals (camping,climbing,etc.)	$ _____
F. Other entertainment (movies, amusements, etc.)	$ _____
G. Park entrance fees	$ _____
H. Outfitting & Guiding fees (hiking trips, etc.)	$ _____
I. Other (please specify)	$ _____
J. Other (please specify)	$ _____
TOTAL	$ _____

3. Estimate the percent of the total dollar amount of the above (Question #2, A -J) that was spent within one hour's travel time (50 miles) of JTNM:

_____ % of total dollar amount

We would finally like to ask some questions about you personally. We guarantee that all answers will be kept confidential and results will be reported without referring to individual respondents.

1. Gender: ___ female ___ male 2. Age:____ years

3. Occupation: _____

4. Are you married ? ___No ___Yes 5. Number of dependents: _____

6. How much formal education have you had ?

___ grade school ___ high school ___ some college ___ bachelors
___ masters level ___ doctorate Other: _____
(please specify)

7. How much was your total income last year?

___ $ 4,999 & less
___ $ 5,000 - $ 9,999
___ $ 10,000 - $ 14,999
___ $ 15,000 - $ 19,990
___ $ 20,000 - $ 24,999
___ $ 25,000 - $ 29,999
___ $ 30,000 - $ 34,999
___ $ 35,000 - $ 39,999
___ $ 40,000 - $ 49,999
___ $ 50,000 - $ 59,000
___ $ 60,000 - $ 79,000
___ $ 80,000 & above

8. How far do you live from JTNM ? _____ miles

9. State/Foreign Country: _____

10. City: _____ 11. US zipcode: _____

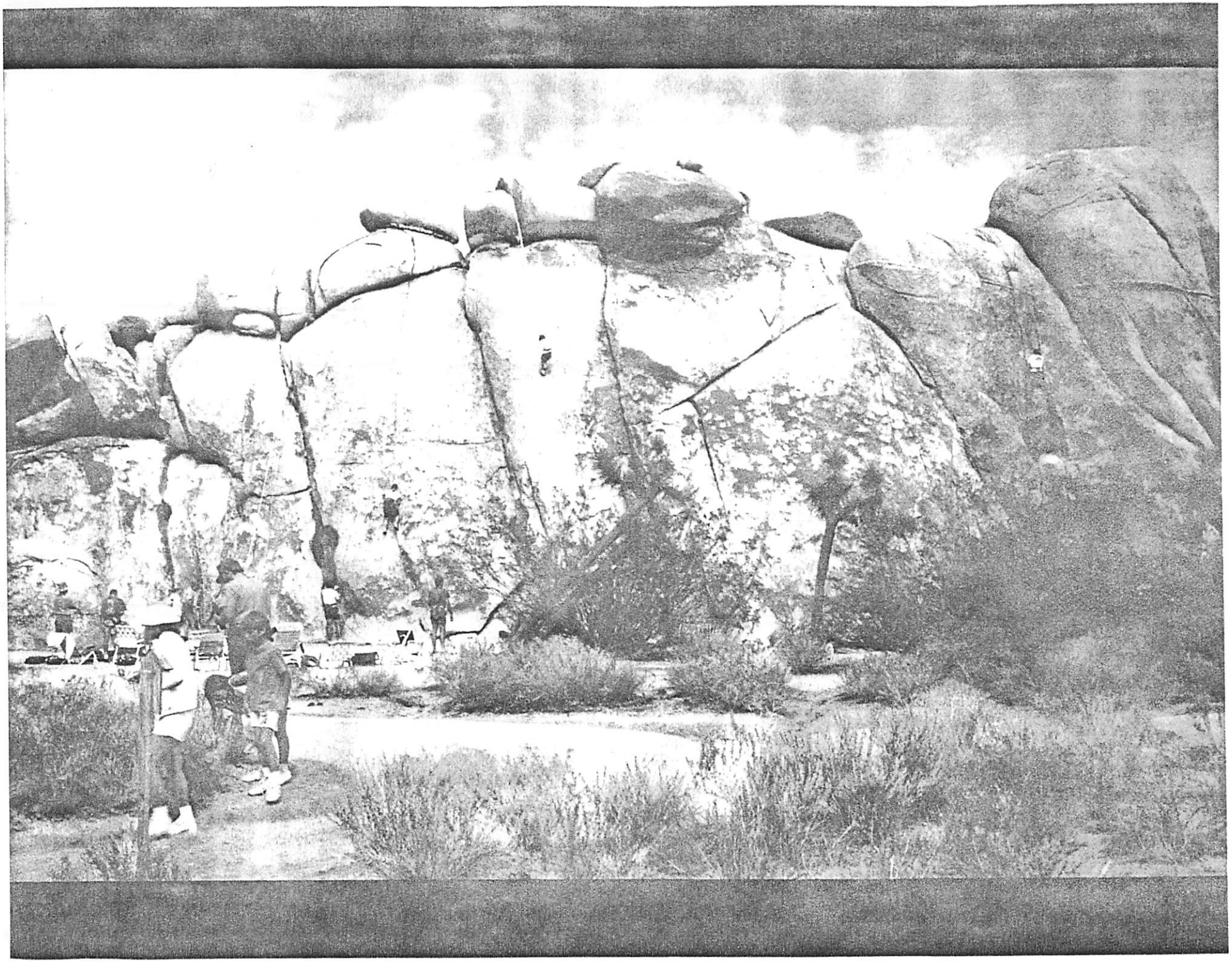
We would welcome any comments you might still have.

