National Park Service
U.S. Department of the Interior

Arches National Park
Moab, Utah

Climbing & Canyoneering Management Plan

August 2013

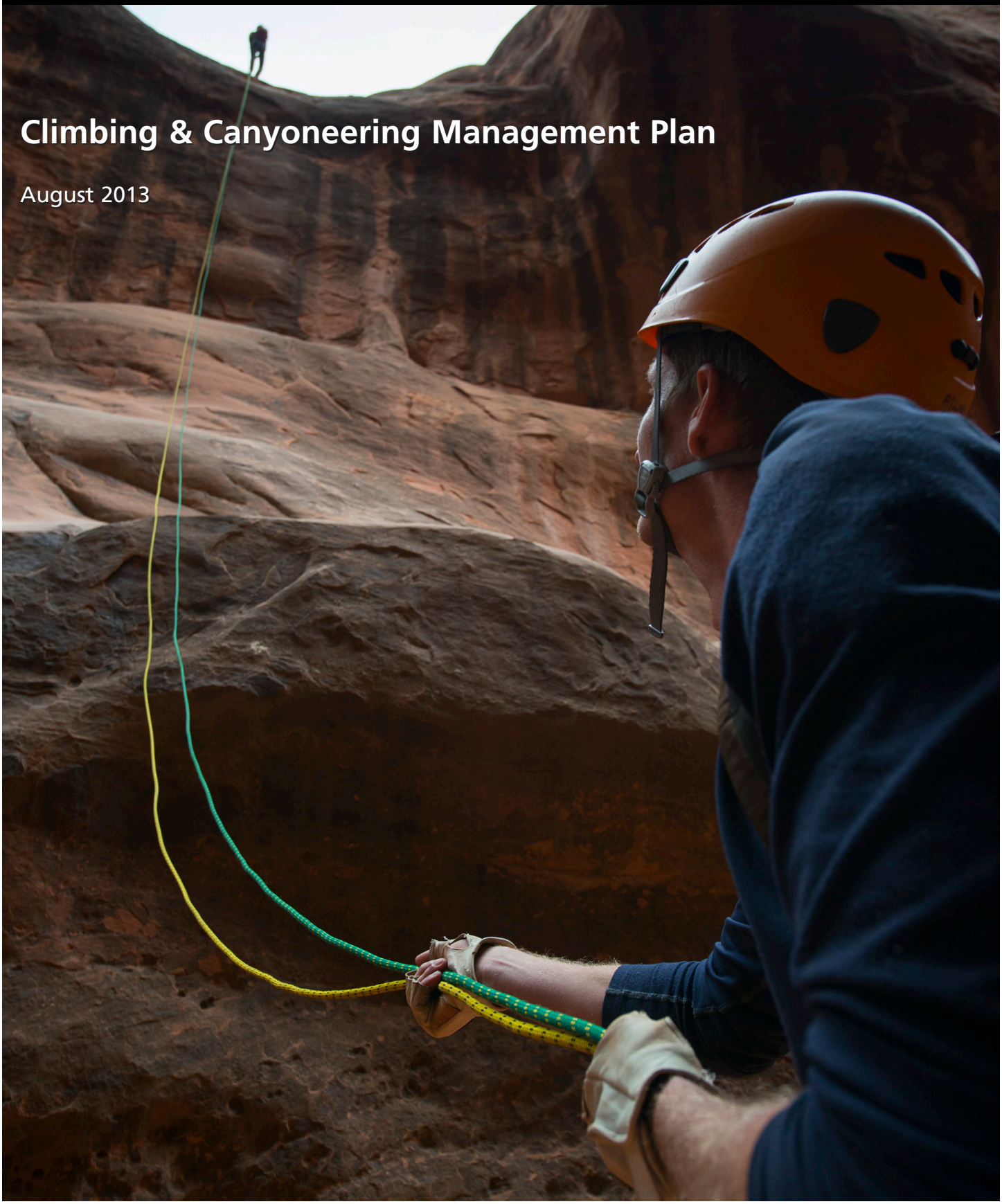


TABLE OF CONTENTS

Abbreviations iii

CHAPTER 1 - PURPOSE AND NEED 1

Introduction **1**

Background **1**

Rock Climbing 1

Canyoneering 4

Purpose and Significance of Arches National Park **6**

Park Purpose **6**

Park Significance **6**

Purpose and Need for the Plan **7**

Management Goals and Objectives **8**

Relationship to Other Plans and Policies **8**

CHAPTER 2 – THE PLAN 10

Selected Alternative-Active Management **10**

Actions and/or Mitigation Measures **12**

CHAPTER 3 - CONSULTATION AND COORDINATION 15

External Scoping **15**

Agency Consultation 15

Native American Consultation 16

Other Interested Parties 17

Environmental Assessment/Assessment of Effect Review and List of Recipients **17**

List of Preparers **18**

REFERENCES 19

LIST OF FIGURES

Figure 1: Arches National Park 2

Figure 2: Rocking Climbing Areas in Arches National Park 4

Figure 3: Canyoneering Routes in Arches National Park 5

APPENDICES

Appendix A: Glossary of Terms

Appendix B: Established Rock Climbing Routes

Appendix C: Established Canyoneering Routes

Appendix D: Natural Resource Assessments

Appendix E: Indicators, Standards and Management Actions

Appendix F: Wilderness Minimum Requirement Analysis

Appendix G: New Route and Fixed Gear Guidelines and Application

Appendix H: USFWS Concurrence Letter
Appendix I: Cultural Clearance for Climbing and Canyoneering Routes (sensitive)
Appendix J: Commercial Visitor Service Analysis

Abbreviations

ACHP	Advisory Council of Historic Properties
AEF	Assessment of Effect
BCMP	Backcountry Management Plan
CE	Categorical Exclusions
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CUA	Commercial Use Authorization
DO	Director's Order
DOI	Department of Interior
EA	Environmental Assessment
GMP	General Management Plan
IDT	Interdisciplinary Team
LNT	Leave No Trace
NEPA	National Environmental Policy Act
NHPA	National Historical Protection Act
NPS	National Park Service
RSS	Resource Stewardship and Science
RVP	Resource Visitor Protection
SEUG	Southeast Utah Group
SHPO	State Historical Preservation Office
USFWS	United States Fish and Wildlife Service
VC	Visitor Center
§	Section

CHAPTER 1 - PURPOSE AND NEED

Introduction

Arches National Park is located in southeastern Utah adjacent to the Colorado River, in the high desert physiographic province known as the Colorado Plateau. The 76,679 acre park lies entirely within Grand County, Utah, five miles northwest of the county seat of Moab, Utah. The park contains over two thousand sandstone arches, the largest concentration in the country, and a variety of unique geological resources and formations such as balanced rocks, fins, and pinnacles that are highlighted in striking foreground and background views created by contrasting colors, landforms, and textures. Its extraordinary geological features are easily accessible, many by park roads and established trails.

