

**National Park Service  
U.S. Department of the Interior**

**ZION NATIONAL PARK  
UTAH**

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## **Backcountry Management Plan**

### **Environmental Assessment**

**May 2007**

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(photograph removed (ZCC))

Zion National Park

### **Backcountry Management Plan & Environmental Assessment**

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#### **Summary**

The Backcountry Management Plan and Environmental Assessment (EA) identifies opportunities for a variety of backcountry recreational activities and experiences while recognizing and protecting the wilderness resource values of Zion National Park (ZION).

This plan/EA provides guidance for the management of 145,060 acres within ZION which include: recommended and potential wilderness; General Management Plan (GMP) Pristine, Primitive, Research Natural Area Zones and portions of the Transition Zone that overlay recommended wilderness; and any technical rock climbing areas regardless of where they occur in the park.

This plan/EA also provides direction for management of natural and cultural resources within the context of wilderness and backcountry management policies, with primary focus on visitor use and impacts to wilderness values and resources and actions to mitigate associated impacts. This plan/EA must treat any proposed or recommended wilderness the same as officially designated wilderness, based on National Park Service (NPS) *Management Policies 2006* (6.3.1).

This EA analyzes two alternatives:

**Alternative A** – The No Action Alternative describes backcountry/recommended wilderness management as it exists today. Many of the management actions identified in this alternative were made through the 2001 GMP and were considered interim until this backcountry plan/EA was completed.

**Alternative B** – The Proposed Action/Preferred Alternative proposes to formalize carrying capacities based on visitor experience and resource protection (VERP) studies; identifies strategies to monitor the effects of visitor use on park resources and visitor experience; identifies indicators, standards, and management options as part of the monitoring strategy; and addresses commercial use in the backcountry.

## NOTE TO REVIEWERS AND RESPONDENTS

If you wish to comment on the EA, you may enter them online at the NPS website Planning, Environment, and Public Comment (<http://parkplanning.nps.gov/>) or you may mail comments to the address below. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

**Please send comments by June 29, 2007 to:**

**Zion National Park**

**Attn: Backcountry Management Plan/EA**

**Springdale, UT 84767**

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## ACRONYMS

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ADA	Americans with Disabilities Act
BLM	Bureau of Land Management
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FMP	Fire Management Plan
FMU	Fire Management Unit
GIS	Geographic Information System
GMP	General Management Plan
MOU	Memorandum of Understanding
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
RNA	Research Natural Area

SHPO	State Historic Preservation Officer
USC	United State Code
USDI	United States Department of the Interior
USFWS	United States Fish & Wildlife Service
VERP	Visitor Experience & Resource Protection
ZION	Zion National Park

## **PURPOSE AND NEED**

### **Introduction**

Zion National Park (ZION) is located on the southwestern edge of the Colorado Plateau (Map A). The 148,024 acre park lies in portions of three counties in Utah; Washington, Iron, and Kane. The park is approximately 300 miles southwest of Salt Lake City, Utah; 105 miles northeast of Las Vegas, Nevada; and 380 miles northeast of Los Angeles, California. Interstate 15, a major north-south thoroughfare, is located west of the park.

The park is characterized by high plateaus, a maze of narrow, deep sandstone canyons, and striking rock towers and mesas. The lowest elevation in the park, 3,666 feet, is found at Coalpits Wash in the southwest corner. The highest elevation, 8,726 feet, is Horse Ranch Mountain in the Kolob Canyons section.

The majority of the park is considered backcountry – almost 98 percent. And almost 90 percent of the park has been recommended as wilderness. Visitor experience the backcountry by day hiking on designated trails and cross-country routes; backpacking and camping; canyoneering; and climbing. In general, visitor use in the backcountry has increased over time. With increasing visitation it becomes more of a challenge for the National Park Service (NPS) to manage visitor use, provide a quality visitor experience, and protect park resources.

This Backcountry Management Plan and Environmental Assessment (EA) provides the direction for the NPS to manage the 145,060 acres of backcountry within ZION. Backcountry within the park includes: recommended and potential wilderness; General Management Plan (GMP) Pristine, Primitive, Research Natural Area Zones and portions of the Transition Zone that overlay recommended wilderness; and any technical rock climbing areas regardless of where they occur in the park. For this document, these areas will be collectively referred to as the “backcountry” or the “study area” (Map B).

This plan/EA also provides direction for management of natural and cultural resources within the context of wilderness and backcountry management policies, with primary focus on visitor use and impacts to wilderness values and resources and administrative actions to mitigate associated impacts. This plan/EA must treat any proposed or recommended wilderness the same as officially designated wilderness, based on NPS *Management Policies 2006* (6.3.1).

### **Purpose and Need for the Plan**

The purpose of this plan/EA is to describe how the NPS manages for future generations a variety of opportunities to experience the backcountry in ZION while protecting park natural and cultural

resources, and wilderness values. The plan/EA further refines decisions outlined in the 2001 GMP.

The need for the backcountry plan comes from the following:

- **The need was identified in the GMP completed in 2001.**  
The GMP identifies the following topics to be considered as part of the backcountry planning process; appropriate uses and use levels by hikers and saddle stock, minimum requirement documentation guidelines that apply to all administrative decisions within the recommended wilderness, resource issues (including visitor and resource impacts, reservation systems, human waste, signs, resource monitoring, and fire management), use levels, locations, and resource issues associated with canyoneering and climbing, and whether or not commercial guiding should be allowed in the recommended wilderness.
- **Visitor use in ZION's backcountry has steadily increased since the mid 1980's.**  
It is important to review and revise, if necessary, the park's management policies and guidelines with respect to overnight and day use and the permitting process.
- **The population in Southern Utah continues to grow and visitation to ZION in general continues to increase.**  
As a result, day use and its associated impacts have increased. Appropriate management actions are needed to protect the backcountry resources for present and future generations.
- **New technology continues to play a role in how backcountry areas are managed and requires consideration to protect natural resources and visitor experience.**  
Appropriate uses need to be discussed and guidance provided.

## Goals and Objectives

Visitors traveling through the backcountry of ZION should have the opportunity for a variety of personal outdoor experiences, ranging from solitary to social. Visitors should be able to continue to experience the backcountry with as little influence from the modern world as possible. The visitor experience should relate intimately to the splendor of the wilderness resource of ZION. The goals and objectives for the management of backcountry and wilderness resources and values in ZION are as follows.

### Goals for Backcountry/Wilderness Management

- Protect and preserve the park's natural and cultural resources and values, and the integrity of the wilderness character for present and future generations.
- Provide for freedom of public use and enjoyment of the park's backcountry in a manner that is consistent with park purposes and the protection of park resources and values.
- Provide for public understanding and support of wilderness values.

### Objectives for this Plan

- Serve as guidance for field and management staff in application of backcountry management techniques and integration of wilderness management objectives into other aspects of park management.
- Provide a broad range of opportunities to facilitate backcountry use while protecting the wilderness resource.
- Apply policies consistently, thereby enhancing backcountry user's experiences and ensuring compliance with regulations.

- Provide public information to promote Leave No Trace skills and wilderness ethics in order to reduce behaviors that are harmful to natural and cultural resources and backcountry experiences (Appendix A).
- Instill and apply the Minimum Requirement Concept (Appendix B) into management actions and practices.
- Base management decisions on sound scientific research and knowledgeable observation. Incorporate new data and information, as necessary, into a dynamic backcountry management program.

(Map A) (Map B)

## **Planning Direction, Regulation, and Policy**

### **Enabling Legislation Summary**

Mukuntuweap National Monument was designated by Presidential Proclamation 877 in 1909 under the authority of the 1906 Antiquities Act. In 1918, Presidential Proclamation 1435 changed the name to Zion National Monument and added additional acres to the monument. On November 19, 1919 Congress established Zion National Park (41 Stat. 356). The proclamations recognized ZION as “an extraordinary example of canyon erosion” and stated that ZION “is of the greatest scientific interest and contains many natural features of unusual archaeological, geologic, and geographic interest.” Appendix C contains the complete legislative history of the park.

### **Park Purpose and Significance**

Park purposes tell why the park was set aside as a unit in the national park system. The significance of the park addresses what makes the area unique – why it is important enough to our natural and cultural heritage to warrant national park designation and how this area differs from other parts of the country. All of the management prescriptions in this plan/EA are consistent with and support the park’s purposes and significance.

Based on ZION’s enabling legislation, legislative history, agency management policies, and the knowledge and insights of park staff, the following are the purposes and significance statements for the park.

#### **The purposes of ZION are to:**

- Preserve the dynamic natural process of canyon formation as an extraordinary example of canyon erosion.
- Preserve and protect the scenic beauty and unique geologic features: the labyrinth of remarkable canyons, volcanic phenomena, fossiliferous deposits, brilliantly colored strata, and rare sedimentation.
- Preserve the archeological features that pertain to the prehistoric races of America and the ancestral Indian tribes.
- Preserve the entire area intact for the purpose of scientific research and the enjoyment and enlightenment of the public.
- Provide a variety of opportunities and a range of experiences, from solitude to high use, to assist visitors in learning about and enjoying park resources without degrading those resources.

#### **ZION is significant for the following reasons:**

- ZION’s stunning scenery features towering brilliantly colored cliffs and associated vegetation highlighted by a backdrop of contrasting bright, southwestern skies.
- ZION is a geological showcase with sheer sandstone cliffs among the highest in the world.
- The Virgin River – one of the last mostly free-flowing river systems on the Colorado Plateau – is responsible for the ongoing carving of this deeply incised landscape.
- Because of its unique geographic location and variety of life zones, ZION is home to a large assemblage of plant and animal communities.
- ZION preserves evidence of human occupation from prehistoric to modern times, including American Indian sites, remnants of Mormon homesteading, and engineering and architecture related to park establishment and early tourism.

## **Statutes Affecting Backcountry Management and Planning**

The basis for this management plan/EA can be found in congressional legislation and NPS policies that provide guidelines for administering each National Park. The following is a summary of federal and NPS regulations, policies, and guidelines that provide the authority and basis for this plan/EA:

**The Wilderness Act of 1964 (16 USC §1131 et seq.)** secures *for the American people of present and future generations the benefits of an enduring resource of wilderness.* By definition, wilderness is: *...a tract of undeveloped federal land of primeval character without permanent improvements or human habitation; an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain; where the forces of nature predominate and the imprint of human activities is substantially unnoticeable; which provides outstanding opportunities for solitude or a primitive and unconfined type of recreation.* This act allows for the designation of wilderness areas and establishes management directives that specify the preservation of wilderness character.

**The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190, 42 USC §4321 et seq.)** directs agencies to develop procedures to ensure that the natural, physical, and cultural aspects of the environment are given due consideration in federal actions that may affect these resources. Documentation of existing resources, potential effects to these resources as a result of the proposed project, and public involvement are key elements of the NEPA process. NPS compliance procedures are described in DO-12 and Handbook – *Conservation Planning, Environmental Impact Analysis, and Decision Making.*

**The Endangered Species Act of 1973 (16 USC 1531-1543)** requires federal agencies to ensure that management activities authorized, funded, or carried out by the agency do not jeopardize the continued existence of listed endangered or threatened species, or result in the destruction or adverse modification of habitat that is critical to the conservation of the species.

**The National Park Service Organic Act of 1916 (16 USC 1a-1)** creates the NPS, and establishes its purpose being, *to conserve the scenery and the natural and historic objects and the wild life 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.* It directs the NPS to promote and regulate the use of the parks by such means and measures as conform to their fundamental purposes.