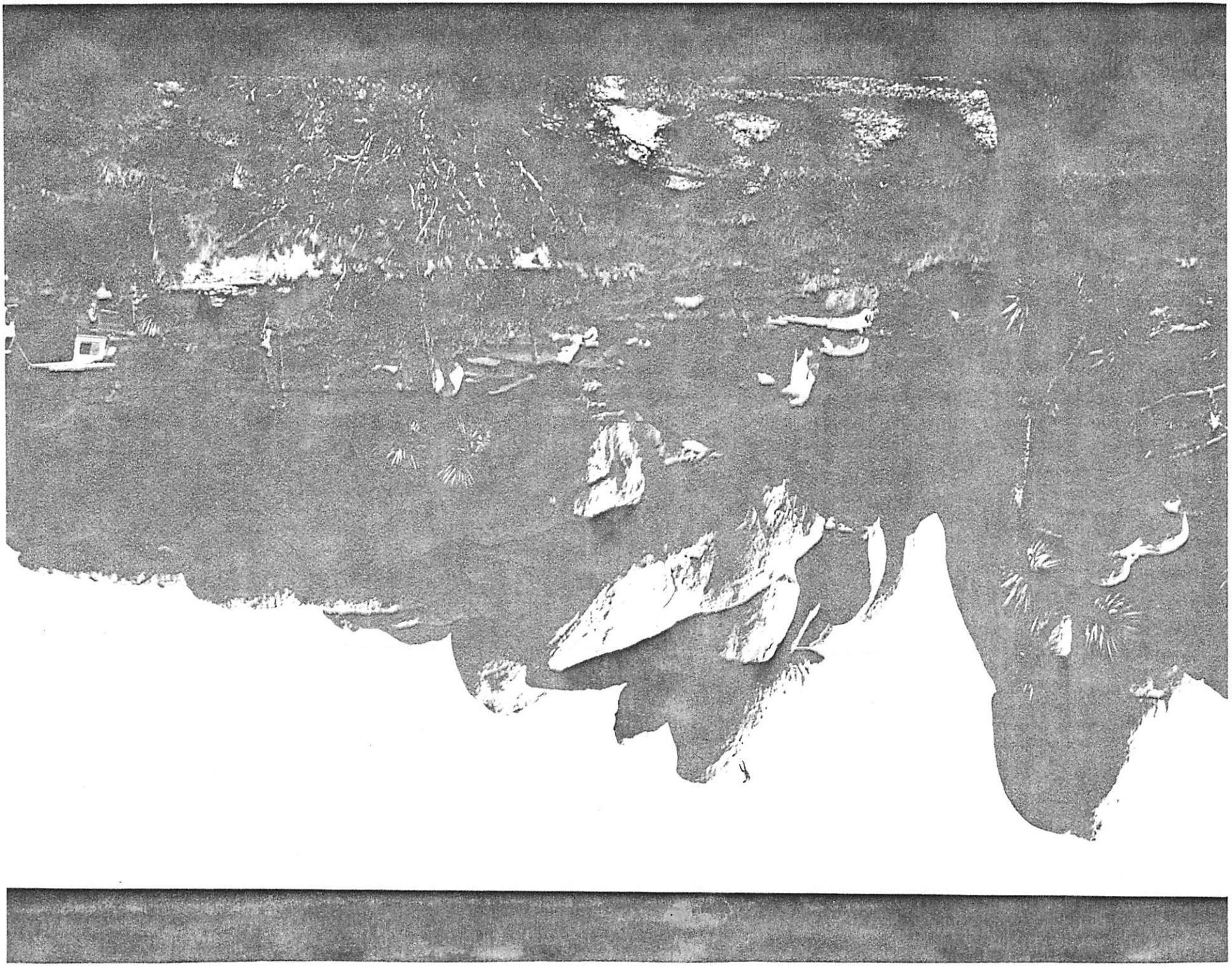
Thank you for your Cooperation!