The purpose of this Environmental Assessment/Assessment of Effect (EA/AEF) is to determine which impacts technical rock climbing, canyoneering, and associated activities, commercial and noncommercial, have at Arches National Park, and to consider whether the NPS should further manage those activities. This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR §1508.9), and the NPS Director's Order 12 (*Conservation Planning, Environmental Impact Analysis, and Decision-Making*) (DO 12). The assessment of effect was developed in conjunction with this EA to meet its obligations for NEPA and under §106, in accordance with the Advisory Council on Historic Preservation's (ACHP) regulations implementing §106 (36 CFR 800.8, Coordination with the National Environmental Policy Act).

Background

(Please refer to *Appendix A* for a glossary of terms used for the scope of this document).

Rock Climbing

Rock climbers have been active in the Colorado Plateau region for many decades. The unique geological features and unique landscapes of the region have attracted many of America's best climbers (Annerino, 1999).

Early ascents in Arches National Park revolved around some of the more prominent and unique features that were scattered about the park. In 1939, Philip S. Miner, a nineteen-year-old climber and member of the Wasatch Mountain Club of Salt Lake City made the first ascent of Landscape Arch, one of the largest spans in the world (Hoffman 1981). Fred Ayres, a chemistry professor and rock climber from Portland, Oregon, made the second ascent of Landscape Arch in 1949 with his sister Irene. The third attempt to climb Landscape Arch resulted in the first recorded tourist fatality at Arches. Nineteen-year-old Frederick Semisch reached the summit of the arch's north abutment, slipped on the sandstone and fell to his death (Hoffman 1981).

Figure 1: Arches National Park

Many of the other arches at the park were climbed in the 1940s, '50s and '60s. As interesting as the arches were, the towers in the south portion of the park saw most of the climbing activity in the 1960s, although climbing itself was at that time not allowed in the park. Consequently, many covert ascents were completed.

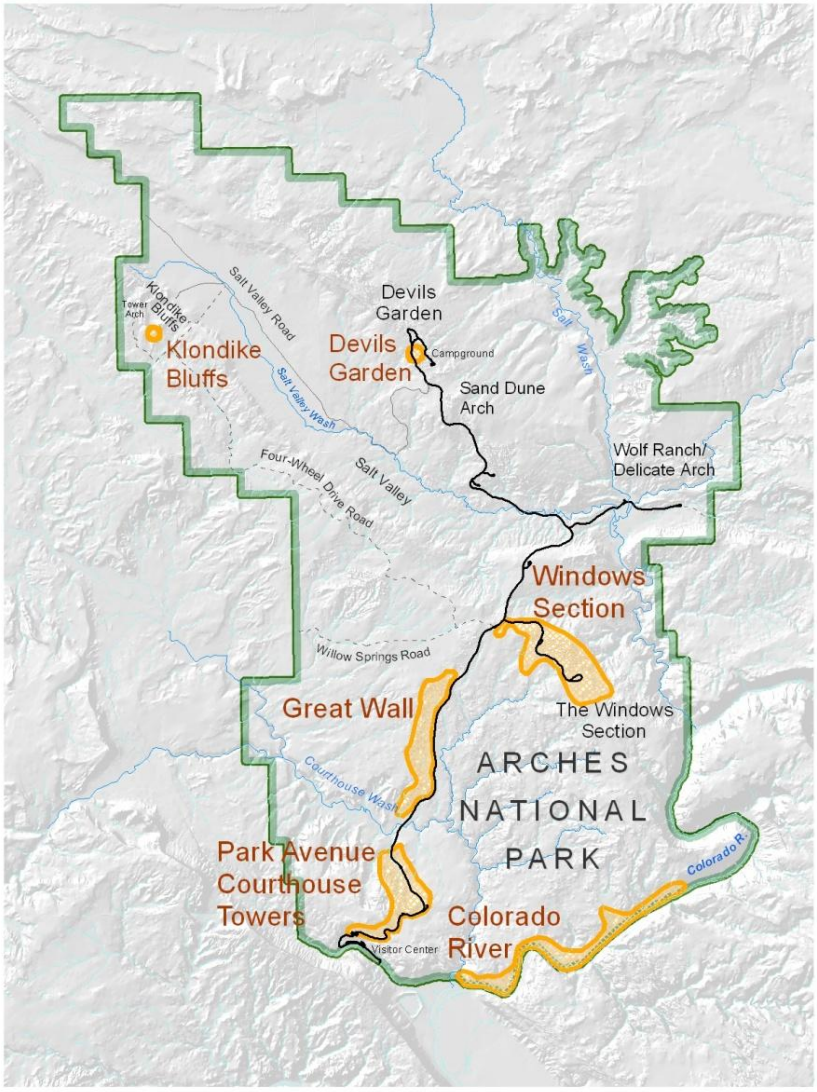
Climbing activity surged in the mid-1980s, with the towers in the south portion of the park, known as Courthouse Towers, having many of its routes first established. Rock climbing had gained popularity and finally became an accepted and respectable pastime. Moab locals and Wasatch Front climbers flocked to Arches to be the first to surmount these majestic formations and stand atop to behold the magnificent awe-inspiring beauty of the park.

Difficult free climbing and aid climbing became popular with many of the obvious crack systems, dihedrals and smaller towers seeing first ascents. The pioneer spirit of first ascents has been one of the founding principles of traditional climbers, exploring terrain that others have yet to challenge.

Since the 1980s climbing has continued to grow in popularity. The nature of the sport has changed over the years as advances in technology, newer equipment, and improved physical conditioning and training among climbers have resulted in higher and more difficult climbing standards. From the days of hip belaying to the development of sticky rubber shoes, to the use of dynamic ropes and the innovation of top of the line gear to the advent of portable motorized battery-powered drills to place bolts; all this has created a tremendous change in the nature of the sport. Rock climbing is a potentially dangerous activity, yet climbers still seek to push limits, experience magnificent vistas, and seek the ultimate adventure.

As climbing evolved over the years and its popularity grew, the need for a new look at management of climbing as a recreational use in the park became apparent, and the park began the work of developing a climbing management plan.