**Redwood Act of 1978 (16 USC 1a-1)** amends the Organic Act to reemphasize Congressional direction for all NPS lands and states, *the protection, management, and administration of these*

*areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these areas have been established.*

**National Park Service Management Policies, 2006** establishes Servicewide policies for preservation, management, and use of park resources and facilities, and guidelines and direction for the management of NPS wilderness. *The NPS will manage wilderness areas for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness. Management will include the protection of these areas, the preservation of their wilderness character, and the gathering and dissemination of information regarding their use and enjoyment as wilderness. The public purpose of wilderness in the national parks includes the preservation of wilderness character and wilderness resources in an unimpaired condition, as well as for the purposes of recreation, scenic, scientific, education, conservation, and historical use.*

**Director's Order 41: Wilderness Preservation and Management, 1999** establishes specific guidelines to provide accountability, consistency, and continuity to the NPS's wilderness management program. Topics include wilderness management planning, management techniques, Minimum Requirement Concept, interagency coordination, interpretation and education, scientific activities, facilities, signs, fire management, cultural resources, general public use, persons with disabilities, commercial services, special events, air quality, mineral development and training requirements.

## **Pre-Existing Factors Affecting Backcountry Management**

**Inholding** – There are 3,296 acres of private inholdings within the park boundary. The majority of the inholdings, 2,893 acres, remain undeveloped and are identified as potential wilderness in the 1974 Wilderness Recommendation. If these areas are acquired by the NPS, they could become wilderness. There are no inholdings within recommended wilderness. The 1984 *Land Protection Plan* for ZION outlines how the park will address non-federal land ownership and uses within the park boundary. Although the plan is over 20 years old, many of the management strategies are still appropriate today. Until the existing plan is updated, it will continue to be the main tool the park will use to address inholdings. The park will continue to work with inholders to help protect adjacent park resources while continuing to use their lands for their own purposes and enjoyment.

**Park Boundary** – The park is bordered by a mix of federal, state, and private lands. The Bureau of Land Management (BLM) manages lands that border almost 57 percent of the park. State of Utah school trust lands are found next to slightly less than 8 percent of ZION's border. Privately owned lands border approximately 35 percent of the park. The lands bordering the park are used for a variety of purposes, including livestock grazing and ranching, recreation, private residences, and commercial uses.

Private lands adjacent to the park are being developed at a rapid rate. This development has increased incidences of illegal dog use, all-terrain vehicle use, mountain bike use, poaching, and trail construction, just to name a few.

Trailheads to some of the most popular backcountry areas in the park are accessed from adjacent private property. Once these properties are developed access may be limited or curtailed. The park must work with adjacent land owners to secure easements to ensure that visitors have continued access. The areas of concern include, but are not limited to the following: Dalton Wash

Trailhead/Crater Hill area, Ponderosa Ranch, various areas in Springdale, Rockville Bench, Camp Creek, Taylor Creek, and Chamberlain's Ranch.

**Native American Rights** – In 2005 ZION, the Kaibab Band of Paiute Indians, the Paiute Indian Tribe of Utah, and the Moapa Band of Paiute Indians signed a Memorandum of Understanding (MOU) *Regarding the Gathering of Plant Resources for American Indian Traditional Religious Purposes from National Park Lands*. In general, the MOU outlines who can collect, what can be collected, where collections can take place, and group size during collections. This plan/EA is consistent with and supports the MOU and does not change anything identified in the MOU.

**Other** – There are no known mineral or mining claims, rights-of-way, or grazing permits within recommended wilderness in ZION.

## **Coordination with Other Plans and Programs**

### **Previous Wilderness/Backcountry Planning Efforts**

In the early 1970s ZION began the wilderness inventory and environmental analysis process. The Zion Wilderness Draft Environmental Impact Statement (EIS) was completed in October 1973. The Zion Wilderness Final EIS was completed in June of 1974 and identified 120,620 acres for wilderness recommendation and 12,120 acres as potential wilderness. The Secretary of the Interior forwarded the recommendation to President Ford the same month.

Bills to designate wilderness in ZION were proposed in March of 1975 (Senate Bill S1100) and in June 1985 (House Bill HR2670). Neither bill passed. Another attempt to designate wilderness was made in 2006 (S3636 & HR5769) with the same result.

In July 1984 the park revised the wilderness recommendation because of the acquisition of private land and water rights, revision of State mineral rights, and termination of all grazing rights in the park. Recommended wilderness was now 126,585 acres, with potential wilderness 4,519 acres.

As part of the 2001 GMP process, recommended wilderness acres were again reviewed. In a letter to the Regional Director in 1999, the park identified 132,334 acres of recommended wilderness and 3,491 acres as potential wilderness. Again the increased acreage was a result of private land and water rights acquisition.

With the increased accuracy of geographic information systems (GIS) the park refined the acreage figures for the GMP. The 2001 GMP identified 132,615 acres as recommended wilderness and 4,175 acres as potential wilderness (Map C).

The park has worked on various backcountry management plans. A Backcountry Management Plan was completed in 1979, which is now out of date and no longer applicable. In 1987 the park completed a Draft Backcountry Management Plan, but it was never finalized.

The 2001 GMP identified desired conditions and management strategies for many aspects of backcountry management. The GMP also identified interim visitor use numbers for the backcountry.

### **Other Park Plans**

The following plans outline various aspects of park management. Although these plans are not specific to backcountry management, they all identify the importance of the backcountry visitor experience. This backcountry management plan is consistent with and supports the goals and objectives identified in the following plans:

- **Zion National Park Master Plan, May, 1977** – Overview of management strategies for the park.
- **Land Protection Plan for Zion National Park, November, 1984** – Overview of protection alternatives for private lands within the park boundary.  
(Map C)
- **Zion National Park General Management Plan, March 2001** – Desired conditions and management strategies for all resources in the park.
- **Statement for Management, Zion National Park, August 2002** – Management overview of park.
- **Zion National Park Fire Management Plan, April 2005** – Allows for a full range of fire management strategies including allowing fire to take a natural role in ecosystem maintenance.

## Scoping

Scoping is an effort to involve agencies and the general public:

- in determining which issues should be addresses in the EA;
- to determine important issues to be given detailed analysis and eliminate issues not requiring detailed analysis;
- allocate assignments among the interdisciplinary team members and/or other participating agencies;
- identify related projects and associated documents;
- identify permits, surveys, consultations, etc., required by other agencies; and
- create a schedule that allows adequate time to prepare and distribute the EA for public review and comment before a final decision is made.

Scoping involves any interested individuals, organizations, and agencies, or agencies with jurisdiction by law or expertise to provide early input (including the state historic preservation office [SHPO] and Indian tribes).

Early in the process, staff at ZION conducted internal scoping. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics and identified the relationship of the proposed action to other planning efforts at ZION.

External scoping was initiated in August 2005 with a scoping newsletter and press release describing the proposed action (Appendix D). The park also hosted four public information workshops. Comments were solicited during the scoping period that ended October 7, 2005. Over 180 comment letters were received. A summary of the comments received can be found in the *Consultation and Coordination* section of the document.

In accordance with the National Historic Preservation Act (NHPA), letters (Appendix D) requesting tribal consultation were mailed in August 2005 to the following tribes: Hopi Tribe, Kaibab Paiute Tribe, Moapa Band Paiute Tribe, Northern Ute Tribe, Paiute Indian Tribe of Utah, Southern Ute, Ute Mountain Ute, White Mesa Ute, Navajo Tribe, Skull Valley Goshute, Goshute

Indian Tribe, Pueblo of Zuni, and San Juan Southern Ute. No comments were received from any of the tribes.

The scoping comment request letter was sent to the SHPO in August 2005 (Appendix D). No comments were received. A copy of this document will be sent to the Utah SHPO for review and comment as part of the Section 106 consultation process.

Park staff contacted the United States Fish and Wildlife Service (USFWS) by letter on August 23, 2005. A reply identifying endangered and threatened species in and around the park was received on August 31, 2005. This correspondence can be found in Appendix E. A copy of this document will be sent to the USFWS for review and comment.

Through internal and external scoping, issues associated with proposed backcountry management activities were identified. Through issue identification, impact topics were also identified.

## **Issues and Impact Topics Analyzed in Detail**

The impact topics identified through scoping are listed below, followed by an issue statement. Each impact topic is described in the *Affected Environment* section and is analyzed in the *Environmental Consequences* section of this document.

### **Wilderness**

- The levels and intensity of backcountry use could have adverse effects on visitor's ability to experience outstanding opportunities for solitude or a primitive and unconfined type of recreation.
- Wilderness character could be affected by increased visitor use.

### **Visitor Use and Experience**

- Visitor experience in the backcountry could be affected by increased visitor use.
- Visitor use could be affected by management decisions that protect wilderness character and values and other park resources.

### **Threatened, Endangered, and Sensitive Animal Species**

- The levels and intensity of backcountry use could have adverse effects on federally protected and sensitive animal species.

### **Threatened, Endangered, and Sensitive Plant Species**

- The levels and intensity of backcountry uses could have adverse effects on the federally threatened Shivwits milkvetch and other sensitive plant species.

### **Vegetation**

- The levels and intensity of backcountry uses could have adverse effects on vegetation.

### **Soils**

- Methods and routes of access and the intensity and levels of use in the backcountry could lead to adverse impacts to soils.

### **Floodplains**

- The designation of backcountry campsites in areas subject to occasional flooding could affect floodplain function.

## **Issues and Impact Topics Considered and Dismissed from Further Consideration**

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### **Economic Considerations**

There are no proposed actions in this plan/EA that would change any local, regional, or national economic patterns. Therefore, economic considerations will not be analyzed in this EA.

## **ALTERNATIVES**

### **Introduction**

This section describes the alternatives analyzed in this document: Alternative A – No Action/Current Management and Alternative B – Proposed Action/Preferred Alternative. In many ways the alternatives are similar. The Proposed Action differs from Current Management by: formalizing carrying capacities based on VERP studies; identifies a strategy to monitor the effects of visitor use on park resources and visitor experience; identifies indicators, standards, and management options as part of the monitoring strategy; and addresses commercial use in the backcountry. A comparison of the alternatives is found in Table 17. And alternatives considered but dismissed from further consideration are also discussed in this section.

### **Alternative A – No Action/Current Management**

#### **Description of the Alternative**

The No Action Alternative describes backcountry management as it exists today. Many of the management actions identified below were made through the 2001 GMP and were considered interim until this backcountry plan/EA was completed.

#### **Zone Descriptions (Existing)**

All backcountry areas in ZION are within one of four Management Zones designated in the 2001 GMP (Map D). Each Management Zone is described in terms of the desired resource condition, visitor experience, management and scientific uses, and appropriate kinds of activities and developments.

#### **Pristine Zone**

The Pristine Zone includes 119,446 acres. This zone offers the feeling of being entirely alone in ZION's remote and isolated wildlands. The zone provides visitors a chance to experience a natural landscape. Use of these areas is low and group encounters infrequent.

#### **Visitor Use**

- Day and overnight use.

- Visitors would usually not expect to encounter other groups in this zone.
- The group size would be limited to 12 people.
- Visitor use in canyons would be managed by backcountry permit and would be limited to 12 people per day per canyon.
- Day use in areas other than canyons, group size and numbers of groups are not currently limited through a permit system.
- Day use could be limited by implementation of a permit system if use regularly exceeds 12 people per day per route.
- Overnight camping would be managed by backcountry permit and limited to 12 people per day per area.