APPENDIX E

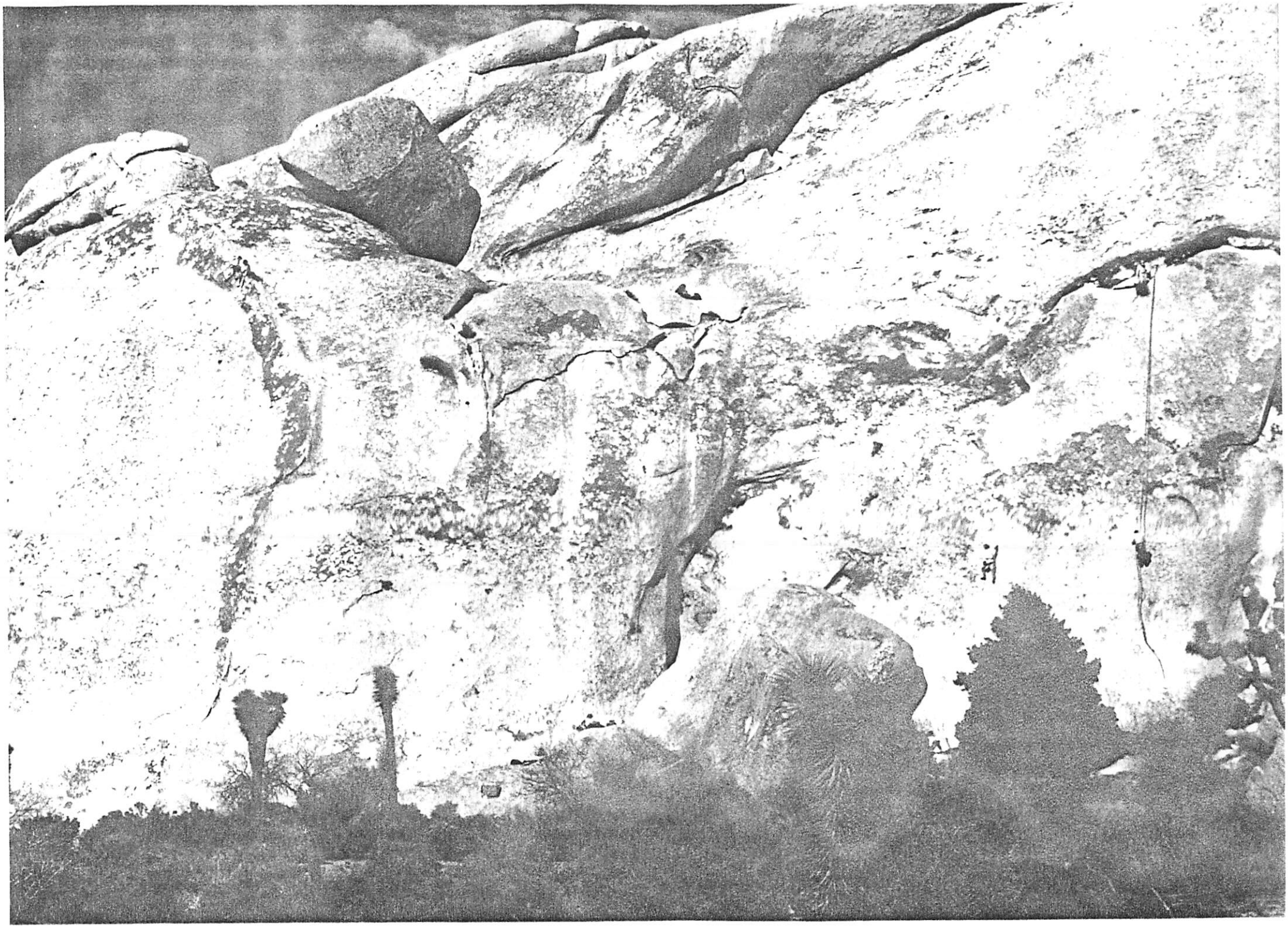
- PHOTO CUES USED TO ELICIT SETTING PREFERENCE

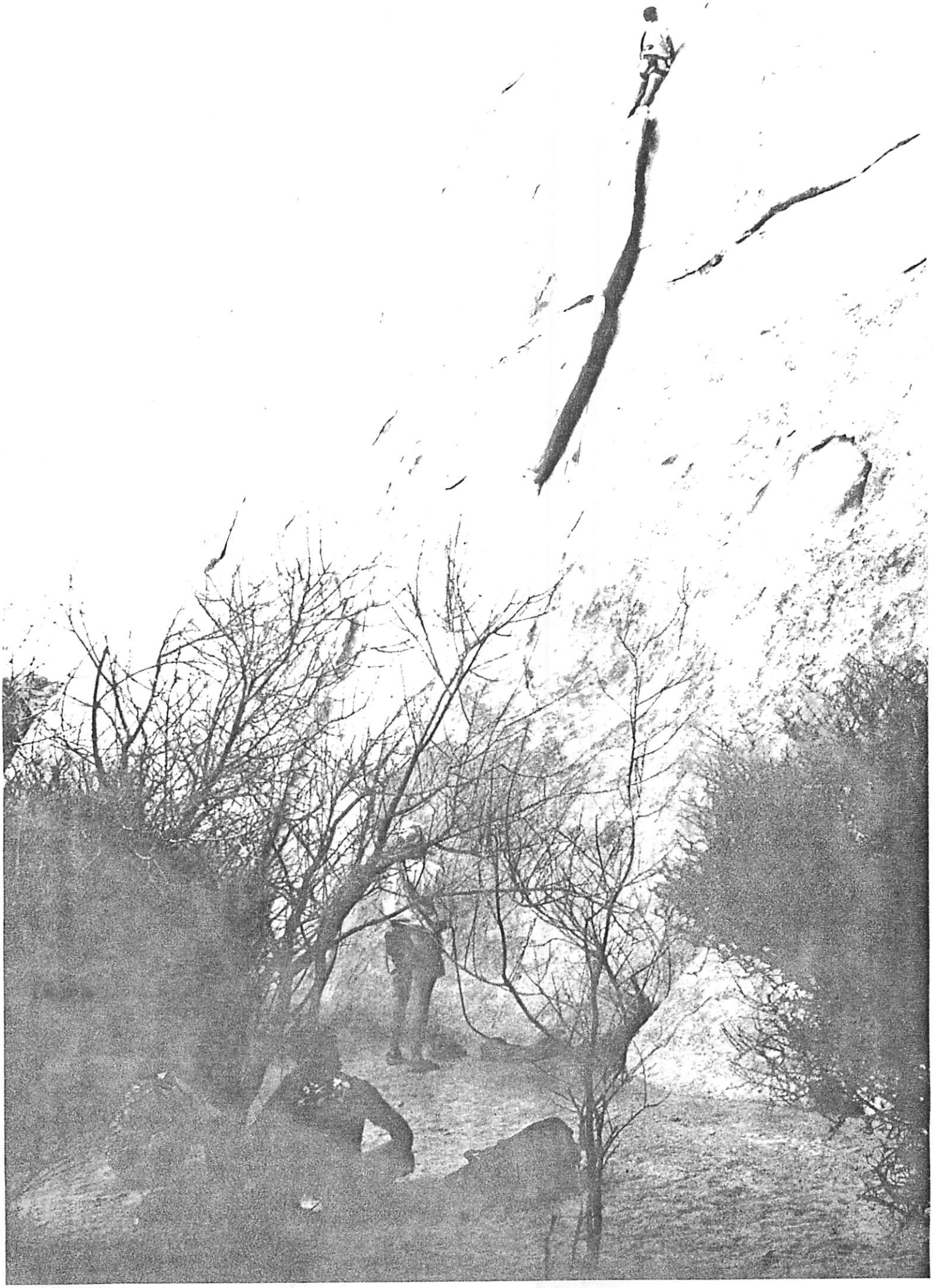
FRONTCOUNTRY PHOTOS



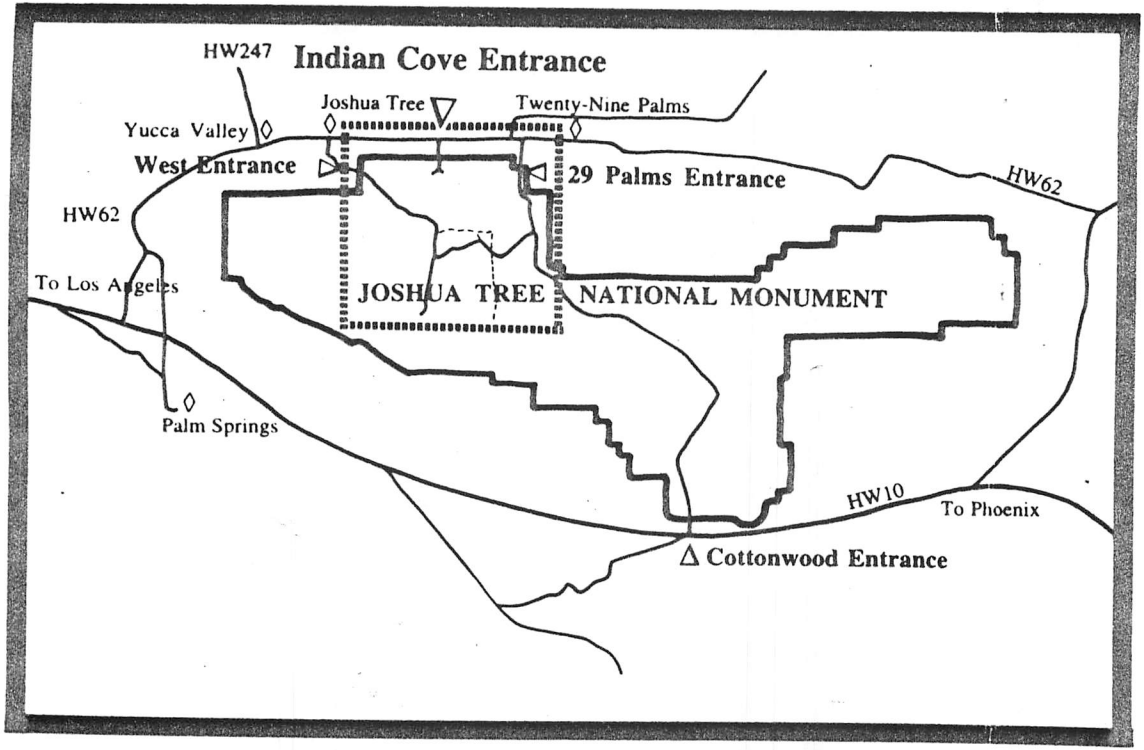


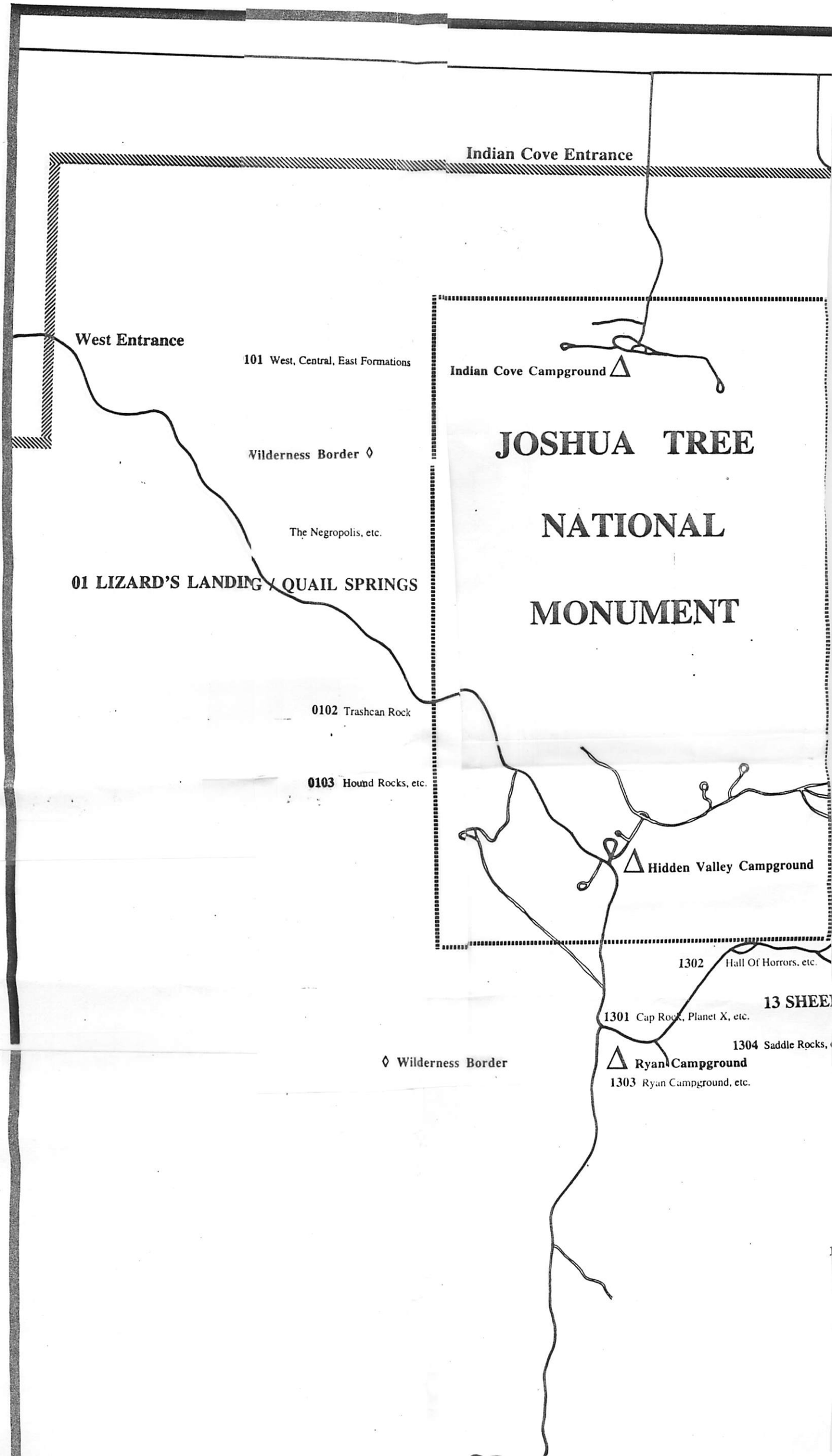
MIDCOUNTRY PHOTOS