Figure 2: Rocking Climbing Areas in Arches National Park

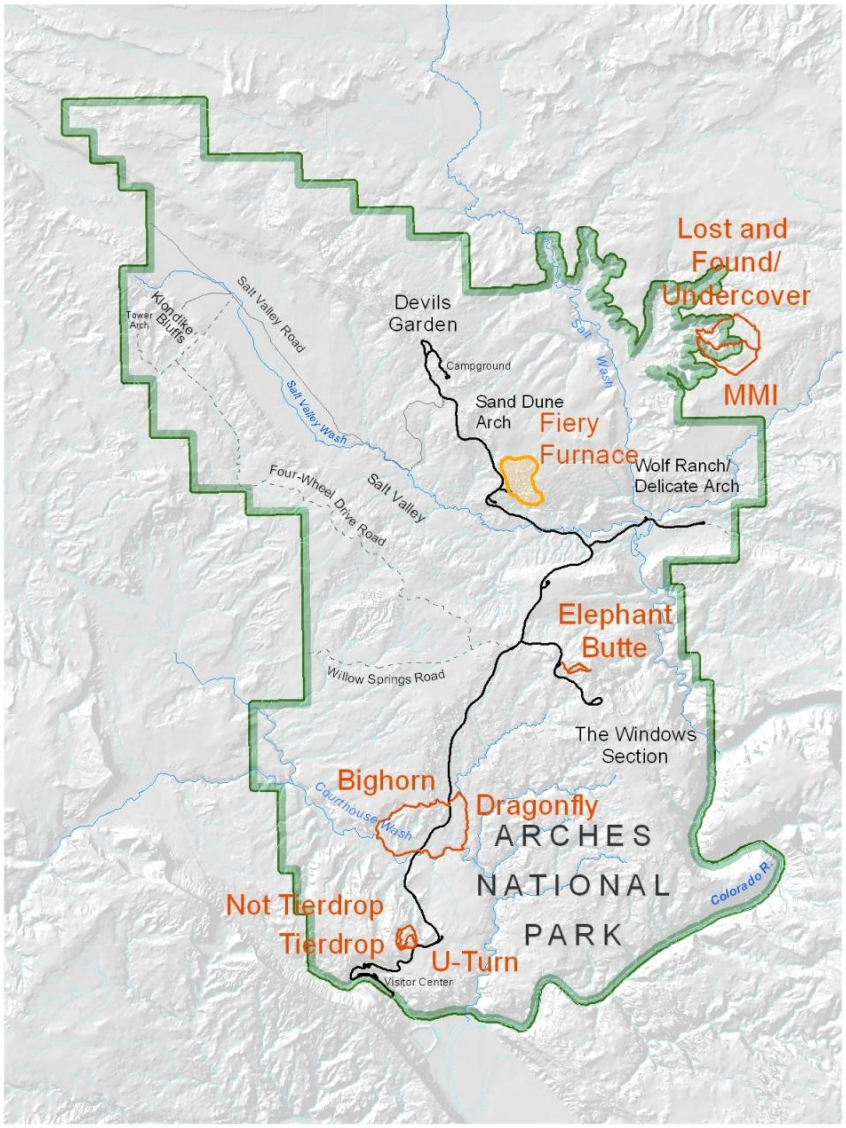


Canyoneering

Canyoneering is not a new sport, but the popularity of the sport is somewhat newer, possibly influenced by guidebooks and the internet, both of which give written directions, GPS coordinates and maps of routes to once generally unknown canyons. Historically, canyons have been explored by Native Americans, cowboys, surveyors and uranium miners in southern Utah and the known history of canyoneering is sporadic at best. Exploring slot canyons in Glen Canyon was a popular activity in the 1960's prior to the filling of Lake Powell. In the 1970's, Zion National Park's slot canyons were extremely popular. West of Arches National Park the San Rafael Swell is filled with slot canyons and has been another popular destination for canyoneers. In the 1960s and 1970s this activity wasn't even called canyoneering. The terms "canyoneering" or "canyoning" is, in fact, a more modern term for the activity of cross-country hiking through canyons involving occasional ascent or descent of rock formations utilizing a variety of techniques that require rappels and ropework.

Canyoneering in Arches National Park is even more recent compared to the other areas in southern Utah. In the early 1980s a few canyoneering routes were developed by Moab locals. Pitons were installed on routes that required ropes to descend in order to continue on with the exploration of the canyon or for search and rescue efforts. As canyoneering use grew, popular canyons began to show the effects. Social trails developed into routes, the sensitive soils were being trampled, and rope grooves on the rock were starting to develop. The need for a new look at management of canyoneering as a recreational use in the park became apparent, and the park added canyoneering to the activities to be considered in the development of a climbing management plan, which then became known and Climbing and Canyoneering Management Plan.

Figure 3: Canyoneering Routes in Arches National Park



Purpose and Significance of Arches National Park

Park Purpose

Purpose statements identify the specific reason for the establishment of a particular park. Purpose statements are crafted through a careful analysis of the enabling legislation and legislative history that influenced the development of Arches National Park. The park was first designated as Arches National Monument when the initial enabling legislation was passed and signed into law on April 12, 1929. The purpose statement reinforces the foundation for future park management administration and use decisions. The following is the purpose statement for Arches National Park:

> The purpose of Arches National Park is to protect extraordinary examples of geologic features including arches, natural bridges, windows, spires, balanced rocks, as well as other features of geologic, historic, and scientific interest, and opportunities to experience these resources and their associated values in their majestic natural settings.

Park Significance

Significance statements express why Arches National Park resources and values are important enough to merit national park unit designation. Statements of significance describe why an area is important within a global, national, regional, and system wide context. These statements are linked to the purpose of the park unit, and are supported by data, research, and consensus. Significance statements describe the distinctive nature of the park and inform management decisions, focusing efforts on preserving and protecting the most important resources and values of the park unit.

The following significance statements have been identified for Arches National Park:

- Arches National Park contains the largest concentration of natural arches on earth.
- The geographic location of Arches National Park provides visitors with the opportunity to enjoy iconic Colorado Plateau landscapes in a majestic natural setting, with striking geologic features in the foreground and the towering La Sal Mountains in the distance creating expansive views of contrasting colors and textures.
- Arches National Park protects representative examples of Colorado Plateau ecosystems, providing opportunities for scientific studies of natural and human systems in diverse landscape settings over long periods of time.
- Arches National Park protects a notable array of cultural sites and features that reflect the many different ways people have occupied and used Colorado Plateau landscapes over the last 12,000 years.

Legislative History

All National Parks are founded upon two basic authorizing laws: The National Park Service Organic Act of 1916 and the enabling legislation unique to each park.

In the 1916 act, Congress established a broad framework for the administration of park areas, namely that:

> "The Service thus established shall promote and regulate the use of the Federal areas known as National Parks, Monuments, and

> reservations…by such means and measures as conform to the fundamental purpose of the said Parks, Monuments, and Reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Arches was originally designated as a national monument of 4,520 acres, established by Presidential Proclamation No. 1875 on April 12, 1929. Over the years, additional proclamations and legislation either increased or decreased the size of the monument. In 1971, Public Law 92-155 changed the status of the monument to national park, with an adjusted boundary of 73,379 acres. The addition of Lost Spring Canyon in 1998 brought the park to its current size.