### **Management**

- Trails would not be designated. Non-designated routes and paths only.
- Existing routes would reflect the character of wilderness and would be managed to maintain the wilderness resource.
- Maintenance and/or construction of trails could be allowed as needed for resource protection.
- Routes and paths could be defined and maintained if necessary to prevent resource damage.
- Directional and location signs, with or without mileages, would generally not be present.
- Directional signs could be necessary to reduce incidents of visitor injury or rescue or to promote resource protection.
- Visitors would continue to camp throughout the zone, although in some cases, campsites could be designated to protect resources.
- Alteration of the rock would be prohibited; this includes scarring, chiseling holds, gluing handholds or footholds onto existing rock and otherwise defacing natural rock.
- A “clean-climbing” or minimum impact ethic would be encouraged; use of pitons would be discouraged.
- Climbs could be temporarily or permanently closed for threatened and endangered wildlife species protection or other resource issues. Closures would be kept to the minimum to protect the identified resource.
- The number of new climbs would not be monitored or limited.
- Access to climbs along established and marked routes would be encouraged.
- Use of power drills would be prohibited and excess bolting would be discouraged.
- The use of subdued colors for slings, bolts, webbing, chalk, and other paraphernalia would be encouraged.
- Overnight bivouacs on climbing routes would be managed by backcountry permit.
- Overnight climbers must tube waste and carry it out.
- Stock use would be prohibited.
- Commercial use would be prohibited.
- The zone encompasses all fire management units and strategies with mitigation such as Minimum Requirement Analysis and minimum impact suppression techniques.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Primitive Zone**

The Primitive Zone includes 16,480 acres. This zone provides opportunities for visitors to experience wildlands and solitude. The landscape is largely undisturbed, with natural processes

predominating. However, compared to the Pristine Zone, access is easier into this zone, there are signs of people, and the area feels less remote.

### **Visitor Use**

- Day and overnight use.
- Group size would be limited to 12 people.
- Visitors would not expect to encounter more than 12 groups per day.
- Visitor use in canyons would be managed by backcountry permit and limited to 50 people per day per canyon.
- Visitor use in the Narrows would be limited to 80 people per day for through hikes and managed by backcountry permit.
- For technical rock climbing group size would be limited to 12 people; the numbers of groups would not be limited.
- In day use areas other than canyons that require a permit, visitor use could be limited by implementation of a permit system if use regularly exceeds 50 people per day per trail.
- Stock group size would be limited to 6 animals and 6 people per day.
- Stock parties would expect to encounter no more than one other stock party in a single day.

### **Management**

- Trails would be designated and maintained (Map E).
- Existing trails and routes would reflect the character of wilderness and managed to maintain the wilderness resource.
- Routes and paths could be defined and maintained if necessary to prevent resource damage.
- Directional and location signs with or without mileages would be present on all maintained trails.
- Directional signs could be present along heavily used routes if necessary to ensure visitor safety or resource protection.

### ***(Map D) (Map E)***

- Camping would be managed by permit and most camping would be in designated sites.
- Narrows: 72 people per night in 12 designated campsites (Map F).
- LaVerkin Creek: 90 people per night in 17 designated campsites (Map F).
- Hop Valley: 26 people per night in 3 designated campsites (Map F).
- West Rim: 56 people per night in 9 designated campsites. (Map F).
- Areas open to at-large camping: East Rim, Lower Right Fork, and Wildcat Canyon Trail would be limited to 50 people per night. Southwest desert would be limited to 30 people per night.
- Areas open to at-large camping could be converted to designated campsite to protect resources.
- Alteration of the rock would be prohibited; this includes scarring, chiseling holds, gluing handholds or footholds onto existing rock and otherwise defacing natural rock.
- A “clean-climbing” or minimum impact ethic would be encouraged; use of pitons would be discouraged.
- Climbs could be temporarily or permanently closed for threatened and endangered wildlife species protection or other resource issues. Closures would be kept to the minimum to protect the identified resource.
- The number of new climbs would not be monitored or limited.
- Access to climbs along established and marked routes would be encouraged.

- Use of power drills would be prohibited and excess bolting would be discouraged.
- The use of subdued colors for slings, bolts, webbing, chalk, and other paraphernalia would be encouraged.
- Overnight bivouacs on climbing routes would be managed by backcountry permit.
- Overnight climbers must tube waste and carry it out.
- Stock would be limited to horses, mules, and burros.
- Stock must be fed certified weed-free feed 24 hours prior to entering the park and while they are in the park.
- Trails would be closed to stock use during periods of wet weather or due to other resources concerns.
- Stock use would be allowed on the following designated trails: Chinle Trail to Coalpits Wash, West Rim Trail from Lava Point to Cabin Springs and the Telephone Canyon Trail, Wildcat Canyon Trail and Northgate Peaks Trail, Connector Trail, Hop Valley Trail, LaVerkin Creek Trail from Lee Pass to junction with Beartrap Canyon, East Mesa Trail from east park boundary to junction with Observation Point Trail (not allowed to Observation Point), East Rim Trail from East Entrance and east park boundary to Cable and Deer Trap Mountains (Map E).
- Off-trail use would only be allowed in the lower Coalpits Wash from the trailhead to the junction with Scoggins Wash, Scoggins Wash itself and the Stock Trail, and Huber Wash where the surrounding terrain confines use to the wash bottom (Map E).
- Overnight camping with stock would be allowed at one designated campsite in Hop Valley (Site A) and is limited to a one night stay (Map F).
- Commercial use would be prohibited.
- The zone encompasses all fire management units and strategies with mitigation such as Minimum Requirement Analysis and minimum impact suppression techniques.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Transition Zone**

A portion of the Transition Zone lies within recommended wilderness and includes the Observation Point Trail, the lower Narrows from Mystery Falls upstream to Orderville Canyon and Timber Creek Overlook Trail. Encounters with other hikers would be high in these areas.

### **Visitor Use**

- Day hiker group size or numbers of hikers per day would not limited by permit.
- The Observation Point trail, Timber Creek trail, and the lower Narrows from Orderville Canyon south to Mystery Canyon would be managed as special transition zones since they lie within recommended wilderness. They would be maintained to meet wilderness requirements but allow higher use levels than the majority of the recommended wilderness.

### **Management**

- Trails would be designated and maintained (Map E).
- Trails would be signed.
- Backcountry camping would be prohibited.
- Alteration of the rock would be prohibited; this includes scarring, chiseling holds, gluing handholds or footholds onto existing rock and otherwise defacing natural rock.

- A “clean-climbing” or minimum impact ethic would be encouraged; use of pitons would be discouraged.
- Climbs could be temporarily or permanently closed for threatened and endangered wildlife species protection or other resource issues. Closures would be kept to the minimum to protect the identified resource.
- The number of new climbs would not be monitored or limited.
- Access to climbs along established and marked routes would be encouraged.
- Use of power drills would be prohibited and excess bolting would be discouraged.
- The use of subdued colors for slings, bolts, webbing, chalk, and other paraphernalia would be encouraged.
- Overnight bivouacs on climbing routes would be managed by backcountry permit.
- Overnight climbers must tube waste and carry it out.
- Stock use would be prohibited in the Transition Zone within recommended wilderness.
- Commercial use would be prohibited.
- Zone is within the Suppression and Conditional fire management units and would be subject to all fire management strategies with mitigation such as Minimum Requirement Analysis and minimum impact suppression techniques.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Research Natural Area Zone**

The Research Natural Area Zone covers 9,031 acres and includes nine areas. This zone applies the intent of the national network of “research natural areas,” which are field ecological areas designated primarily for research and education and/or to maintain biological diversity. Baseline inventory and long-term ecological observations are emphasized in this zone, with the primary purpose of creating an ecological/environmental benchmark over time.

### **General**

- Areas would be closed to recreational use.

### *(Map F)*

- Areas would be limited to research and some educational trips by permit only.
- Group size would be limited to 12 people per day.
- Trails would not be designated or maintained.
- Routes would generally be non-discernable.
- Signs or cairns would not be allowed.
- Campsites would not be designated.
- Stock use would be prohibited.
- Commercial use would be prohibited.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

## **Alternative B – Proposed Action/Preferred Alternative**

## **Description of the Alternative**

Alternative B – Proposed Action/Preferred Alternative would guide the NPS in providing opportunities for a variety of backcountry recreational activities and experiences while recognizing and protecting the wilderness resource values of ZION’s backcountry. Backcountry visitor use management decisions would be based on standards developed through the NPS Visitor Experience and Resource Protection (VERP) process.

In this document Alternative B is divided into two broad sections. The first section outlines Management Zone related/dependent conditions, actions, and activities. The second section provides more detail on the zone dependent conditions, actions, and activities; and provides detail for conditions, actions, and activities that are common to all zones under this alternative.

## **Management Zones/Desired Conditions**

All backcountry areas in ZION are within one of four Management Zones designated in the GMP approved in 2001 (Map D). The zone descriptions below are the same as those described for the No Action Alternative. Although, the visitor use and resource management actions described below may differ from those in the No Action Alternative. Each management zone is described in terms of the desired resource condition, visitor experience, management and scientific uses, and appropriate kinds of activities and developments.

### **Pristine Zone**

The Pristine Zone, 119,446 acres, includes routes such as Mystery Canyon and Heaps Canyon. This zone offers the feeling of being entirely alone in ZION’s remote and isolated wildlands. The zone provides visitors a chance to experience a natural landscape. Visitor use in these areas is low and group encounters are infrequent.

#### **Visitor Use**

- Day and overnight use.
- In general use is low. Visitors would not expect to encounter more than 2-groups per day.
- Visitors would not expect to encounter other groups larger than 6 people.
- A group size limit of 6 would be initiated for technical canyons.
- The group size limit would remain at 12 elsewhere in zone. Group encounters would be monitored and if encounters with larger groups occur, the group size limit of 12 would be reduced (Tables 5 & 6).
- Use limits would be based on VERP indicators and standards (Table 15).

#### **Access and challenge**

- Generally moderate to difficult, all areas requiring specialized skills.

#### **Opportunity for solitude**

- Outstanding opportunities for solitude.
- Chance of seeing other visitor/park staff would be low.
- Natural sounds prevail.

#### **Acceptable resource conditions**

- Resources managed to perpetuate natural conditions and processes.
- Natural landscape predominates.

- Only sign of human-use would be faint hiking routes and bolts on climbing and canyoneering routes.
- Some resources may be altered to restore an area that has been disturbed or to preserve cultural resources.

### **Management**

- Trails would not be designated.
- Routes would generally be non-discernable. Short sections of routes may be maintained to prevent erosion or other resource degradation.
- Signs or cairns would only be erected to protect resources or for safety concerns.
- Designated campsites could be established to protect cultural or natural resources.
- Stock use would be prohibited.
- Commercial use would be prohibited.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural or cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Primitive Zone**

The Primitive Zone, 16,480 acres, includes such areas as the West Rim Trail and the Narrows. This zone provides opportunities for visitors to experience wildlands and solitude. The landscape is largely undisturbed, with natural processes predominating. However, compared to the Pristine Zone, access is easier into this zone, there are signs of people, and the area feels less remote.

### **Use**

- Day and overnight use.
- Visitors would not expect to encounter more than 10 other groups per day (Table 15).
- Group size limit would be 12.
- Use limits would be based on VERP indicators and standards (Table 15).
- Stock group size would be limited to 6 people and 6 animals per day.
- Stock parties would expect to encounter no more than one other stock party in a single day.

### **Access and challenge**

- Generally moderate to difficult, some areas requiring specialized skills.

### **Opportunity for solitude**

- Some outstanding opportunities for solitude.
- During the high-use season, visitors should expect to see other visitors/park staff.
- Natural sounds prevail.

### **Acceptable resource conditions**

- Resources managed to perpetuate natural conditions and processes.
- Some resources may be altered to restore an area that has been disturbed or to preserve cultural resources.

### **Management**

- Trails would be designated and maintained (Map E).
- Routes would be generally discernable, although not maintained except to protect resource values.