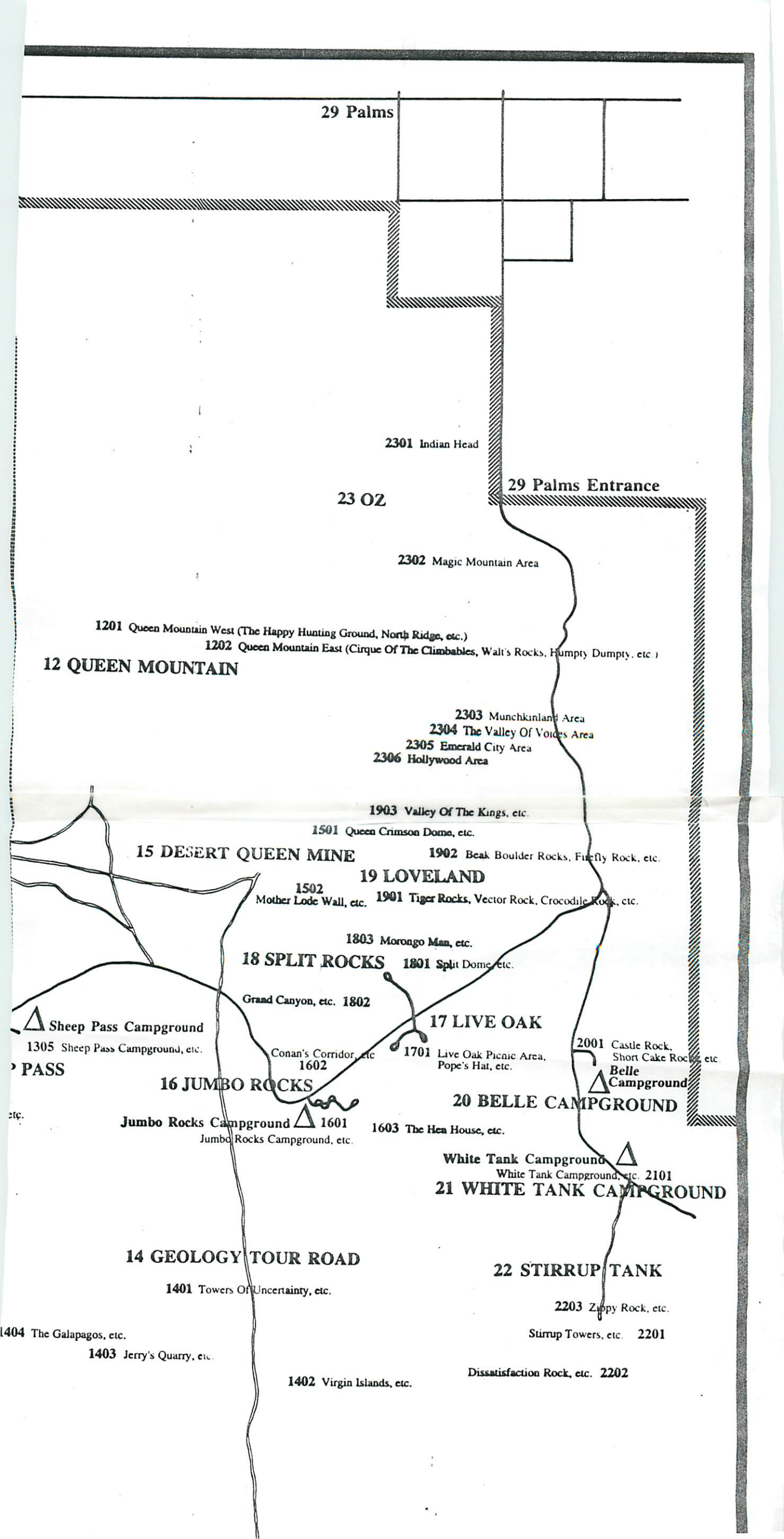


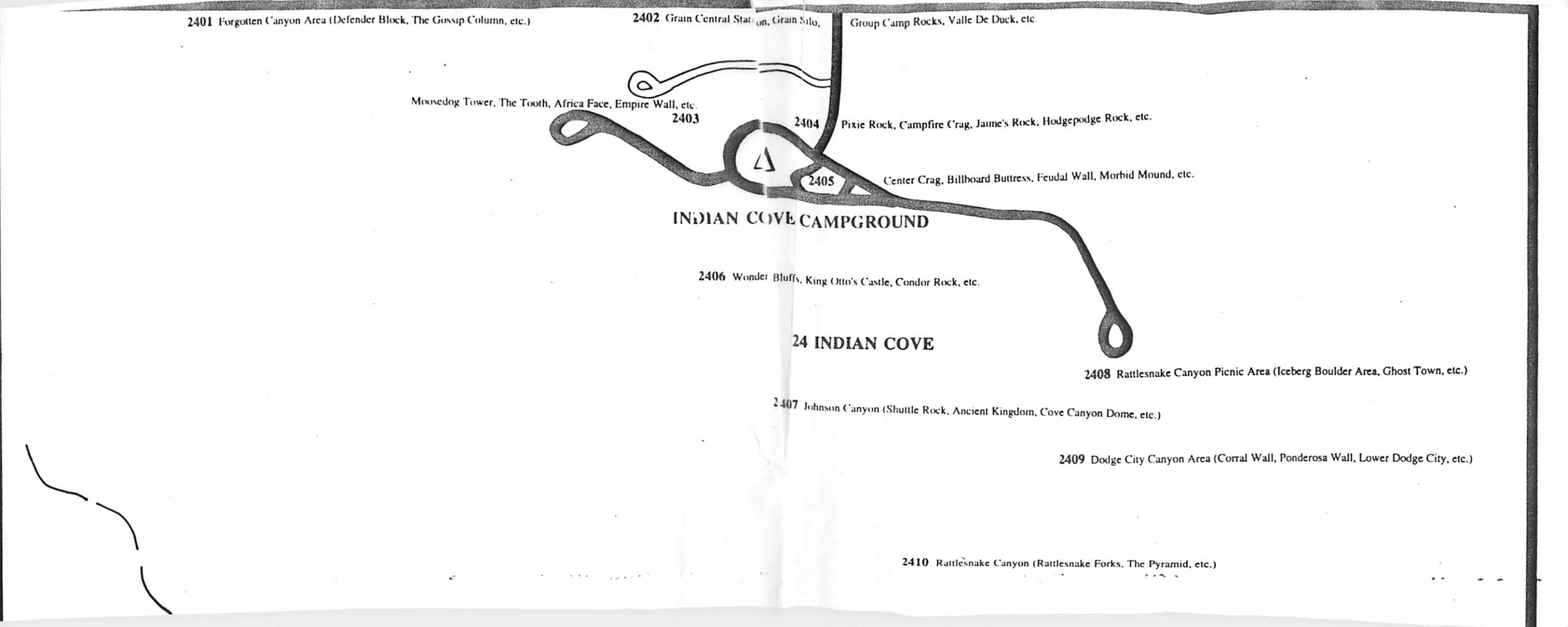


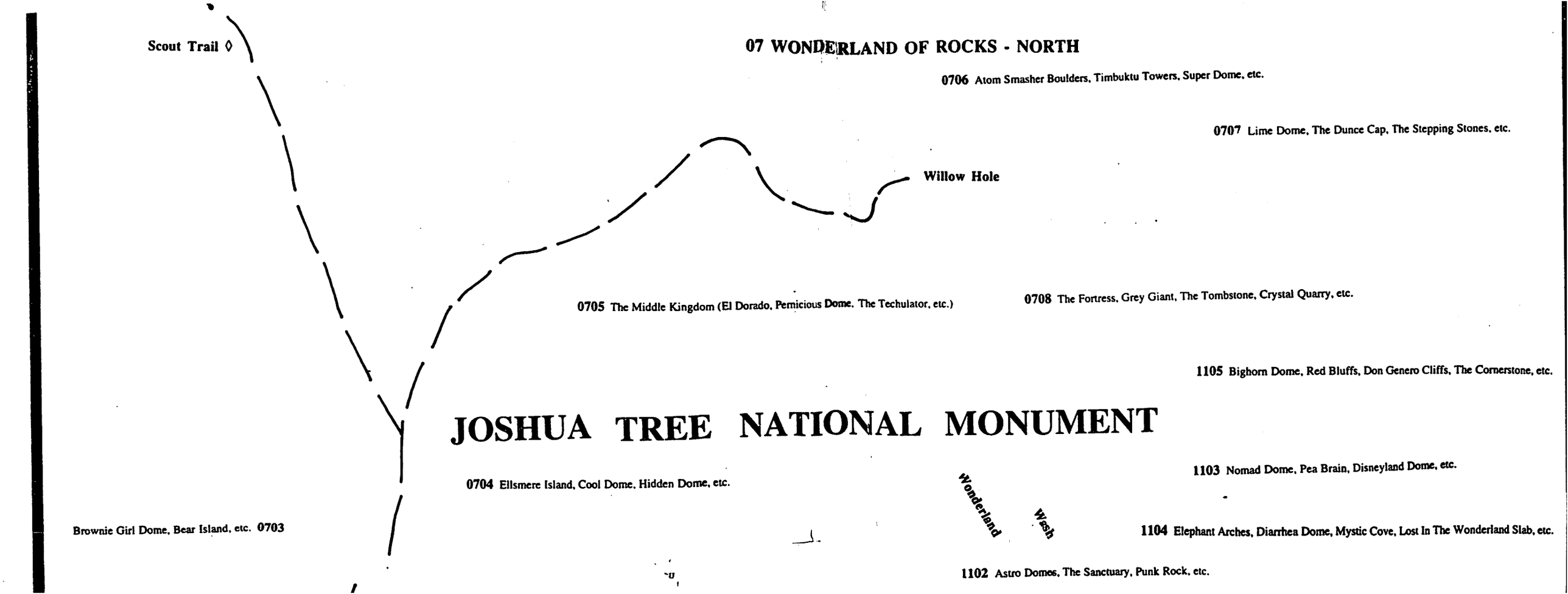
BACKCOUNTRY/WILDERNESS PHOTOS

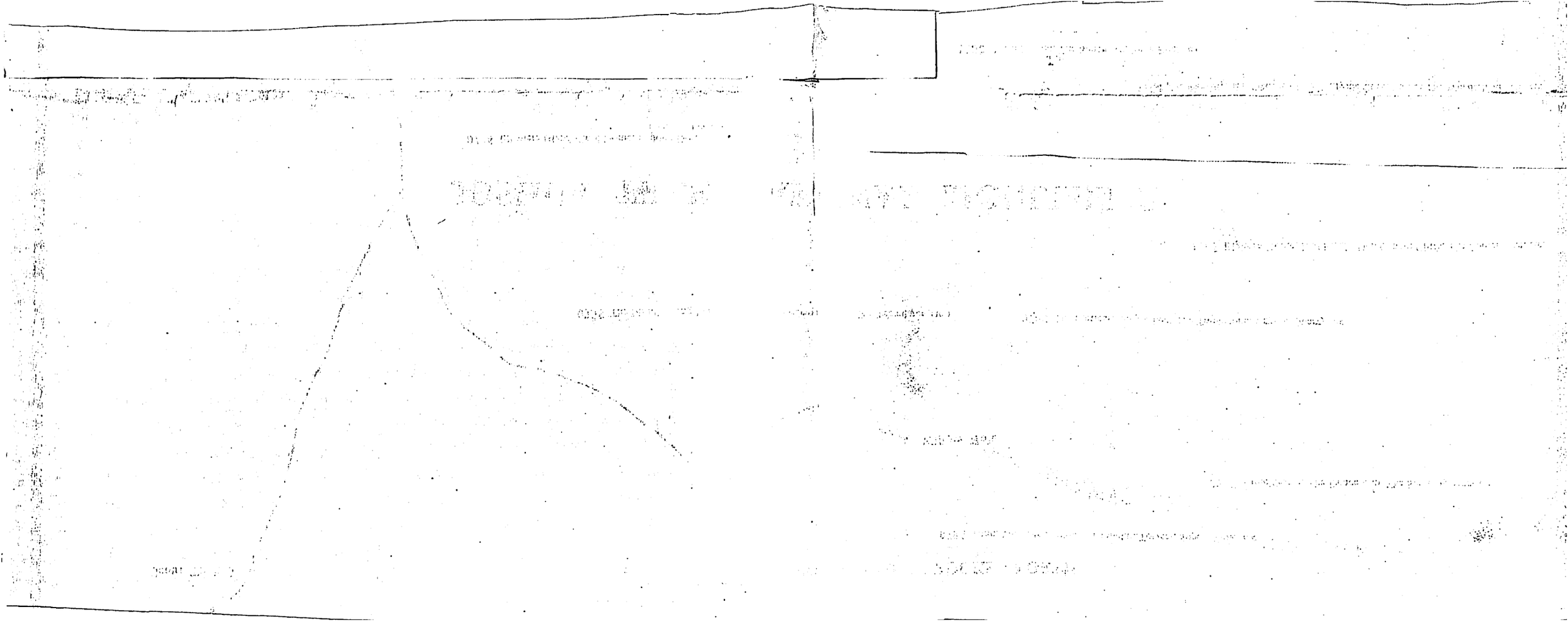

HW247
Indian Cove Entrance
Joshua Tree
Twenty-Nine Palms
Yucca Valley
West Entrance
29 Palms Entrance
HW62
HW62
To Los Angeles
JOSHUA TREE NATIONAL MONUMENT
Palm Springs
HW10
To Phoenix
Cottonwood Entrance


Indian Cove Entrance
West Entrance
101 West, Central, East Formations
Indian Cove Campground
JOSHUA TREE
NATIONAL
MONUMENT
Wilderness Border ◊
The Negropolis, etc.
01 LIZARD'S LANDING / QUAIL SPRINGS
0102 Trashcan Rock
0103 Hound Rocks, etc.
Hidden Valley Campground
1302 Hall Of Horrors, etc.
13 SHEE
1301 Cap Rock, Planet X, etc.
1304 Saddle Rocks,
◊ Wilderness Border
Ryan Campground
1303 Ryan Campground, etc.