The purpose and significance of the park as stated in the 1929 Presidential Proclamation is to:

> "…protect extraordinary examples of wind erosion in the form of gigantic arches, natural bridges, 'windows', spires, balanced rocks, and other unique wind-worn sandstone formations, the preservation of which is desirable because of their educational and scenic value."

The 1938 Proclamation included language preserving

> "…prehistoric structures of historic and scientific interest…"

and added contiguous land to the monument which is

> "…necessary for the proper care, management, and protection of the objects of scientific interest situated on the lands included in the monument…"

The 1969 Proclamation restated the purpose of the earlier proclamation as

> "…and to reserve and set apart areas containing extraordinary examples of wind-eroded sandstone formations and other features of geological, historic and scientific interest…"

The 1971 Congressional act re-designated Arches as a national park and re-emphasized Congress' intent that the park be managed according to the 1916 Organic Act.

Purpose and Need for the Plan

With rapid growth in the popularity of climbing and canyoneering, the NPS recognized a need for a systematic assessment of potential impacts and an evaluation of potential management strategies for mitigating impacts. Park staff and visitors expressed concerns about impacts of climbing and canyoneering activities on soil and geologic resources, rare plants and other vegetation, water resources, sensitive wildlife species, and cultural resources. In addition, concern was expressed about potential conflicts with other park uses and user groups, and with the increasing amounts of staff time that were being expended to monitor and manage climbing and canyoneering activities.

Climbing and canyoneering activities have been largely unregulated over past years. Park management did not know the full extent of climbing and canyoneering use and the impacts on the park's resources and potentially with other visitors. Many social trails have been developed through climbing and canyoneering areas impacting park

resources adversely. Access and egress routes, which typically involve traveling across the backcountry to both rock climbs and canyoneering routes, have not been assessed for the presence and condition of cultural resources or other natural resources. New routes, both climbing and canyoneering, have become established within park boundaries and park management is unaware of the location and installation of fixed gear. Climbing rope use for canyoneering and climbing has caused permanent grooving in the sandstone along routes.

Adventure companies began to shown an interest in conducting commercial guided trips for canyoneering and rock climbing in Arches. Because there was never an official determination of whether commercial canyoneering nor rock climbing was a necessary and appropriate commercial visitor service in Arches National Park as is required per 2006 NPS *Management Policies* and the Wilderness Act of 1964, a commercial visitor service analysis needed to be completed prior to authorizing additional commercial canyoneering and rock climbing in the park.

Also due to the increasing availability of information on climbing and canyoneering routes in the park from internet sites, visitors rarely contact the park for accurate information. Some internet sites have misleading information on where and how to traverse the route causing social trails to develop and opportunities for a visitor's safety to be compromised. These issues have prompted the NPS to look at ways to provide important educational information and opportunities regarding these two backcountry activities.

For all of the above reasons, it was determined necessary to undertake this planning effort and to develop a climbing and canyoneering management plan. This Climbing and Canyoneering Management Plan (CCMP) will provide management guidance for five to ten years, and will be revised as monitoring and research data are acquired and updated, as use patterns change, or as new impacts are observed.

Management Goals and Objectives

The goals of this planning effort is to provide opportunities for canyoneering and rock climbing in Arches National Park and to create a management tool that will adequately address resource protection and visitor use issues related to climbing and canyoneering activities. Specifically, this plan is needed to accomplish the following objectives:

- Implement management strategies which protect the park's resources and values while providing opportunities for climbing and canyoneering;
- Monitor the status of natural resources, climbing and canyoneering routes and use patterns as a basis for future decision making for maintaining desired conditions;
- Establish appropriate levels of canyoneering and rock climbing use;
- Identify opportunities to provide educational venues and materials for rock climbing and canyoneering activities;
- Engage the climbing and canyoneering community in cooperative stewardship of park resources, values, and visitor-experience opportunities;

Relationship to Other Plans and Policies

Current plans and policy that pertain to this proposal include the 1989 Arches National Park *General Management Plan* (NPS 1989), the Arches National Park *Backcountry Management Plan* (NPS 1988), the *Commercial Visitor Services Plan* (NPS 1993) and the

National Park Service (NPS) *2006 Management Policies* (NPS 2006). This document meets the goals and objectives of these plans and policies:

- This project is consistent with the 1989 Arches National Park *General Management Plan*, which states *"protection and preservation of the natural environment to ensure ecosystem integrity while providing for visitor enjoyment will be the principal consideration."* The GMP provides vision and policy guidance for the preservation of park resources, visitor use and experience, the types and general intensities of development, and visitor carrying capacities.
- This project is consistent with the 1988 *Backcountry Management Plan (BMP)* which includes the following objectives: "*(1) to provide for visitor enjoyment and high quality backcountry experience compatible with the park's purpose and resources,(2) to preserve the natural and cultural resources, maintain ecological processes, and minimize the environmental impacts of visitor use in the backcountry…". Technical rock climbing is listed as a visitor use activity in the BMP.*
- This project is consistent with the 1993 *Commercial Visitor Services Plan* which includes the following objectives: "*(1) preserve the natural and cultural resources, maintain ecological processes and minimize the environmental impacts of commercial use, (3) minimize conflict among and between different types of users, (4) guide the park staff in the selection and management of commercial visitor services.*
- This project is consistent with Section 8.2.2 of the NPS *2006 Management Policies* which states the National Park Service will "*encourage recreational activities that are consistent with applicable legislation, that promote visitor enjoyment of park resources through a direct association or relation to those resources, and that are also consistent with the protection of the resources. Recreational activities that may be allowed include…mountain and rock climbing… However, not all of these activities will be appropriate or allowable in all parks; that determination must be made on the basis of park- specific planning. Restrictions placed on recreational uses that have been found to be appropriate will be limited to the minimum necessary to protect park resources and values, and promote visitor safety and enjoyment."*
- Other laws, regulations, and/or policies relevant to this plan are the following:
    - Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision Making
    - Council on Environmental Quality Regulations, 40 CFR 1500–1508
    - Endangered Species Act of 1973
    - Wilderness Act of 1964
    - National Parks Omnibus Management Act of 1998

CHAPTER 2 – THE PLAN

During January 2010 an interdisciplinary team of National Park Service employees met for the purpose of developing a climbing and canyoneering management plan. This meeting and subsequent meetings resulted in the definition of project objectives as described in the *Purpose and Need* section of this document. In February 2011 park management developed a list of alternatives that could potentially meet these objectives and presented it to the public. A total of six alternatives were originally identified for this project. Three alternatives were dismissed from further consideration for various reasons, as described later in this chapter. The no-action alternative and two action alternatives are carried forward for further evaluation in an environmental assessment. This chapter outlines the selected alternative for implementation.