- Signs and cairns would be allowed.
- Designated campsites would be in place on the West Rim Trail, the Narrows, LaVerkin Creek, and Coalpits/Chinle area; at large camping would be allowed elsewhere in the zone unless VERP standards are exceeded. If standards are exceeded campsites could be designated (Table 14 & Map F).
- Stock would be limited to horses, mules, and burros.
- Stock must be fed certified weed-free feed 24 hours prior to entering the park and while they are in the park.
- Trails would be closed to stock use during periods of wet weather or due to other resources concerns.
- Stock use would be allowed on the following designated trails: Chinle Trail to Coalpits Wash, West Rim Trail from Lava Point to Cabin Springs and the Telephone Canyon Trail, Wildcat Canyon Trail and Northgate Peaks Trail, Connector Trail, Hop Valley Trail, LaVerkin Creek Trail from Lee Pass to junction with Beartrap Canyon, East Mesa Trail from east park boundary to junction with Observation Point Trail (not allowed out to Observation Point), East Rim Trail from East Entrance and east park boundary to Cable and Deer Trap Mountains (Map E).
- Off-trail use would only be allowed in the lower Coalpits Wash from the trailhead to the junction with Scoggins Wash, Scoggins Wash itself and the Stock Trail, and Huber Wash where the surrounding terrain confines use to the wash bottom (Map E).
- Overnight camping with stock would be allowed at one designated campsite in Hop Valley (Site A) and is limited to a one night stay (Map F).
- Commercial use would be prohibited.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural or cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Transition Zone**

A portion of the Transition Zone lies within recommended wilderness and includes the Observation Point Trail, the lower Narrows from Mystery Falls upstream to Orderville Canyon and Timber Creek Overlook Trail. Encounters with other hikers would be high.

### **Use**

- Day use only.
- Use would be very high.
- Group size limits and the numbers of groups per day would not be limited by permit. Unless use limits exceed VERP standards (Table 15).

### **Access and challenge**

- Access relatively easy.

### **Opportunity for solitude**

- Some opportunities for solitude.
- Chance of seeing other visitor/park staff is very high.
- Natural sounds can predominate depending on the time of day and year.

### **Acceptable resource conditions**

- Resource conditions would be managed on the basis of VERP indicators and standards (Table 14).

### **Management**

- Trails would be designated and maintained (Map E).
- Trails would be signed.
- Backcountry camping would be prohibited.
- Stock use would be prohibited in the Transition Zone within recommended wilderness.
- Limited commercial interpretive guiding would be allowed, by permit, on specified trails: Observation Point Trail, lower Narrows from Mystery Falls upstream to Orderville Canyon, and Timber Creek Overlook Trail.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

### **Research Natural Area Zone**

The Research Natural Area Zone covers 9,031 acres and includes nine areas. This zone applies the intent of the national network of “research natural areas,” which are field ecological areas designated primarily for research and education and/or to maintain biological diversity. Baseline inventory and long-term ecological observations are emphasized in this zone, with the primary purpose of creating an ecological/environmental benchmark over time.

### **General**

- Areas closed to recreation use.
- Group size for researchers would be 6, unless a larger group size is critical for the protection of natural or cultural resources. This would be determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent.
- Trails would not be designated or maintained.
- Routes would generally be non-discernable.
- Signs or cairns would not be allowed.
- Campsites would not be designated.
- Stock use would be prohibited.
- Commercial use would be prohibited.
- Aircraft or motorized equipment would not be allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent).

## **Management Common to All Zones & Detailed Zone Specific Management**

This section applies to the Proposed Action/Preferred Alternative and provides detailed information for some actions and activities described above by zone. This section also outlines conditions, activities, and actions that are common to all management zones. This section is divided into Resource Conditions, Visitor Experience Conditions, and Administrative Conditions and Management Activities.

### **Resource Conditions**

### **Native Vegetation**

The elevation gradients, topography, and geologic substrates create a diverse flora in ZION. The park is home to over 800 species of native plants, including one federally protected endangered species – the Shivwits milkvetch. The Shivwits milkvetch has an extremely limited range: it grows only on the Chinle Formation. ZION hosts the largest population of this endangered species and has the greatest area designated as critical habitat (1,201 acres). Plant populations would continue to be monitored. Management actions to ensure that the species are protected may be applied as outlined in Table 14.

ZION also hosts 22 species considered sensitive by the park and the state of Utah because of their limited distribution or are disjunct from more abundant population centers. Many of these and other native plants and the communities they inhabit are still in a natural condition. Increasing visitor use in backcountry areas can impact these communities. The park would continue to balance the enjoyment of visitors to the backcountry and the protection of native vegetation. Table 14 identifies indicators and standards that would assist park managers with monitoring and implementing strategies to reach this goal.

### **Use of Native Materials**

In keeping with wilderness character, natural materials are preferred to repair or construct wilderness facilities (e.g., water bars, sign posts, tent pads) or restore desired conditions to impacted areas. Any proposed rehabilitation or construction would need to go through the Environmental Screening Process including the completion of the Minimum Requirement Analysis (Appendix B) and approval from the wilderness committee.

### **Non-native Vegetation**

The establishment of non-native/noxious plants is one of the greatest threats to the integrity and biological diversity of the park. There are over 100 non-native plants in the park, 12 of which are high priority for control and eradication. Most of these species occur in areas of past or current disturbance. Many of these species can out-compete native species because they have different growth cycles (i.e., sprout earlier in the season and absorb all available water and nutrients), have no natural predators, or produces substances that prohibit the growth of competing native plants.

The park has an active program to control the spread of non-native species. Control efforts would continue, especially in riparian areas, along trails, and where past livestock grazing has occurred.

### **Social Trails**

Social trails are defined as those trails that are non-designated and undesirable. They are trails made by people short cutting to campsites, water sources, etc. Social trails (braided) are also prevalent in some canyon bottoms where visitors simply walk where ever they choose. They generally cause resource impacts such as soil erosion and vegetation damage.

Eradication of social trails continues to be a priority in ZION. The indicators and standards in Table 14 would assist the park in monitoring and providing management strategies to help mitigate this problem.

### **Fish and Wildlife**

The diverse plant communities within the park support a variety of wildlife species. ZION is home to 6 species of amphibians, 28 species of reptiles, 79 mammal species, 289 bird species, and 7 fish species.

Threatened and endangered species management would continue to be closely coordinated with the USFWS. Management and use restrictions may be necessary to protect these species. In Mexican spotted owl nesting areas, use levels would be kept at or below existing use limits. The park would continue to monitor nest sites and if disruption to nesting occurs because of visitor use, this use could be adjusted (Table 14).

Wildlife would be protected as much as possible from incidences of humans touching, feeding, teasing, frightening, and generally harassing wildlife. This would mainly be accomplished through visitor education. Although, temporary closures of, or use limits in specific areas may be necessary to protect wildlife during critical periods of time or in critical habitats (i.e., climbing closures during peregrine falcon nesting).

### **Fire Management**

The Fire Management Plan (FMP) completed in 2005 outlines fire management strategies and identifies four fire management units for the park. The FMP identifies the use of the Minimum Requirement Analysis (Appendix B) and minimum impact suppression techniques. The area addressed in this plan/EA overlay all four fire management units (FMU) as follows:

- Suppression FMU – along most of the park boundary; focus to minimize threat of fire to life and property.
- Modified FMU – along part of park boundary and buffer to Suppression FMU; focus to allow fire to maintain its natural role while protecting life, property and resources.
- Conditional FMU – interior of the park and the largest area; fire would be managed to perform its natural role in ecosystem maintenance.
- Natural FMU – encompasses isolated mesa tops, slickrock areas, Research Natural Areas where risk to life and property is low; fire allowed to continue its natural role in ecosystem maintenance.

The following five fire management strategies can be used to varying degrees and with mitigation in the above FMUs unless otherwise stated below:

- Wildland Fire Use Strategy – naturally ignited wildland fire would be managed to accomplish specific resource management goals (not allowed in Suppression FMU).
- Prescribed Fire Strategy – used to reduce hazard fuels, remove/reduce non-native plant species, restore natural ecosystems, etc.
- Mechanical Strategy – used to reduce fuels as a stand-alone treatment or in combination with other treatments in preparation for prescribed fire or restoration.
- Herbicide Strategy – used on a limited basis and only after all other options have been considered.

### **Cultural Resources**

In general, cultural resources in ZION's backcountry are in good condition and do not show impacts from visitation. Cultural sites would continue to be monitored and management actions taken if visitor use begins to affect sites (Table 14). Mitigation to minimize the impacts to cultural sites from proposals outlined in this plan/EA can be found in the *Mitigation Measures for Alternative B* section of this document.

There is still a great deal of work to be done to truly understand the human history of this area. Any proposed surveys or excavations would go through the Environmental Screening Process and Minimum Requirement Analysis (Appendix B) to determine any impacts to wilderness values.

## Visitor Experience Conditions

### Overview of Group Encounter Rates and Group Size Limits

The GMP set interim visitor encounter rates and group size limits for backcountry settings. The GMP's interim use limits were intended to be in place until the completion of VERP studies and this backcountry management plan/EA.

As part of the VERP study, qualitative surveys were conducted with several groups of backcountry visitors during the summer and fall of 2002 and 2003 (Manning et. al., 2004). Surveys addressed baseline data on visitor use and users and potential indicators of the quality of the visitor experience (Tables 1 & 2).

The results of this survey indicate that when given the concrete options to choose from, visitors were generally willing to accept the risks of not getting access to ensure high quality trail conditions. Second the visitors perceived purposes of the park explained the majority of the variance in visitor decision making. Among the implications of these results are that visitors can and will deliberate on proposed management actions in ways that consider an impact on their personal experience. In this case, visitors were overwhelmingly willing to sacrifice aspects of their experience for the good of the park environment.

Visitors whose view of the park was dominantly as an ecological reserve were most willing to sacrifice theirs and others experiences in order to protect natural and cultural resources. It is also notable that visitors with this natural value orientation continue to be willing to make a trade-off even as the probability of permit denial increases. This illustrates that visitors with a natural value orientation toward the park, make the big decision when deciding that a trade-off is appropriate and that subsequent increments or probabilities of denial have little influence on the decision. This value orientation was dominant among the surveys and is consistent with the purpose and significance of ZION. While visitors who saw the park primarily as a recreation area were less willing to sacrifice their experience, they were largely still willing to make some trade-off (Tables 3 & 4).

Encounter rates are a primary means by which opportunities for solitude would be measured. Encounters would be monitored by all ZION employees completing backcountry trips. If these trips do not mimic those taken by the general public, those differences would be taken into account prior to implementing management actions.

A visitor experience standard has been proposed for Transition Zone within recommended wilderness. This is because there are no group size limits and encounter rates would be difficult to measure or control. The standard would be based on the level of satisfaction of the visitors hiking experience (Table 15).

Table 1: VERP Survey Data 2002				
Area Surveyed	Permit Required	Sample Size	Percent Response	Survey Method
Trails – Day Use	No	357	80	On-site
Canyons – Day Use	Yes	204	78	Mail-back
Camping – Overnight	Yes	133	74	Mail-back
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004).				

**Table 2: VERP Survey Data 2003**

Area Surveyed	Permit Required	Sample Size	Percent Response	Survey Method
West Rim Trail – Day use	No	159	80	On-site
Narrows – Day use	No	213	88	On-site
East Rim – Day use	No	138	87	On-site
Camping – Overnight	Yes	91	44	Mail-back
Narrows – Day use	Yes	80	67	Mail-back
Canyons – Day use	Yes	169	65	Mail-back
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004).				

<b>Table 3: Visitor Acceptance of Management Options for Slot Canyons</b>					
We are interested in the type of management you think is appropriate for this canyon. Please indicate the degree to which you support or oppose the following management actions for this canyon.					
	Strongly Oppose	Oppose	Support	Strongly Support	Don't Know
Restrict visitor use through a permit system to ensure opportunities for solitude	9.1	14.5	37.6	37.6	1.2
Restrict visitor use through a permit system to protect natural resources	4.8	4.8	42.4	47.9	0.0
Implement short-term area closures for the protection of sensitive resources	13.4	21.3	34.1	28.7	2.4
Install artificial anchors to avoid creation of paths around the small obstacles to movement up & down the canyon	10.4	20.1	41.7	19.6	8.0
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – Canyoneering Mail-back Survey 2003.					