29 Palms
2301 Indian Head
29 Palms Entrance
23 OZ
2302 Magic Mountain Area
1201 Queen Mountain West (The Happy Hunting Ground, North Ridge, etc.)
1202 Queen Mountain East (Cirque Of The Climbables, Walt's Rocks, Humpty Dumpty, etc.)
12 QUEEN MOUNTAIN
2303 Munchkinland Area
2304 The Valley Of Voices Area
2305 Emerald City Area
2306 Hollywood Area
1903 Valley Of The Kings, etc.
1501 Queen Crimson Dome, etc.
15 DESERT QUEEN MINE
1902 Beak Boulder Rocks, Firefly Rock, etc.
19 LOVELAND
1502 Mother Lode Wall, etc.
1901 Tiger Rocks, Vector Rock, Crocodile Rock, etc.
1803 Morongo Man, etc.
18 SPLIT ROCKS
1801 Split Dome, etc.
Grand Canyon, etc. 1802
Sheep Pass Campground
1305 Sheep Pass Campground, etc.
17 LIVE OAK
Conan's Corridor, etc 1602
1701 Live Oak Picnic Area, Pope's Hat, etc.
2001 Castle Rock, Short Cake Rocks, etc.
Belle Campground
16 JUMBO ROCKS
20 BELLE CAMPGROUND
Jumbo Rocks Campground 1601
Jumbo Rocks Campground, etc.
1603 The Hea House, etc.
White Tank Campground
White Tank Campground, etc. 2101
21 WHITE TANK CAMPGROUND
14 GEOLOGY TOUR ROAD
1401 Towers Of Uncertainty, etc.
22 STIRRUP TANK
2203 Zuppy Rock, etc.
1404 The Galapagos, etc.
Stirrup Towers, etc. 2201
1403 Jerry's Quarry, etc.
Dissatisfaction Rock, etc. 2202
1402 Virgin Islands, etc.


2401 Forgotten Canyon Area (Defender Block, The Gossip Column, etc.)
2402 Grain Central Station, Grain Silo,
Group Camp Rocks, Valle De Duck, etc.
Moosedog Tower, The Tooth, Africa Face, Empire Wall, etc.
2403
2404 Pixie Rock, Campfire Crag, Jaime's Rock, Hodgepodge Rock, etc.
2405 Center Crag, Billboard Buttress, Feudal Wall, Morbid Mound, etc.
INDIAN COVE CAMPGROUND
2406 Wonder Bluffs, King Otto's Castle, Condor Rock, etc.
24 INDIAN COVE
2408 Rattlesnake Canyon Picnic Area (Iceberg Boulder Area, Ghost Town, etc.)
2407 Johnson Canyon (Shuttle Rock, Ancient Kingdom, Cove Canyon Dome, etc.)
2409 Dodge City Canyon Area (Corral Wall, Ponderosa Wall, Lower Dodge City, etc.)
2410 Rattlesnake Canyon (Rattlesnake Forks, The Pyramid, etc.)


Scout Trail ◊
07 WONDERLAND OF ROCKS - NORTH
0706 Atom Smasher Boulders, Timbuktu Towers, Super Dome, etc.
0707 Lime Dome, The Dunce Cap, The Stepping Stones, etc.
Willow Hole
0705 The Middle Kingdom (El Dorado, Pernicious Dome, The Techulator, etc.)
0708 The Fortress, Grey Giant, The Tombstone, Crystal Quarry, etc.
1105 Bighorn Dome, Red Bluffs, Don Genero Cliffs, The Cornerstone, etc.
JOSHUA TREE NATIONAL MONUMENT
0704 Ellsmere Island, Cool Dome, Hidden Dome, etc.
1103 Nomad Dome, Pea Brain, Disneyland Dome, etc.
Wonderland
Wash
Brownie Girl Dome, Bear Island, etc. 0703
1104 Elephant Arches, Diarrhea Dome, Mystic Cove, Lost In The Wonderland Slab, etc.
1102 Astro Domes, The Sanctuary, Punk Rock, etc.



Laugh Rock, Senile Dome, Hook And Ladder Area, Way Gone Dome, etc. **1106**

11 WONDERLAND OF ROCKS - SOUTH

1101 Sargeant Rock, Fire Me A Burger Rock, OB/GYN Dome, etc.

1002 Barker Dam, Escape Rock, Toad Rock, etc.

10 BARKER DAM

◊ **Barker Dam**

1001 More Funky Than Monkey, Hunk Rock, Gunsmoke Area, etc.

08 ECHO ROCK

0801 Echo Rock, Echo Cove, Rusty Wall, etc.

0802
The Candy Bar (Snickers, Little Hunk, etc.)

Echo Tee

0701 Parking Lot Rocks (Reggie Dome, Bubba Rock, etc.)

Voice's Crag, Pet Rock, Jellystone, etc. **0201**

The Aviary, Watts Towers, X Factor Dome, etc.
0303

Wall Of Biblical Fallacies, Patagonia Pile, Labor Dome, etc.
0401

Roadside Rock, Mel's Diner, etc. **0202**
Left Hand Of Darkness, Banana Cracks, Milepost, etc. **0203**

04 THE OUTBACK

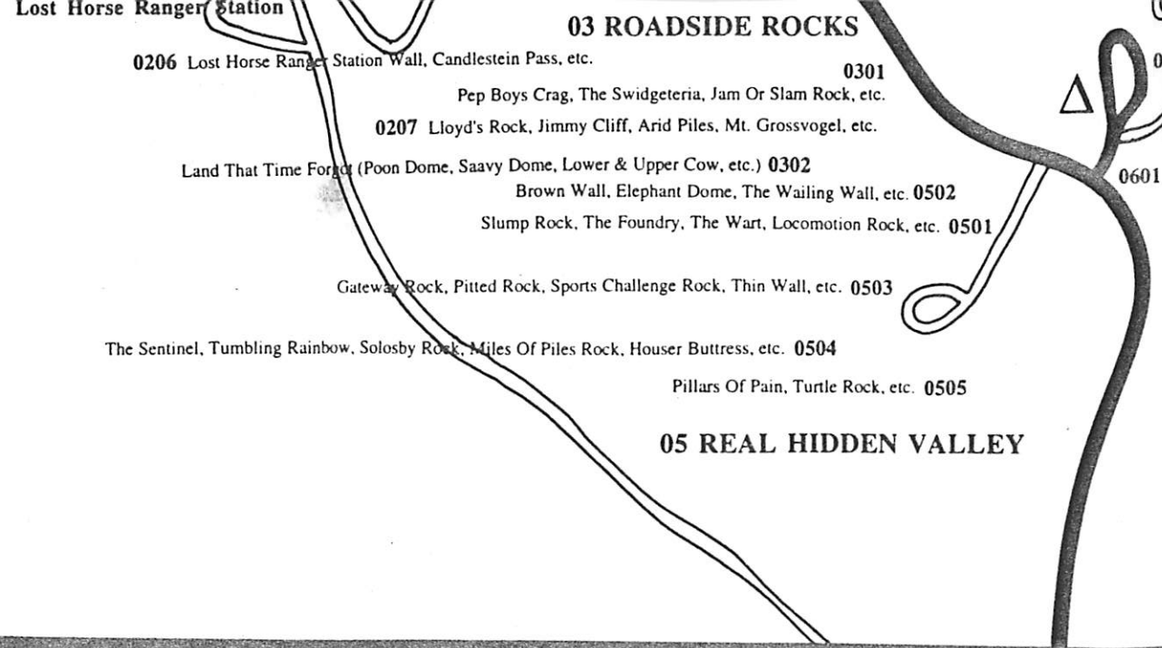
0403
Roof Rock, Dinosaur Rock, Rock Hudson, etc.