(Please refer to *Appendix A* for a glossary of terms used for the scope of this document).

Selected Alternative-Active Management

Rock climbing and canyoneering activities will be actively managed and monitored to maintain desired resource and visitor experience conditions.

The desired condition of the backcountry zone is that the landscape is largely undisturbed and undeveloped by human activities with natural processes predominating. The environment offers a moderate to high degree of challenge and adventure. Opportunities for solitude and primitive recreation and the application of specialized skills are moderate to high. The probability of encountering other visitors is low. A moderate level of management is provided for resource protection and safety purposes. Some resources may be managed to restore an area that has been disturbed or to preserve cultural resources. Tolerance for resource modifications and resource degradation is low. Offsite management of visitors may require permits, limits on length of stay in area and reservation requirements.

Monitoring data will be used to ensure desired conditions are being met. If desired conditions are not being met, the following management strategies will be considered: Trail delineations, group-size limit adjustments, seasonal route closures, additional permit requirements, and placement and replacement of fixed gear. The following are proposed for implementation under this plan.

Access Routes

Access routes will be delineated and maintained as necessary to minimize impacts on park resources and values. Results of resource assessments and monitoring will be used to determine management strategies for access routes.

Short sections of routes may be maintained to prevent erosion or other resource degradation. In some instances signs may be placed to direct climbers and canyoneers away from problem or sensitive areas in order to protect resources. Signs or cairns will only be erected to protect resources or for safety concerns.

Access trails to the bases of well-known and heavily used climbing routes and access trails to canyoneering routes may be identified on a map, delineated and maintained in order to prevent further erosion and loss of vegetation. No more than one access route up/down a slope to the base of a climb, area, or canyon will be allowed. Social trails that that are used infrequently or that traverse sensitive soils will be rehabilitated or blocked to discourage future use.

Group Size Limits

Rock climbing groups will be limited to five persons per group.

Canyoneering groups in the Fiery Furnace and the Lost Spring Canyon canyoneering routes will be limited to six persons per group. Elsewhere, canyoneering groups will be limited to 10 persons per group. Larger groups must split and use different routes or use the same route at different times of the day to avoid queuing at rappel sites and to minimize impacts on resources and on other visitors.

Permit Requirements

A free user permit system will be implemented to enable monitoring of visitor use numbers, group sizes, and locations of use. The free permit process will be convenient and will benefit users by providing educational information on safety issues, route access, and low-impact Leave No Trace (LNT) techniques for off-trail travel in the backcountry. In the future, the permit system may be accessible online.

With the exception of entering the Fiery Furnace, permits will be available outside the park Visitor Center at an information/registration board.

Rock climbers will be *encouraged* to complete a free self-registration process at the park Visitor Center (VC) to allow NPS to gather information about levels, locations, and timing of climbing use in the park.

Canyoneers will be *required* to complete a free self-registration process at the park VC or at the Lost Spring Canyon trailhead for the Undercover / MMI routes to allow NPS to gather information about levels, locations, and timing of canyoneering use in the park.

New Route Establishment

Establishment of new routes will be allowed. The following guidelines for new routes are provided to maximize visitor safety and minimize potential impacts on park resources and values:

- Travel to and from routes must be within dry wash systems or on rock.
- Use of retrievable anchor systems will be encouraged.
- No new fixed gear can be installed without a special use permit.

Fixed Gear

Installation of new fixed gear on new and existing routes will require a free special use permit (Appendix G). However, in the future, and after a cost analysis has been completed to determine an appropriate fee, a cost recovery fee may be charged. The park will establish guidelines, which are also found in Appendix G, for new fixed gear installation to maximize visitor safety and minimize potential impacts on park resources and values. The placement of fixed anchors during new route development will not be allowed when rock features capable of accepting adequate removable protection are present. The installation of pitons will be prohibited.

Use of motorized drills outside of wilderness boundaries will require a special use permit (Appendix G). Applications to use motorized drills will be reviewed by park staff to evaluate potential impacts to adjacent wilderness character, wildlife concerns, or the experiences of other park users. Use of motorized drills within wilderness boundaries will be prohibited.

The park recommends hardware for new and replacement anchors be modern climbing-specific hardware and of a length adequate for rock conditions at the installation site. ¼

inch bolts are highly discouraged. Homemade hardware is prohibited. Best practices for the site should be followed.

The park recommends hardware for new and replacement anchors be a torque-in-sleeve expansion bolt (that can be removed with a wrench for inspection and maintenance) of a length adequate for rock conditions at the installation site. Climbing-specific hangers are also recommended. Appropriately colored chains are recommended to replace the use of nylon webbing when rap hangers cannot mitigate rope grooving.

New, bolt-intensive climbing routes (e.g., sport climbs, bolt ladders) are not appropriate in the park and will not be approved.

The park will actively seek input from the climbing/canyoneering community to assist the park in assessing the suitability and quality of new fixed gear placement proposals.

The park will work with climbing and canyoneering communities to place new fixed gear or to replace existing fixed gear to minimize resource impacts.

Monitoring

Indicators and standards of resource protection and visitor use (Appendix E) will be monitored to determine whether adjustments in the management system are required to achieve desired conditions. Indicators of visitor use will be based on data provided by the user permit system and will be augmented by trail counters and observations made during periodic patrols by staff or partners. Indicators of resource conditions could include raptor nest site occupancy; desert bighorn sheep habitat occupancy; evidence of disturbance to other wildlife, sensitive soil, vegetation, water, cultural and geologic resources; and soundscape characteristics. Specific climbing and canyoneering routes will be closed (seasonal or permanent) to address a specific resource condition (Appendix K). Closures will be kept to the minimum area and duration necessary to protect the affected resource.

A volunteer-based resource stewardship program could be developed in partnership with the canyoneering and climbing communities to enhance monitoring capacity and resource protection.

Closures/Regulations

To ensure protection of the geologic features for which the park was established, it will be prohibited to climb, scramble or walk upon, wrap webbing or rope around, or rappel off any named or unnamed arch with an opening greater than three feet.

The use of white chalk will be prohibited. Chalk or chalk substitutes used in the park will be required to be similar in color to the rock that is being climbed.

If monitoring data indicates that desired conditions are not being met, slight changes to group size and permit requirements may be made. If changes exceed the impacts assessed in this plan, then additional environmental analysis will be necessary. The standards for management changes are described in Appendix E *Resource Protection and Visitor Use Indicators and Standards*.

Actions and/or Mitigation Measures

In addition to park management objectives, the interdisciplinary team identified actions that are currently in place or will be implemented with the selected alternative. Several of these actions are considered as mitigation measures to minimize the degree and/or severity of adverse effects of climbing and canyoneering activities.