<b>Table 4: Visitor Acceptance of Management Options for the Narrows</b>					
We are interested in the type of management you think is appropriate in the Virgin River Narrows. Please indicate the degree to which you support or oppose the following management actions for this area.					
	<b>Strongly Oppose</b>	<b>Oppose</b>	<b>Support</b>	<b>Strongly Support</b>	<b>Don't Know</b>
Restrict visitor use through a permit system to ensure opportunities for solitude	9.6	17.8	35.6	34.2	2.7
Restrict visitor use through a permit system to protect natural resources	4.0	12.0	34.7	45.3	4.0
Implement short-term area closures for the protection of sensitive resources	14.1	21.1	38.0	21.1	5.6
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – The Narrows Mail-back Survey 2003.					

**Group Encounter Rates in the Pristine Zone**

The proposed group encounter rate for the Pristine Zone would be that 90 percent of groups would encounter no more than two other groups per day while traveling through this zone.

This encounter rate is slightly higher than the interim encounter rate of zero that was set by the GMP. The higher rate is based on the VERP study which indicated that the majority of all surveyed groups of backcountry users found an encounter rate greater than zero to be very acceptable. The majority of those surveyed indicated that encountering two other groups was very acceptable (a value of +3 or +4) (Tables 5 & 6).

**Group Encounter Rates in the Primitive Zone**

The proposed group encounter rate for the Primitive Zone would be that 90 percent of groups would encounter no more than 10 other groups per day while traveling through this zone.

This encounter rate is slightly lower than the interim encounter rate of 12 that was set by the GMP. The lower rate is based on the VERP study which indicated that the majority of all surveyed groups of backcountry users found an encounter rate of 12 to be very unacceptable. The median encounter rate at which point visitors stated that they would consider not returning to ZION was 10 for two of the three user groups surveyed. Likewise, the majority of users groups (two of the three) indicated that encountering 10 other groups was not highly unacceptable (a value of -3 or -4). While encountering 12 other groups was highly unacceptable to more than 50 percent of those surveyed. Based on the same values, the third user group (canyoneering day trips) would prefer a slightly lower encounter rate (Tables 5, 6, 7, 8, 9, & 10).

Interim use limits for canyoneering day trips in place since 2003 are 12 people per day in the Pristine Zone and 50 people per day in the Primitive Zone. Based on encounter rate monitoring conducted by park staff during the 2004 and 2005, this plan proposes to raise the use limits to 20 people per day in the Pristine Zone and 80 people per day in the Primitive Zone. Encounter monitoring would continue and the numbers would be re-evaluated every 3-years. Use limits could be adjusted based on resource protection or visitor experience. The majority of those who commented on use limits during scoping indicated a desire for use limits higher than the 2003 interim limits.

<b>Table 5: Day Use with Permit in Canyons</b>										
We would like to know how many groups you think could use the canyon for which you obtained a permit without it being too crowded. How many other groups do you think it is acceptable to see and/or hear in the canyon for which you received a permit? Please rate the acceptability of each of the following numbers of other groups seen and/or heard in this canyon. A rating of “-4” means the number of other groups seen/heard is very unacceptable, and a rating of “+4” means the number of other groups seen/heard is very acceptable.										
	-4	-3	-2	-1	0	+1	+2	+3	+4	Mean
No other groups	7.1	1.3	1.3	0.0	6.5	1.3	3.9	2.6	76.1	2.86
Up to 2 other groups	4.5	0.6	0.0	0.6	7.0	3.8	9.6	25.5	48.4	2.73
Up to 4 other groups	7.2	2.6	3.9	4.6	11.7	5.9	22.2	12.4	29.4	1.56
Up to 6 other groups	17.5	4.5	7.1	10.4	11.8	9.7	12.3	7.8	18.8	0.25
Up to 8 other groups	31.1	7.9	9.9	7.9	14.6	7.3	6.6	3.3	11.3	-1.01
Up to 10 other groups	46.7	10.7	7.3	8.0	8.7	4.0	3.3	2.0	9.3	-1.87
Up to 12 other groups	57.0	10.6	6.6	6.0	5.3	6.0	1.3	1.3	6.0	-2.42
Up to 14 other groups	68.4	7.2	7.2	1.3	6.6	1.3	0.7	1.3	5.9	-2.81
Up to 16 other groups	77.0	3.3	3.3	3.3	5.3	0.7	0.7	0.7	5.9	-3.00
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – Canyoneering Mail-back Survey 2003.										

<b>Table 6: Day Use with Permit in Canyons – Summary</b>		
	Mean	Median
Acceptability	6.4	
Preference	3.6	2.0
Displacement	8.6	8.0
Management Action	9.5	8.0
Typically Seen/Heard	2.8	2.0
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – Canyoneering Mail-back Survey 2003.		

<b>Table 7: Day Use with Permit in Narrows</b>										
We would like to know how many other groups you think it is acceptable to see on this hike (between the head of the Virgin River Narrows and Orderville Canyon) without this area being too crowded. Please rate the acceptability of each of the following numbers of other groups seen in this area. A rating of “-4” means the number of other groups seen is very unacceptable, and a rating of “+4” means the number of other groups seen is very acceptable.										
	-4	-3	-2	-1	0	+1	+2	+3	+4	Mean
No other groups	5.6	0.0	1.4	4.2	2.8	4.2	1.4	4.2	76.4	2.96
Up to 2 other groups	1.4	1.4	1.4	2.8	2.8	6.9	6.9	22.2	54.2	2.89
Up to 4 other groups	0.0	0.0	4.1	5.4	10.8	6.8	25.7	21.6	25.7	2.12
Up to 6 other groups	5.6	4.2	6.9	5.6	13.9	19.4	18.1	12.5	13.9	0.94
Up to 8 other groups	14.3	7.1	12.9	11.4	18.6	12.9	7.1	7.1	8.6	-0.33
Up to 10 other groups	22.9	17.1	10.0	17.1	15.7	5.7	2.9	5.7	2.9	-1.40
Up to 12 other groups	35.7	17.1	17.1	8.6	7.1	4.3	1.4	4.3	4.3	-2.00
Up to 14 other groups	53.5	19.7	7.0	4.2	2.8	4.2	0.0	4.2	4.2	-2.58
Up to 16 other groups	71.0	4.3	7.2	4.3	1.4	2.9	2.9	1.4	4.3	-2.86
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – The Narrows Mail-back Survey 2003.										

<b>Table 8: Day Use with Permit in Narrows – Summary</b>		
	Mean	Median
Acceptability	7.5	
Preference	4.0	3.0
Displacement	10.5	10.0
Management Action	14.0	10.0
Typically Seen	6.0	4.0
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – The Narrows Mail-back Survey 2003.		

<b>Table 9: Overnight Backpacker Use</b>										
We would like to know how many other groups of hikers per day you think it is acceptable to see without backcountry trails being too crowded. Please rate the acceptability of each of the following numbers of other groups seen per day along backcountry trails. A rating of “-4” means the number of other groups seen is very unacceptable, and a rating of “+4” means the number of other groups seen is very acceptable.										
	-4	-3	-2	-1	0	+1	+2	+3	+4	Mean
No other groups	2.2	0.0	0.0	1.1	3.3	2.2	5.5	0.0	80.2	3.4
Up to 2 other groups	1.1	1.1	0.0	0.0	2.2	2.2	6.6	24.2	57.1	3.3
Up to 4 other groups	0.0	2.2	1.1	2.2	6.6	15.4	14.3	31.9	22.0	2.3
Up to 6 other groups	2.2	3.3	4.4	8.8	16.5	24.2	9.9	14.3	11.0	1.0
Up to 8 other groups	12.1	5.5	14.3	13.2	14.3	11.0	11.0	6.6	6.6	-0.3
Up to 10 other groups	28.2	12.9	10.6	16.5	14.1	2.4	5.9	5.9	3.5	-1.4
Up to 12 other groups	35.2	12.1	17.6	7.7	4.4	7.7	5.5	1.1	2.2	-2.0
Up to 14 other groups	51.2	18.6	9.3	5.8	4.7	5.8	2.3	1.2	1.2	-2.7
Up to 16 other groups	65.1	9.3	9.3	4.7	4.7	3.5	1.2	2.3	0.0	-3.0
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – Overnight Mail-back Survey 2003.										

<b>Table 10: Overnight Backpacker Use – Summary</b>		
	<b>Mean</b>	<b>Median</b>
Acceptability	7.5	
Preference	2.3	2.0
Displacement	11.1	10.0
Management Action	9.9	10.0
Typically Seen	3.3	2.0
Data from <i>Research to Support Application of the VERP Framework at ZION</i> (2004) – Overnight Mail-back Survey 2003.		

### **Group Size in the Pristine Zone**

The proposed group size limit in the Pristine Zone differs by area. Within slot canyons the proposed group size limit would be 6. Elsewhere in the zone the proposed group size limit would be 12. One reason for different group size limits is because visitors hiking through slot canyons are far more likely to encounter other groups. Visitor use would continue to be monitored. If 10 percent of visitor hiking through the Pristine Zone (outside of canyons) encounter groups larger than 6, the group size limit throughout the zone would be reduced to 6 (Table 11).

Changes in group size limit are consistent with comments received during the EA scoping period where the majority of those who commented indicated that the existing group size limit of 12 was appropriate. Forty-four percent indicated that existing limits are too high and 4 percent indicated that existing limits were too low. The majority of visitors surveyed (through the VERP surveys) found a group size of 6 to be very acceptable (a value of +3 or +4). While the same group found a group size of 8 to be unacceptable.

### **Group Size in the Primitive Zone**

The proposed group size for the Primitive Zone would remain at 12. The majority of visitors surveyed did not find a group size limit of 12 to be unacceptable (value of -3 or -4). In both user groups, the majority of users did find that a group size limit of 14 to be very unacceptable (Tables 11 & 12).

<b>Table 11: Canyoneering Day Use – Group Size Preference</b>										
		<b>Very Unacceptable</b>					<b>Very Acceptable</b>			
		-4	-3	-2	-1	0	+1	+2	+3	+4
	N	Percent								
Four	194	20.6	1.0	0.0	0.5	3.1	1.0	3.6	6.2	63.9
Six	195	14.4	3.1	2.1	1.5	8.2	5.1	5.1	13.3	47.2
Eight	195	14.9	4.6	4.6	7.2	10.8	10.3	11.3	9.2	27.2
Ten	193	22.3	8.3	8.8	7.3	13.5	6.2	10.4	7.8	15.5
Twelve	194	33.5	5.2	11.3	4.6	13.9	4.6	6.2	4.1	16.5
Fourteen	193	49.2	8.8	10.4	4.7	6.7	4.7	3.6	3.6	8.3
Sixteen	194	63.4	4.6	4.6	4.6	5.7	4.6	3.1	2.1	7.2

Data from *Research to Support Application of the VERP Framework at ZION* (2004) – Day Use with Permit Backcountry Mail-back Survey 2002.

<b>Table 12: Overnight Backpacker Use – Group Size Preference</b>										
		<b>Very Unacceptable</b>					<b>Very Acceptable</b>			
		-4	-3	-2	-1	0	+1	+2	+3	+4
	N	Percent								
Four	126	5.6	0.8	0.0	0.8	1.6	0.8	4.8	4.8	81.0
Six	127	3.9	1.6	0.8	0.8	11.0	8.7	13.4	14.2	45.7
Eight	126	12.7	2.4	4.0	7.1	18.3	18.3	8.7	11.9	16.7
Ten	126	26.2	4.8	9.5	10.3	20.6	8.7	7.1	5.6	7.1
Twelve	125	38.4	7.2	16.8	8.8	12.8	3.2	2.4	4.0	6.4
Fourteen	126	63.5	11.9	7.1	7.1	4.0	0.8	2.4	0.0	3.2
Sixteen	125	72.8	6.4	8.8	3.2	2.4	2.4	1.6	0.0	2.4

Data from *Research to Support Application of the VERP Framework at ZION* (2004) – Overnight Backcountry Mail-back Survey 2002.