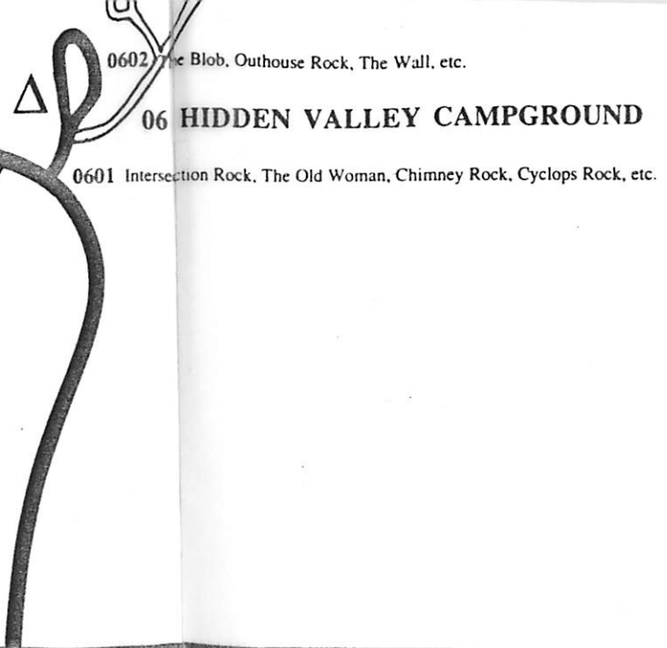
Hit Man Rock, The Hot Tub, Steve Canyon, etc.
0402

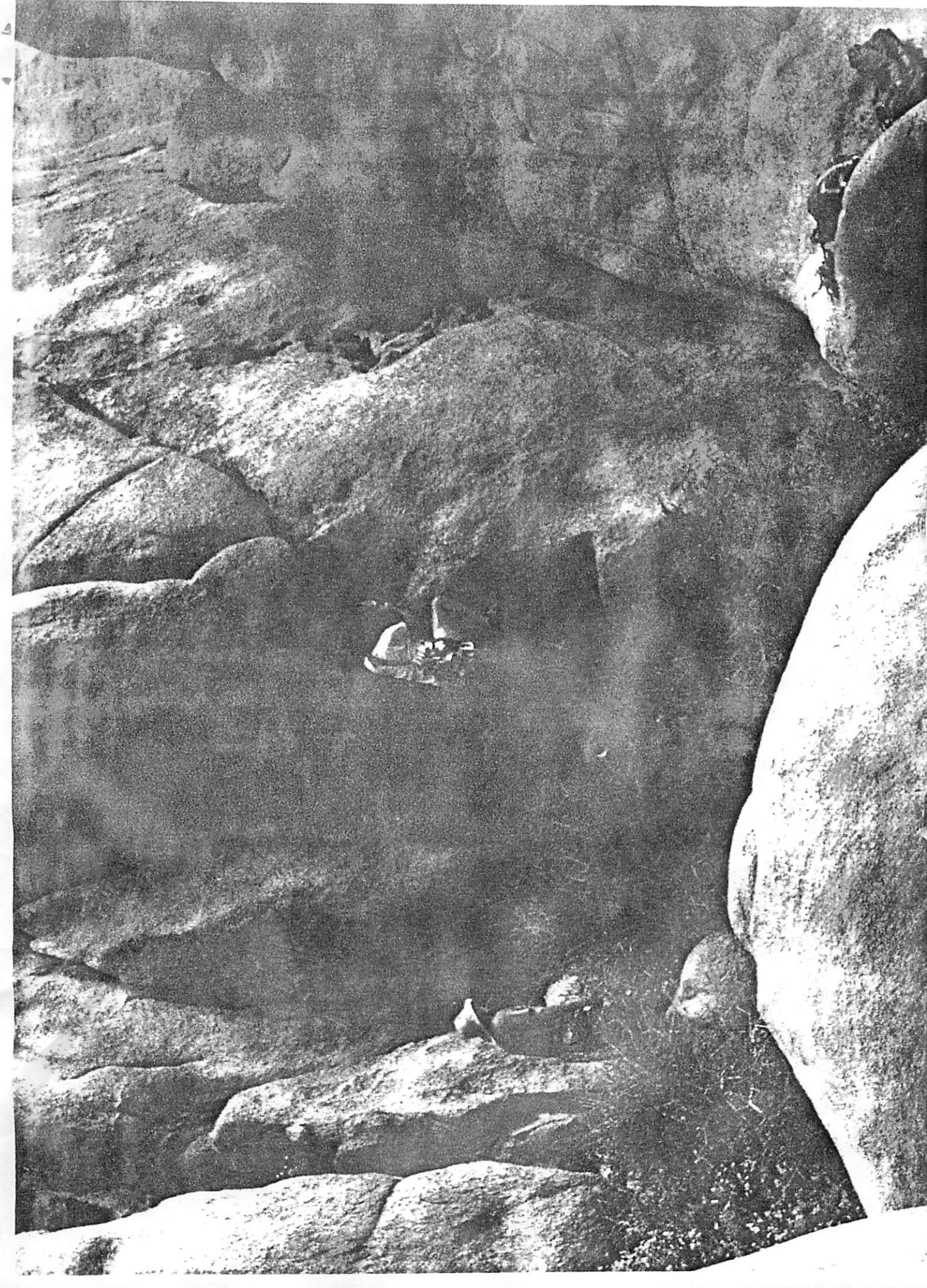
02 LOST HORSE

Hemingway Buttress, Freeway Walls, Rock Garden Valley, Lost Horse Wall, etc. **0204**

Imaginary Voyage Formation, Super Creeps Wall, Atlantis Wall, etc. **0205**





09 THE COMIC BOOK

0901 Mary Worth Buttress, The Comic Strip, Cerro Torre, Asteroid Belt, etc.