Access Routes
Travel on designated trails, slickrock, and dry washes will be encouraged in the park.

Permit Requirements
Permits are required for all entry into the Fiery Furnace.

Fixed Gear
Canyoneering and rock climbing will be free climbing or clean aid climbing. Clean aid climbing involves the use of temporary equipment and anchors that can be placed and removed without altering the environment (e.g. slings, cams, nuts, chocks, and stoppers).

If an existing item or fixed anchor is judged unsafe, it may be replaced, in kind, without a permit. When existing anchors are deemed to be unsafe, a reasonable effort to remove the existing hardware will be made and existing drill holes will be used in the installation of replacement fixed anchors whenever possible.

All old holes will be filled with epoxy and topped with sand to best camouflage the un-used hole.

Software left in place will be required to match the rock surface in color.

Bolts, hangers and chains painted the color of the rock surface or primered brown will be required.

Fixed ropes left in place for more than 24 hours are prohibited, except for unexpected cases with park notification. Fixed ropes left in place longer than 24 hours will be considered 'abandoned property' and removed unless the park has been notified.

Closures
Routes may be closed, temporarily or permanently, or access and/or egress trails rerouted to avoid significant resource impacts based on natural and cultural resource monitoring (36 CFR 1.5).

Balanced Rock will be closed to climbing (36 CFR 1.5).

Any arch or natural bridge named on the United States Geological Survey 7.5 minute topographical map covering Arches National Park will be closed to climbing (36 CFR 1.5).

Bouldering, rock climbing, rock scrambling, and other similar activities will be prohibited in the area known as the "Arches Boulders" or "Highway 191 Boulders" (36 CFR 1.5).

Regulations
The physical altering of rock from its natural position such as chiseling, breaking rocks to reinforce crevices and pockets as anchors, glue reinforcement of existing holds, and gluing of new holds will be prohibited (36 CFR 2.1).

The intentional removal or "gardening" of lichen or plants from rock will be prohibited (36 CFR 2.1).

Use of deadman anchors is prohibited. A deadman is a buried object (e.g., a large rock or log) that functions as an anchor for an attached rope. The action of digging a hole to bury an object for use as an anchor will be prohibited (36 CFR Section 2.1).

Slacklining or "highlining" will be prohibited (36 CFR 1.5).

BASE jumping will be prohibited (36 CFR 2.17 (a)(3) and 2006 NPS Management Policies 8.2.2.7).

Bivvying overnight requires a backcountry permit and will adhere to the same rules and regulations set forth for backcountry camping. Bivvying overnight will be at least one mile from any designated road and one-half mile from any designated trail.

Bathing and immersing human bodies will be prohibited in water sources that do not have water flowing both in and out at the time of the activity. Swimming and wading also will be prohibited in water sources that do not currently have water flowing both in and out, except in cases where it will be necessary to enter the water source in order to traverse a route. (36 CFR 1.5).

All trash will be packed out and disposed of in a refuse receptacle (i.e., trash can or dumpster) (36 C.F.R. 2.14).

Toilet facilities will be used when available (36 C.F.R. 2.14). In undeveloped areas, the disposal of human body waste within 300 feet of a water source, campsite, road, or trail is prohibited. Leaving or burying toilet paper is prohibited. Provision and use of a bag system or portable toilet will be recommended.

Safety Considerations

Most technical climbing and canyoneering routes in Arches require advanced skills. The NPS cannot guarantee the safety of park visitors. Safety remains the sole responsibility of the climber or canyoneer. Climbers and canyoneers should understand the inherent danger of the activity. Climbers and canyoneers should have basic knowledge of self-rescue methods and plan accordingly. Climbers and canyoneers should not attempt routes that are not within their ability. Visitor education is the primary means through which the park will continue to encourage safe practices.

The replacement of fixed anchors will be allowed when necessary to enable a safe rappel when no other means of descent is possible, to enable emergency retreat, and during self-rescue situations.

The NPS will be not responsible for the replacement or maintenance of existing hardware or software but will work cooperatively with local climbers/canyoneers and organizations to develop a systematic program for the assessment and replacement and inventory of fixed anchors for climbing and canyoneering routes. The NPS explicitly disclaims all responsibility for the safety of equipment, bolts, or anchor systems in the park. However, the NPS may place and maintain fixed anchors for administrative and emergency purposes.

Education

The park will establish a proactive educational and outreach program. There will be a climber/canyoneering educational display at the Visitor Center to display closures and regulations and to promote "Leave No Trace" techniques and sound climbing and canyoneering ethics. The park will provide information to climbers and canyoneers before they arrive. This will be accomplished through the development of climbing and canyoneering-specific educational literature that could be distributed at the Visitor Centers, mailed, or posted on the park's web page. Additional efforts will be made to distribute this information to local outdoor gear shops and guide services. The park staff will work with journalists to develop articles for periodicals and guidebooks to provide educational information and foster a better appreciation and understanding of the park's resources. The park will ensure that information posted on official NPS internet sites about climbing routes and canyoneering routes will be accurate and up-to-date regarding closures.

CHAPTER 3 - CONSULTATION AND COORDINATION

External Scoping

External scoping was conducted to inform the public about the proposal to develop a climbing and canyoneering management plan and to generate input on the preparation of this EA/AEF. Over 200 scoping brochures dated July 12, 2010 were mailed or emailed to interested parties in Moab, Salt Lake City, Grand Junction, and to various federal and state agencies, affiliated Native American tribes, local governments and local and state newspapers. Scoping brochures were also mailed to those individuals who had commented during the scoping period for the initial climbing management plan effort in 2007. Scoping information was also posted on the park's website and on the NPS planning website: *Planning, Environment and Public Comment* (PEPC). The NPS conducted an open house in August 2010 to gather additional input for the plan. The public who attended were primarily from the climbing community and local climbing and canyoneering guide services.

During the 30-day scoping period, 343 public responses were received. Three hundred eight responses were received from the 2007 scoping period. These responses were also included in this planning effort. The majority of the responses were in favor of some sort of regulation and/or education for both climbing and canyoneering to ensure the protection of park resources. Many were also in support of not allowing climbing on any of the park's arches. The remaining responses included some in favor of not allowing climbing or canyoneering activities to continue in the park, stating there are plenty of areas outside the park for these activities. Others wanted the park to allow placement of new fixed anchors primarily for safety reasons. Some groups wanted closer partnership with the park in assisting with this management process. However, a fair number of commentators were in favor of keeping current management policies just as they are.