### Per Day/Night Use Limits

Social and resource indicators and standards would both be considered when determining use limits. Use limits would be re-evaluated on a yearly basis for resource concerns and every 3-years for social concerns. Based on the current evaluation of standards, Table 13 indicates use limits that are proposed for implementation in 2008 for commonly visited areas in the backcountry. These values are examples of what would be used for all backcountry areas. Use limits may be adjusted seasonally in areas where Mexican spotted owls occur.

<b>Table 13: Proposed Use Limits</b>		
<b>Area</b>	<b>Use Limit</b>	<b>Limiting Factor</b>
Zion Narrows	12 groups/night 40 day users/day	Social/Primitive Zone
LaVerkin Creek	17 groups/night	Social/Primitive Zone. Day use is currently not limited. Combination of day & overnight use currently exceeds standard & would be adjusted
West Rim	9 groups/night	Social/Primitive Zone. Day use is currently not limited. Combination of day & overnight use currently falls within standards.
Subway (Left Fork)	80 people/day	Social/Primitive Zone
Pine Creek Canyon	50 people/day	Mexican spotted owls/Primitive Zone <sup>1</sup>
Keyhole Canyon	80 people/day	Social/Primitive Zone
Orderville Canyon	50 people/day	Mexican spotted owls/Primitive Zone <sup>1</sup>
Mystery Canyon	12 people/day	Eroded access trail/Pristine Zone
Spry Canyon	12 people/day	Eroded access trail/Pristine Zone
Behunin Canyon	12 people/day	Mexican spotted owls/Pristine Zone <sup>1</sup>
Echo Canyon	12 people/day	Mexican spotted owls/Pristine Zone <sup>1</sup>
Englestead Canyon	20 people/day	Social/Pristine Zone

<sup>1</sup>If areas where Mexican spotted owls are a limiting factor, use limits could be raised outside the nesting season.

### **Bottlenecks**

When traveling through slot canyons visitors may encounter obstacles that usually require some technical ability in order to navigate. These obstacles could be a waterfall, dry pour-off, large rock, or pool. Navigating these obstacles takes time, causing groups to bunch up and experience more encounters than in other parts of the trip. In order to improve visitor experience and safety the park proposes the following standards:

- Pristine Zone – 90 percent of groups would not have to wait more than 15 minutes at an obstacle more than one time per day.
- Primitive Zone – 90 percent of groups would not have to wait more than 15 minute at an obstacle more than three times per day.

If the standards are exceeded, actions would include education, reducing the group size, or reducing the encounter rates. Monitoring would occur during backcountry patrols and projects. Data would be reviewed every 3-years.

### **Visitor Safety in the Backcountry**

Travel in ZION's backcountry has inherent risks and visitors assume complete responsibility for their own safety. Although it is the park's responsibility to ensure that visitors have the information available to make their visit to the park's backcountry as safe as practical. Visitor education is the primary means through which the park would continue to encourage safe backcountry travel.

When conditions or areas are deemed by park staff to be clearly unsafe for average visitors, the area would be closed. Examples include the Narrows during spring runoff or other areas during active flood events or during wildland fire occurrences.

Outreach education opportunities to promote backcountry safety and resource protection would continue. The park's website, the backcountry trip planner, displays at the backcountry desk, and signing at trailheads also provide opportunities to educate visitors on backcountry safety.

The backcountry desk and the backcountry permitting process allow contact with visitors prior to their adventures. Experienced backcountry desk employees assist visitors in making wise trip decisions based on their abilities, skill levels, their equipment, and environmental conditions. The contact during the permitting process is particularly important for visitors entering flood hazard areas.

Employees patrol backcountry trails and routes and discuss safety protocols with backcountry visitors. As valuable as these patrols are, they are not sufficiently frequent to be considered a primary source of backcountry safety information.

Communicating flash flood safety to visitors is very important to the park. The National Weather Service (NWS) provides information that enables visitors to estimate the risk of flooding on a particular day (e.g., weather forecast, flash flood potential, flash flood watch, flash flood warning), but flash floods can occur at any time including periods of low risk. When the NWS issues a flash flood warning indicating that a flash flood is occurring or imminent, permits would not be issued for any narrow canyon in the park. The park would continue to assist visitors in making educated choices concerning flash flood risk.

### **Wilderness Use by Persons with Disabilities**

In General – Congress reaffirms that nothing in the Wilderness Act is to be construed as prohibiting the use of a wheelchair in a wilderness area by an individual whose disability requires use of a wheelchair, and consistent with the Wilderness Act, no agency is required to provide any

form of special treatment or accommodation, or to construct any facilities or modify any conditions of lands within a wilderness area to facilitate such use.

Definition – For the purposes paragraph (1), the term wheelchair means a device designed solely for the use by a mobility-impaired person for locomotion that is suitable for use in an indoor pedestrian area [Section 507(c), 104 Stat. 327, 42 USC 12207 – Americans with Disabilities Act of 1990 (ADA)].

In meeting the goal of accessibility, emphasis would be placed on ensuring that persons with disabilities are afforded experiences and opportunities along with other visitors to the greatest extent reasonable (NPS *Management Policies 2006*, 9.1.2).

Wheelchairs – Wheelchairs are appropriate in wilderness only if they meet the definition of the ADA. The intent of this definition is that a wheelchair is a person’s primary mode of locomotion, manual or electric, that is suitable for indoor pedestrian areas. This definition does not include wheelchairs that function like an all terrain vehicle. This definition is also intended to ensure persons using wheelchairs are reasonably accommodated in wilderness without the need to compromise either the wilderness resource or its character.

Service Animals – The NPS would allow service animals within wilderness when it makes these areas accessible and usable by persons with disabilities. The ADA defines service animals as any guide dog, signal dog, or other animal individually trained to provide assistance to a person with a disability. Trained service animals are permitted within wilderness when they are required for day-to-day activities by persons with disabilities.

### **Public Use of Motorized Equipment and Mechanized Transport**

The Wilderness Act prohibits the use of motor vehicles, motorized equipment, motorboats, and other forms of mechanical transport, except as necessary to meet the minimum requirements for administering an area as wilderness. The use of snowmobiles is prohibited in the backcountry areas of the park.

As a general rule, public use of any form of mechanical transport, including bicycles, wheelbarrows, and person or horse drawn carts is prohibited, with the exception of manual or motorized wheelchairs (as defined by the ADA and Title 36, CFR) used by disabled visitors.

### **Day Use**

Appropriate day use activities in the park’s backcountry include hiking, canyoneering, climbing, sightseeing, wildlife viewing, cross country skiing, snowshoeing, etc. Day use would be monitored through VERP indicators and standards (Table 14 & 15). If standards are exceeded, actions may need to be taken to reduce encounters or to protect resources.

Data from monitoring (2003 through 2006) indicate that three areas may already be out of standard including LaVerkin Creek, the Middle Fork of Taylor Creek, and the Narrows between Orderville Canyon and Big Spring. Actions may need to be taken in the near future to reduce use in these areas.

### **Pets**

Dogs, cats, and other pets are not allowed in the backcountry. Pets can disturb wildlife and visitors. In addition wildlife can potentially cause harm to pets and pet owners.

The use of search dogs may be authorized during emergencies such as search and rescue or law enforcement operations. Guidelines for service animals are found above in the section titled *Wilderness Use by Persons with Disabilities*.

### **Campfires**

Campfires are not allowed in any backcountry area within the park.

### **Commemorations/Memorialization**

Historic burial plots and commemorative features, such as plaques or memorials that have been previously approved may be retained. No additions may be made. The scattering of human ashes from cremation within the backcountry may be allowed on a case-by-case basis and would require a special use permit issued by the Superintendent and would contain specific terms and conditions to ensure that wilderness conditions and the visitor's wilderness experience are not adversely impacted (as outlines in 36 CFR 2.62).

### **Commercial Services**

Commercial services include activities such as guide services for hiking, outfitted horseback use, mountain climbing, canyoneering and other similar activities. The 2001 GMP states: *currently, guided hiking and climbing activities in the park are not permitted*. The GMP goes on to state that the park should complete a backcountry management plan that analyzes: *... whether or not commercial guiding should be allowed in recommended wilderness and if so how should it be managed*.

Through this planning process, the park has determined that commercial services (guiding) would not be allowed within the Primitive and Pristine Zones.

Commercial services (guiding) would be allowed within the Transition Zone including those areas within recommended wilderness: Observation Point Trail, the Narrows below the Orderville Canyon, and the Timber Creek Overlook Trail.

This decision was based on several factors including The Wilderness Act, *NPS Management Policies 2006*, and scoping comments.

Section 4 (c) of The Wilderness Act states: *Except as specifically provided for in this chapter, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this chapter and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this chapter (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area*.

The Act goes on to state in Section 4 (d) (6): *Commercial services may be performed within the wilderness areas designated by this chapter to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas*.

*NPS Management Policies 2006* Section 6.4.4 states: *Wilderness oriented commercial services that contribute to public education and visitor enjoyment of wilderness or provide opportunities for primitive and unconfined types of recreation may be authorized if they meet the "necessary and appropriate" tests of the NPS Concessions Management Improvement Act of 1998 and section 4 (d)(6) of the Wilderness Act...*

During the scoping process, visitors were asked if commercial guiding should be allowed in the Primitive Zone. A strong majority of respondents indicated that they did not want guiding to occur along the routes and trails within this zone. In general, visitors have not expressed a demand for guided services in the park.

Refer to Appendix G for the process used to determine necessary and appropriate uses as they relate to backcountry commercial uses.

## **Administrative Conditions and Management Activities**

### **Minimum Requirement Concept**

The Wilderness Act of 1964 states in section 4(c) that: *...except as necessary to meet the minimum requirement for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area) there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing aircraft, no other form of mechanical transport, and no structure or installation...* within a Wilderness area. The Act allows for the administrative exception, but it is an exception not to be abused and to be exercised very sparingly and only when it meets the test of being the minimum necessary for wilderness management. NPS policy dictates that all management decisions affecting wilderness must be consistent with the Minimum Requirement Concept.

In wilderness, how a management action is carried out is as important as the end product. When determining minimum requirement, the potential disruption of wilderness resources and character would be considered before, and given more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is unavoidable, only those actions that preserve wilderness character in the long run and/or have localized, short-term adverse impacts would be accepted.

To apply the Minimum Requirement Concept, a Minimum Requirement Analysis would be completed for any management action proposed within recommended wilderness, including but not limited to natural and cultural resource projects, administrative facilities, trail and camp area projects and research. Completion of the Minimum Requirement Analysis Worksheets is usually part of the environmental screening process and accompanies an Environmental Screening Form.

The Minimum Requirement Analysis is a two-part process. Part A helps determine whether or not the proposed management action is appropriate or necessary for administration of the area as wilderness, and does not pose a significant impact to wilderness resources and character. Part B describes alternatives for the proposed action and evaluates each to determine if the techniques and tools and equipment (minimum tool) needed to ensure that overall impacts to wilderness resources and character are minimized. The Minimum Requirement Analysis Worksheet and instructions for its completion can be found in Appendix B.

### **Backcountry Permit and Reservation System**

ZION's backcountry permit system allows the park to maintain levels of backcountry use consistent with a high quality visitor experience, safety, and resource protection by:

- regulating use through a quota system,

- providing education concerning resource protection and other Leave No Trace (Appendix A) techniques,
- providing education concerning safety issues,
- providing a means to track visitor use, and
- identifying a starting point for search and rescue efforts.

Backcountry permits have been required for all overnight trips in ZION's backcountry as well as for day trips through the length of the Narrows and its tributaries for over 26 years (prior to 1980). A group size limit of 12 was put into place in 1992. In the 1990s, designated campsites, and a limitation on the number of overnight groups, were established in the Narrows, LaVerkin Creek, and the West Rim Trail. A use limitation of 50 people per day was instituted for the Left Fork of North Creek (Subway) in 1997, and permits were required for all technical canyons in 1998.

Prior to 1997, backcountry permits were issued by interpretive rangers at the Visitor Center. In 1997, a dedicated backcountry permit staff was established and funded through the fee demonstration program.

In 1998, a telephone permit reservation system was created for the Subway. The desire for permits soon outgrew the telephone reservations system. In 2002, the park initiated an e-mail based lottery system for the Subway.

In 2004, ZION became the first NPS unit to allow visitors to obtain both backcountry reservations and permits via the internet. Reservations for permits can be made in two ways. Reservations for the most difficult to obtain permits (in 2007, the Subway and Mystery Canyon) are available through a lottery. The remaining reservations for these areas as well as reservations for many other areas are available via a calendar reservation system. Frequent visitors can obtain their permits via the internet with no need to visit ZION's backcountry desk.

Despite the on-line permit and reservation system, visitors continue to encounter long lines at the backcountry permit desk. This is a common complaint of frequent canyoneers and other backcountry users. On weekends, it is common for visitors who have arrived prior to the backcountry desk's 7 am opening to not receive their permit until after 8 am. In addition to delaying the start of a visitor's trip, the long lines prevent backcountry staff from spending quality time with inexperienced backcountry users discussing critical Leave No Trace and safety information.

The on-line system has been well received, but the system is currently lightly used. The park continues to look for ways to encourage experienced visitors to obtain permits by means other than the backcountry desk. This would make it easier for visitors to obtain permits and allow park staff to spend more time with less experienced backcountry visitors.

Prior to 1997, visitors were not charged for backcountry permits. In 1997 a newly created, dedicated backcountry permit staff was funded by a cost recovery project through the fee demonstration program. Visitors were charged \$5 per visitor per day/night (i.e., two people spending two nights in the backcountry were charged \$20 for a permit). In 2000, the fee was reduced to \$5 per permit. Fees were raised to the current rate of \$10 to \$20 per permit in 2004, based on group size, which covers all of the costs associated with issuing permits as well as some of the costs associated with monitoring the condition of backcountry resources, backcountry rehabilitation, and backcountry patrol.

### **Designated Campsites**

Campsites are designated to prevent resource damage and to improve visitor experience by focusing camping impacts on a few resilient sites. In ZION campsites are designated in the Narrows (12 sites for 72 people), LaVerkin Creek (17 sites for 90 people), Hop Valley (3 sites for 26 people – includes 1 site for horse use), West Rim Trail (9 sites for 56 people), and the newly designated Coalpits/Chinle area (6 sites for up to 72 people) (Map F).

Some of these designated sites are located in flood hazard areas where no suitable alternative locations exist. The risks associated with requiring camping in flood hazard areas and actions to mitigate these risks are identified in the Floodplains Statement of Finding in Appendix F.

Campsites could be designated in other areas of the park if certain resource or social conditions occur (Refer to *Campsite Designation Criteria* below). Designated campsites would be monitored to ensure that the VERP indicators stay within the standards identified in Tables 14 and 15. Monitoring methods are outlined in the *Campsite Monitoring Manual* version 11/1/02 developed by Dr. Jeff Marion and on file in the park Backcountry Office.

### **Campsite Designation Criteria**

In the future campsites could be designated in the Primitive Zone because a resource or social standard (Tables 14 & 15) has been exceeded. Sites would be chosen based on the following:

- Resource protection would be of primary importance.
- Campsites would be selected to avoid flood hazard areas where practical.
- Campsites would be placed out of view of the trail.
- Campsites would be placed far enough apart so that you can not hear other campers from your site.
- Sites would be sized to accommodate either 6 or 12 people.
- Campsites would be placed in areas with slopes, buried rocks, or other features that limit the unintended expansion of sites.
- Campsite placement would be subject to cultural resource mitigation outlined in *Mitigation Measures for Alternative B* of this document.

### **Non-Designated Camp Areas**

The majority of the park is open to at-large camping meaning visitors can camp anywhere they choose with the following exceptions where camping would be prohibited:

- within 1-mile of any road,
- within ¼-mile of a spring,
- within ¼-mile of the park boundary,
- within site of trails,
- under rock overhangs, or
- on private inholdings.

At-large camping would be monitored according to VERP standards outlined in Table 14. If permanent obvious campsites are found, measures would be taken as outlined in Table 14. A permanent obvious campsite is defined as an area where the campsite is obvious. Meaning the vegetation cover has been lost and/or organic litter pulverized in the primary use area. A site is not considered a campsite if the area is barely distinguishable as such with a slight loss of vegetation cover and/or minimal disturbance of organic litter.

As stated in the 2001 GMP and reaffirmed in this plan/EA, the Pristine Zone would remain open to at-large camping. The Pristine Zone would be monitored and management options implemented if standards are exceeded as identified in Table 14.

### **Climbing and Canyoneering Management**

Erosion off the rock – Climbers and canyoneers often bushwhack and scramble to gain access to the base of the cliff or into/out of a slot canyon. Numerous approach trails have resulted in some areas. These access trails typically are braided with other trails to the same area. Because they travel either straight up or down grade, water flows down the trails, causing soil loss, trenching and vegetation loss. Also, at the base of some climbs in high use areas, the ground is compacted and denuded of vegetation. Social trails often contour along the base of the rock formation to the start of other climbs.

To remedy these problems access trails to the base of well-known and heavily used climbing routes and slot canyons would be identified and delineated in order to prevent further erosion and loss of vegetation. In some instances signs may be placed to direct climbers away from problem or sensitive areas in order to protect resources. No more than one access route up/down a slope to the base of a climb, area, or canyon would be allowed.

Educational efforts could also be used to encourage visitors to use non-erosional surfaces or to follow one identified access route. Within the Pristine Zone, any efforts to control erosion should be disguised such that it is not apparent that they are human built.

Social trails that have developed over time, but currently see infrequent use, would be rehabilitated to discourage further travel. Travel in high use areas would be on established access routes.

Erosion on the rock – Through continuous use the rock surface becomes smoother and freer of lichens, moss and dirt. Ledges and cracks also lose dirt and vegetation from climbing use. Toe and finger holds become worn off or are not a useful location for some climbers. To make a climbing route more accommodating a few climbers alter routes by gluing an artificial hold or they may chip or pry the rock to create improved holds. The gluing and chipping of holds would be prohibited. Aggressive, intentional cleaning the rock or soil and vegetation would be prohibited.

Specific climbing routes would be closed (seasonal or permanent) to address a specific resource concern. Examples include nesting species, hanging gardens, or archeological sites. Closures would be kept to the minimum area and duration necessary to protect the affected resource.

Visual impacts associated with climbing vary depending on the viewer's attitude towards climbing in general and their proximity to the activity. Bright colored slings, shiny metal bolts, white chalk and the sight of climbers and ropes on an otherwise undisturbed formation can be viewed as intrusive.

Climbers would be encouraged to use rock climbing protection, slings, and other equipment that blend with the natural surroundings. If anchors detract from the aesthetics of the cliff faces of ZION and thus general visitor's experience, additional management actions would be taken. The use of chalk would be allowed, however climbers would be encouraged to be sensitive to this issue. It is also the responsibility of climbers to ensure that their ropes are not left on walls for long periods of time. If problems persist, management actions could include requiring the use of natural colored anchor material, closing area, and/or the creation of a climbing management plan.

Bivouacs are allowed on the wall of climbs only. Overnight camping at the base of the cliff is prohibited.

Climbers must tube or bag human waste and toilet paper and carry it out. Waste must be deposited in an RV dump station. The presence of human waste at the base of climbs would be monitored using the same standard as designated campsites (90 percent of climbs would have no more than two visible piles of human waste near the base of a climb). If a climbing area is found to be out of standard, actions that could be taken include education, requiring the use of a portable toilet system, or closing areas.

Bolts should be considered the tool of last resort by visitors who are creating anchors. As mentioned above climbers, canyoneers, and others creating anchors would be encouraged to use natural colored anchor material (slings and hangers). The park would continue to monitor bolting in the backcountry.

### **Trails Management**

ZION has over 90 miles of designated trails and over 90 miles of non-designated popular routes (Map E). In 1987 ZION compiled a *Trail Standards Guide* that provided a standard of maintenance for park trails, an inventory of park trails, and outlined the park's trail maintenance program. Although this plan is out of date, some of the information is still useful. The park currently does not have funding for a trail maintenance crew, nor does the park have a schedule for maintaining backcountry trails. So generally, little or no backcountry trail maintenance is done, and when it does occur it is only where safety concerns or resource damage becomes severe.

The routes into and out of slot canyons are not constructed: they have been made by hikers going into and out of these canyons. Because of continued use many of these routes are eroding affecting native vegetation, soils and potentially visitor safety. In many of these areas it is not practical or even possible to construct a trail. The park would continue to monitor routes as outlined in Table 14 and would apply the identified management actions if standards are exceeded. The park would also continue to partner with user groups to find solutions to this problem.

As part of the VERP studies some trails were surveyed and a monitoring protocol was established. The *Trail Monitoring Manual (version 4/03)* (on file in the park Backcountry Office) developed by Dr. Jeff Marion would be used to monitor the trail and route resource indicators and standards outline in Table 14.

### **Historic Trails**

Two trail complexes, the West Rim and East Rim, are on the National Register of Historic Places (NRHP). Other backcountry trails may be considered for nomination to the NRHP in the future. Trails that are either on the register or may be considered for the register would be preserved and protected while stabilizing the trail structure for safety and historic preservation. In reconstruction, particular care and attention would be given to matching the historic appearance of the trail.

### **Trail Maintenance Equipment and Tool Use**

The Minimum Requirement Analysis (Appendix B) would be used during trail work planning and operations. Hand tools would be used as a first choice. The use of motorized equipment and mechanized transport would be assessed on a case-by-case basis.

### **Trailhead Parking Area Size and Function**

Although trailhead parking areas are outside of the area covered in this plan/EA, they are considered integral to the management of the backcountry areas they adjoin. For these reasons the following trailhead and trailhead parking area actions would be implemented.

- Trailhead parking areas would be appropriate to the adjoining backcountry area use limits and use types (horse trailer parking in areas with horse use).
- Trailhead areas would be used to educate backcountry visitors (bulletin boards).
- Trailheads would be identified to concentrate use to appropriate areas (as opposed to dispersed use throughout a boundary area).
- Trailhead parking areas would be placed within the park boundary in order to maintain control of appropriate size, function, and location.
- Where needed, the conditions for trailhead access would be negotiated with adjacent land owners.

### **Route and Other Markings**

Cairns may be used as necessary to define a route or to provide for public safety. However, the construction of new cairns is discouraged except in cases where it is necessary to protect natural or cultural resources.

Flagging and other temporary markings in any area are prohibited except during emergency operations or as approved for research and monitoring. If used, they must be removed once the activity has concluded.

### **Signs**

Certain signs in the backcountry would be allowed to provide orientation, safety and regulatory information. Signs may be necessary to manage and protect resources and visitors.

Signs necessary to protect natural and cultural resources would be the minimum size and number necessary. Signs to convey natural and cultural history of the area would not be located within recommended wilderness; this information would be provided through trailhead signage, publications, or other means.