A newsletter describing preliminary alternatives was posted on the PEPC website on February 11, 2011 for public comment. The public was also given a 30 day opportunity to comment on the preliminary alternatives. A total of 172 correspondences were received from the public through postings on PEPC website and letters. Out of the four possible alternatives, the majority of commenter's supported current management (Alternative A), management with a minimum of restrictions (formerly Alternative D, currently Alternative C) and management that is more active (Alternative B). The alternative in which the public was not in favor of was the regulatory management approach (formerly Alternative C). This alternative was examined by the interdisciplinary team and ultimately dismissed as not meeting the other objectives of the project, as well as being economically infeasible to manage.

Agency Consultation

In accordance with the Endangered Species Act, NPS contacted the U.S. Fish and Wildlife Service with regards to special status species, and in accordance with National Park Service policy.

An assessment of effect determination was developed in concurrence with this EA and will be submitted to SHPO during the 30 day public review process for their concurrence

with the park's determination of *"No Adverse Effect"* to archeological resources under the preferred alternative.

Native American Consultation

Twenty-nine Native American tribes were contacted at the beginning of this project to determine if there were any ethnographic resources in the project area and if they wanted to be involved in the environmental compliance process, including:

Hopi Tribal Council
Jicarilla Apache Nation
Kaibab-Paiute Tribal Council
Navajo Nation
Paiute Indian Tribe
Pueblo of Acoma
Pueblo of Cochiti
Pueblo of Isleta
Pueblo of Jemez
Pueblo of Laguna
Pueblo of Nambe
Pueblo of Picuris
Pueblo of Pojoaque
Pueblo of San Clara
Pueblo of San Ildefonso
Pueblo of Santo Domingo
Pueblo of Taos
Pueblo of Tesuque
Pueblo of Zia
San Felipe Pueblo
San Juan Pueblo
Sandia Pueblo
Santa Ana Pueblo
Southern Ute Tribe
Ute Indian Tribe
Ute Mountain Tribe
White Mesa Ute
Ysleta Del Sur Pueblo
Zuni Tribal Council

Three Native American Tribes responded; the Pueblo of Laguna, Navajo Nation, and the Hopi Tribe. Both the Pueblo of Laguna and Navajo Nation responded and affirmed their affiliation with the project area and stated that they do not anticipate impacts to Native American sites or resources. They had no objection to the proposed project, and requested to be kept informed of the project's progress, including immediate notification if Native American materials are discovered. The Hopi Tribe responded and affirmed their affiliation with the project area but they "do not support activities which permanently damage or impact natural and cultural resources and recommend that any and all such activities be prohibited". No other federal or state agencies responded during the scoping period.

Other Interested Parties

The following are local businesses, governments and interest groups as well as national associations and clubs who were contacted during the scoping phases of the plan.

Access Fund
Desert Highlights
Moab Cliffs and Canyons
Moab Desert Adventures
Utah High Adventure
Zion Canyoneering Coalition
The Wilderness Society
Southern Utah Wilderness Alliance
The Sierra Club
Utah Guides and Outfitters
Salt Lake Climbers Alliance
American Alpine Club
American Mountain Guides Association
Friends of Indian Creek
Patagonia, Inc.
Canyoneering USA
American Canyoneering Association
Grand County Council
Grand Canyon Trust
Utah State Trust Lands
Office of the Solicitor
The Nature Conservancy
Moab Area Chamber of Commerce
Red Rock Forests
Moab City Council

Environmental Assessment/Assessment of Effect Review and List of Recipients

The EA/AEF was subject to a 30-day public comment period. To inform the public of the availability of the EA/AEF, NPS published and distributed a letter to various agencies, tribes, and the park mailing list, as well as place an ad in the local newspaper. The document was available for review on the PEPC website at http://parkplanning.nps.gov/arch and at the Arches Visitor Center and at the administration/headquarters office in Moab. Hardcopies or digital copies of the EA/AEF were provided to interested individuals, upon request.

During the 30-day public review period, the public was encouraged to submit their written comments to NPS, as described in the instructions at the beginning of this document. Following the close of the comment period, all public comments were reviewed and analyzed, prior to the release of a decision document. The NPS issued responses to substantive comments received during the public comment period, and made appropriate changes to the EA/AEF, as needed.

List of Preparers

Preparers (developed EA content):

Sabrina Henry, Environmental Protection Specialist, National Park Service, Southeast Utah Group, Moab, Utah.

Mark E. Miller Ph.D, Chief of Resource Stewardship and Science, National Park Service, Southeast Utah Group, Moab, Utah

Patricia Ortiz, Biological Science Technician, National Park Service, Arches National Park, Moab, Utah

Editors:

Vicki Webster, Museum Curator, National Park Service, Southeast Utah Group, Moab, Utah

Consultants (provided information):

Kate Cannon, Superintendent, National Park Service, Southeast Utah Group, Moab, Utah

Paul Henderson, Assistant Superintendent, National Park Service, Arches and Canyonlands National Parks, Moab, Utah

Chris Goetze, Cultural Resources Program Manager, National Park Service, Southeast Utah Group, Moab, Utah

Denny Ziemann, Former Chief Ranger, National Park Service, Arches and Canyonlands National Parks, Moab, Utah

Karen McKinlay-Jones, Former Supervisory Park Ranger, National Park Service, Arches National Park, Moab, Utah

Heidi Wiley, Concessions/Special Park Use Coordinator, National Park Service, Southeast Utah Group, Moab, Utah

Mike Henry, Supervisory Park Ranger, National Park Service, Arches National Park, Moab, Utah

Nathan Plants, Park Ranger, National Park Service, Arches National Park, Moab, Utah

Brian Hays, Park Ranger, National Park Service, Arches National Park, Moab, Utah

Gery Wakefield, GIS Specialist, National Park Service, Southeast Utah Group, Moab, Utah

Laurie Domler, NEPA/106 Specialist, National Park Service, Intermountain Region Support Office, Denver, Colorado

REFERENCES

Annerino, J. 1999. Canyoneering: How to explore the canyons of the Great Southwest. Mechanicsburg: Stackpole Books.

Belnap, J. 2003. Biological soil crusts and wind erosion. Pages 339-347 *in* J. Belnap and O. L. Lange, editors. Biological soil crusts: Structure, function, and management. Second edition. Springer-Verlag, Berlin.

Belnap, J., and D.J. Eldridge. 2003. Disturbance and recovery of biological soil crusts. Pages 363-383 *in* J. Belnap, and O.L. Lange, editors. Biological soil crusts: Structure, function, and management. Second edition. Springer-Verlag, Berlin, Germany.

Belnap, J., R. Prasse, and K.T. Harper. 2003. Influence of biological soil crusts on soil environments and vascular plants. Pages 281-300 *in* J. Belnap, and O.L. Lange, editors. Biological soil crusts: Structure, function, and management. Second edition. Springer-Verlag, Berlin, Germany.

Belnap, J., S. L. Phillips, D. L. Witwicki, and M. E. Miller. 2008. Visually assessing the level of development and soil surface stability of cyanobacterially dominated biological soil crusts. Journal of Arid Environments 72:1257-1264.

Blanco, H. and R. Lal. 2008. Principles of soil conservation and management. Springer, The Netherlands.

Brady, N. C. and R. R. Weil. 1996. The nature and properties of soils. Eleventh edition. Prentice-Hall, Upper Saddle River, New Jersey.

Coles, J., A. Tendick, G. Manis, A. Wight, G. Wakefield, J. Von Loh, and A. Evenden. 2009. *Vegetation classification and mapping project report, Arches National Park*. Natural Resource Technical Report NPS/NCPN/NRTR-2009/253. National Park Service, Fort Collins, Colorado.

Doelling, H. H. 2001. Geologic map of the Moab and eastern part of the San Rafael Desert 30' x 60' quadrangles, Grand and Emery Counties, Utah, and Mesa County, Colorado. Utah Geological Survey Map 180, Utah Geological Survey, Salt Lake City.

Doelling, H. H. 2010. Geology of Arches National Park, Utah. Pages 11-36 *in* D.A. Sprinkel, T.C. Chidsey, Jr., and P.B. Anderson, eds. Geology of Utah's parks and monuments: Utah Geological Association Publication 28, 3rd edition.

EPA 2009. National Ambient Air Quality Standards, Environmental Protection Agency. Retrieved on May 5, 2009 from: http://www.epa.gov/air/criteria.html

Evans, R.D., and O.L. Lange. 2003. Biological soil crusts and ecosystem nitrogen and carbon dynamics. Pages 263–279 *in* J. Belnap, O.L. Lange, editors. Biological soil crusts: Structure, function, and management. Second edition. Springer-Verlag, Berlin, Germany.

Fertig, W., S. Topp, and M. Moran. 2009. *Annotated checklist of vascular flora: Arches National Park*. Natural Resource Technical Report NPS/NCPN/NRTR-2009/220. National Park Service, Fort Collins, Colorado.

Karl, T.R., J.J. Melillo, and T.C. Peterson (eds). 2009. *Global climate change impacts in the United States.* Cambridge University Press, New York. [Available online at http://www.globalchange.gov/usimpacts]

Hoffman, J.F., 1981.Arches National Park: an illustrated guide. Western Recreational Publications. San Diego, California.

Landres, P., C. Barnes, J.G. Dennis, T. Devine, P. Geissler, C.S. McCasland, L. Merigliano, J. Seastrand, R. Swain. 2008. Keeping it wild: an interagency strategy to monitor trends in wilderness character across the National Wilderness Preservation System. Gen. Tech. Rep. RMRS-GTR-212. Fort Collins, CO: U.S.Department of Agriculture, Forest Service, Rocky Mountain Research Station. 77p.

Miller, M. E., R. T. Belote, M. A. Bowker, and S. L. Garman. 2011. Alternative states of a semiarid grassland ecosystem: implications for ecosystem services. Ecosphere 2:art55.

NPS 1974. Wilderness Recommendation, Arches National Park, November 1974. National Park Service, U.S. Department of the Interior. NPS 1147.

NPS 1988. Arches National Park: Backcountry Management Plan, Environmental Assessment, 1988. National Park Service, U.S. Department of the Interior. Rocky Mountain Region, Denver, Colorado.

NPS 1989. Arches National Park: General Management Plan, Development Plan, Environmental Assessment, 1989. National Park Service, U.S. Department of the Interior. Rocky Mountain Region, Denver, Colorado.

NPS 1993. Arches National Park, Canyonlands National Park, Natural Bridges National Monument, Commercial Visitor Services Management Plan, 1993. Southeast Utah Group, National Park Service, U.S. Department of the Interior.

NPS 2001. Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making (DO12).

NPS 2006 . Management Policies. National Park Service, U.S. Department of the Interior, Washington, D.C.

NPS 2010. Climate change response strategy. National Park Service, U.S. Department of the Interior, Washington, D.C.

NPS 2012. Species Lists. Northern Colorado Plateau Network, Inventory and Monitoring Program, National Park Service. http://science.nature.nps.gov/im/units/ncpn/SpeciesSelect.cfm (assessed November 19, 2012)

NPS 2012a. Keeping It Wild in the National Park Service: A User Guide to Integrating Wilderness Character into Park Planning, Management, and Monitoring. National Park Service, Washington Office of Planning and Special Studies and the Wilderness Stewardship Division. DRAFT April 2012.

NPS 2012b. National Park Service Statistics. National Park Service Public Use Statistics Office, U.S. Department of Interior. http://www.nature.nps.gov/stats (assessed September 3, 2012).

Ortiz, T. 2011. Personal Communication [March 2011 to S. Henry RE: Chalk removal of the Highway 191 boulder area]. Biological Science Technician. National Park Service. Southeast Utah Group. Moab, Utah.

Papouchis, C.M, F. J. Singer, W. B. Sloan. 2001. Responses of Desert Bighorn Sheep to Increased Human Recreation. *The Journal of Wildlife Management*, Vol. 65, No. 3: 573-582

Romin, L.A., and J.A. Muck. 2002. Utah field office guidelines for raptor protection from human and land use disturbances. U.S. Department of Interior, Fish and Wildlife Service, Salt Lake City, UT. 42 pp.Scott, C.E. 2009. Soil survey of Arches National Park, Utah. Natural Resources Conservation Service, U.S. Department of Agriculture, Salt Lake City, UT.

Seager, R., M. Ting, I. Held, Y. Kushnir, J. Lu, G. Vecchi, H.-P. Huang, N. Harnik, A. Leetmaa, N.-C. Lau, C. Li, J. Velez, and N. Naik. 2007. Model projections of an imminent transition to a more arid climate in southwestern North America. *Science* 316:1181-1184.

Warren, S.D. 2003. Synopsis: Influence of biological soil crusts on arid land hydrology and soil stability. Pages 349–360 *in* J. Belnap, and O.L. Lange, editors. Biological soil crusts: Structure, function, and management. Second edition. Springer-Verlag, Berlin, Germany.

Watson, A.E., D.N. Cole, D.L Turner, P.S. Reynolds. 2000. Wilderness recreation use estimation: a handbook of methods and systems, Gen. Tech. Rep. RMRS-GTR-56. Ogden, UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 198 p.

UDWR 1998. Utah Division of Wildlife Resources. Inventory of sensitive species and ecosystems in Utah. Endemic and rare plants of Utah: An overview of their distribution and status. Report prepared for the Utah Reclamation, Mitigation, and Conservation Commission and U.S. Department of Interior. 566 pp. + app.

USFWS 1995. U.S. Fish & Wildlife Service. Recovery plan for the Mexican spotted owl. Vol.1. Albuquerque, New Mexico. 172pp.