### **Fencing, Retaining Walls, Paved Trails**

Fences, retaining walls and paved trails detract from the wilderness scene and would generally not be allowed. On a case-by-case basis, in order to protect resources or provide for visitor safety, they may be allowed if other techniques (e.g., education, signing) are not adequate or feasible. Fencing would be removed when no longer needed. The historic paved trails to the West Rim and East Rim would continue to be maintained as such.

Any proposal to erect fencing, a retaining wall or maintain the paved trails would require the completion of an Environmental Screening Form and a Minimum Requirement Analysis (Appendix B).

Historic fences would be documented and then allowed to disintegrate in place. Likewise, rock walls, cairns and other features that may be either historic or prehistoric in age would not be disturbed.

### **Use of Minimum Tool for Facility Maintenance**

In general, the maintenance, rehabilitation, and reconstruction of any structure in the backcountry would be accomplished using the minimum tool necessary for the job. This requires analysis of the impacts of the tools to be used on wilderness values. Issues such as duration and intensity of noise levels, means for transporting materials and tools to the job site, use of local materials versus materials brought to the site, etc. would be considered in the determination of minimum tool. The consideration of minimum tool would be addressed during the completion of the Environmental Screening Form and Minimum Requirement Analysis (Appendix B).

Convenience alone would not be considered sufficient justification for the use of motorized equipment and mechanical transport. However, it is recognized that certain modern tools may expedite a project and thereby minimize the duration of disturbance to wilderness values and reduce the exposure of employees to hazardous conditions. In cases that these tools are approved for use, efforts would be made to minimize the duration and intensity of the disturbance.

### **Wilderness Committee**

The Superintendent chartered a Wilderness Committee in September 2003. The committee was established to facilitate the review of projects proposed within recommended wilderness in ZION. The committee concept is working in the park and would continue into the future.

The committee is lead by the Plateau District Ranger with committee members from visitor and resource protection, Kolob District, concession management, fire management, interpretation and resource management. Monthly meetings are held to evaluate proposals, provide mitigation when necessary, and make recommendations to the Superintendent.

### **Indicators and Standards for Visitor Experience and Resource Protection**

While social and resource indicators generally remain the same across Management Zones, standards may be different. Table 14 outlines: resource protection indicators, standards, monitoring methods and schedules, and management options. Table 15 outlines: visitor experience indicators, standards, monitoring methods and schedules, and management options.

**Table 14: Resource Protection Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Methods &amp; Schedule</b>	<b>Management Options</b>
Pristine	Non-designated campsites	Permanent obvious campsite (soil & vegetation)	Zero	<ul style="list-style-type: none"> <li>· Count &amp; document number of obvious campsites</li> <li>· Every year – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate campsite</li> <li>· Reduce camping group size</li> <li>· Temporarily close areas for recovery</li> <li>· Delineate camping areas within a canyon/area, rotate camping between areas by year – each year an area(s) is closed to camping</li> <li>· Designate campsites for administrative use (sometimes focusing use is more desirable) – need authorization from wilderness committee</li> </ul>
	Non-maintained access routes – to climbs/areas or into/out of canyons (Mystery Canyon)	Soil loss	Route Cross Sectional Area =140 (39” wide X 4” deep) (using a moving average to analyze)	<ul style="list-style-type: none"> <li>· Marion trail monitoring protocol (5-measurements per route)</li> <li>· Every year for identified problem routes – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Limit use (reduce group size, numbers per day, etc.)</li> <li>· Add erosion control devices</li> <li>· Improve route</li> <li>· Build trail</li> <li>· Close route</li> </ul>
		Number of access routes to climb/area, canyon (soil & vegetation)	No more than 1 to climbing route/area, canyon	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· Every year for identified problem routes – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate access routes</li> </ul>
	Non-maintained routes (cross-country travel)	Number of routes to/from feature/area (soil & vegetation)	No more that 1 over 90% of the route	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· Every year for identified problem routes – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Limit use (reduce group size, numbers per day, etc.)</li> <li>· Obliterate excess routes</li> <li>· Close area (temporary or permanent)</li> </ul>

**Table 14: Resource Protection Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Methods &amp; Schedule</b>	<b>Management Options</b>
Primitive	Designated campsites (West Rim, LaVerkin Creek, Narrows, Chinle Trail/Coalpits Wash)	Area of campsite disturbance (soil & vegetation)	Up to 3% increase from identified campsite square foot measurement	<ul style="list-style-type: none"> <li>· Marion campsite monitoring method</li> <li>· 3-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Add natural barriers to delineate site (iceberg rocks, plant cactus, etc.)</li> <li>· Reduce group size for campsite</li> <li>· Relocate campsite</li> <li>· Close campsite</li> </ul>
		Number of trails that connect to the campsite boundary (soil & vegetation)	No more than 4 trails at 90% of the campsites	<ul style="list-style-type: none"> <li>· Count &amp; document number of trails as part of campsite monitoring</li> <li>· 3-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess trails</li> <li>· Reduce group size for campsite</li> <li>· Sign necessary trails</li> </ul>
		Human waste	50% of campsites within campsite area would have no visible human waste 90% of campsites would have no more than two human waste sites	<ul style="list-style-type: none"> <li>· Monitor as above as part of campsite monitoring</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Recommend visitors carry out waste</li> <li>· Require visitors to carry out waste</li> <li>· Close campsite</li> </ul>
	Non-designated camp areas (1) East Rim & East Mesa (2) Lower Right Fork (3) Northgate Peaks & Wildcat Canyon Trails	Area of campsite disturbance (soil & vegetation)	Up to 3% increase from identified campsite square foot measurement	<ul style="list-style-type: none"> <li>· Marion campsite monitoring method</li> <li>· 3-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Add natural barriers to delineate site (iceberg rocks, plant cactus, etc.)</li> <li>· Reduce group size for campsite</li> <li>· Designate campsite</li> <li>· Relocate campsite</li> <li>· Close campsite</li> </ul>
		Number of identifiable campsites by trail system (soil & vegetation)	No increase over existing	<ul style="list-style-type: none"> <li>· Count &amp; document number of campsites as part of campsite monitoring</li> <li>· 3-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Reduce group size for campsite</li> <li>· Obliterate campsite</li> <li>· Designated campsite</li> </ul>

**Table 14: Resource Protection Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Methods &amp; Schedule</b>	<b>Management Options</b>
	Maintained dirt trails (West Rim, Telephone Canyon, East Mesa, East Rim, Cable Mountain, Deertrap Mountain, Northgate Peaks, Connector, LaVerkin Creek, Hop Valley, Chinle Trail)	Soil loss (erosion)	Trail Cross Sectional Area =140 (39" wide X 4" deep) (using a moving average to analyze)	<ul style="list-style-type: none"> <li>· Marion trail monitoring protocol</li> <li>· 5-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Reroute trail</li> <li>· Add erosion control features</li> <li>· Limit number or close trail to horses where this use is allowed (permanent or seasonal closure)</li> <li>· Limit human use (seasonal, number per day, etc.)</li> </ul>
		Number of informal visitor-created trails off designated trails (soil & vegetation)	No more than 4 visitor-created trails per trail mile	<ul style="list-style-type: none"> <li>· Count &amp; document number of trails as part of trail monitoring</li> <li>· 5-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess trails</li> <li>· Signs</li> </ul>
	Non-maintained dirt routes (Left Fork North Cr., Right Fork North Cr., North Fork Taylor Cr., Middle Fork Taylor Cr., South Fork Taylor Cr., Narrows, Orderville Canyon, Coalpits-below spring, Scoggins, Huber)	Number of parallel routes – often in a canyon bottom (soil & vegetation)	No more than 2 over 90% of the route	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· 3-year interval – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess routes</li> <li>· Signs</li> <li>· Limit use (reduce group size, numbers per day, etc.)</li> <li>· Build or designate trail</li> </ul>
	Non-maintained access routes to climb/area or into-out of canyon (Left & Right Forks North Creek, Spry Canyon, Keyhole Canyon, Pine Creek)	Soil loss	Route Cross Sectional Area =140 (39" wide X 4" deep) (using a moving average to analyze)	<ul style="list-style-type: none"> <li>· Marion trail monitoring protocol (5-measurements per route) (consider photo point)</li> <li>· Every year for identified problem routes – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess routes</li> <li>· Signs</li> <li>· Limit use (reduce group size, numbers per day, etc.)</li> <li>· Build or designate trail</li> </ul>
		Number of access routes to climb/area, canyon (soil & vegetation)	No more than 1 to climbing route/area, canyon	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· Every year for identified problem routes – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Add erosion control features</li> <li>· Improve route</li> <li>· Limit use (reduce group size, numbers per day, etc.)</li> <li>· Build or designate trail</li> <li>· Close route</li> </ul>

**Table 14: Resource Protection Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Methods &amp; Schedule</b>	<b>Management Options</b>	
Transition	Maintained paved trails (Observation Point)	Number of visitor-created trails (soil & vegetation)	No more than 7 per trail mile	<ul style="list-style-type: none"> <li>· Count &amp; document number of trails</li> <li>· Every year – monitor at the same time of year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess trails</li> <li>· Signs</li> <li>· Barriers (fences, etc.)</li> </ul>	
	Maintained dirt trails (Observation Point-on rim, Timber Creek Overlook)	Soil loss	Trail Cross Sectional Area = baseline measurement – not getting worse no more than 30% of the time	<ul style="list-style-type: none"> <li>· Marion trail monitoring protocol</li> <li>· 5-year interval</li> </ul>	<ul style="list-style-type: none"> <li>· Reroute trail</li> <li>· Add erosion control features</li> <li>· Barriers (fences, etc.)</li> <li>· Limit use (season, numbers per day, etc.)</li> </ul>	
		Number of visitor-created trails (soil & vegetation)	No more than 7 per trail mile	<ul style="list-style-type: none"> <li>· Count &amp; document number of trails</li> <li>· Every year – monitor at the same time each year</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess trails</li> <li>· Signs</li> <li>· Barriers (fences, etc.)</li> </ul>	
	Non-maintained access routes – to climbs/areas or into/out of canyons	Refer to above Primitive.				
	Lower Narrows (end of Riverside Walk to Orderville Canyon)	Number of parallel routes (soil & vegetation)	No more than 2 over 90% of the route	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· Every year – monitor at the same time each year</li> </ul>	<ul style="list-style-type: none"> <li>· Education (onsite &amp; offsite)</li> <li>· Obliterate excess routes</li> <li>· Barriers (fences, etc.)</li> <li>· Signs</li> <li>· Limit use (number of people)</li> </ul>	
		Soil loss – maximum incision per route segment (route segment = exit the river, walk over land until you reenter the river)	2-foot maximum incision depth	<ul style="list-style-type: none"> <li>· One measurement per route segment at the deepest point on route segment</li> <li>· Every year – monitor at the same time each year</li> </ul>	<ul style="list-style-type: none"> <li>· Education (onsite &amp; offsite)</li> <li>· Reroute and/or maintain route</li> <li>· Barriers (fences, etc.)</li> <li>· Signs</li> <li>· Limit use (number of people)</li> </ul>	
Research Natural Area	Non-designated campsites	Permanent obvious campsites (soil & vegetation)	Zero	<ul style="list-style-type: none"> <li>· Count &amp; document number of campsites</li> <li>· Every year in identified RNAs, as needed in others</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate campsite</li> <li>· Limit group size</li> <li>· Designate campsites for</li> </ul>	

**Table 14: Resource Protection Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Methods &amp; Schedule</b>	<b>Management Options</b>
					administrative use (sometimes focusing use may be more desirable) – need authorization from wilderness committee
	Non-maintained routes	Number of routes (soil & vegetation)	No more than 1 to area or feature	<ul style="list-style-type: none"> <li>· Count &amp; document number of routes</li> <li>· Every year in identified RNAs, as needed in others</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Obliterate excess routes</li> <li>· Limit use (numbers of people)</li> <li>· Temporarily close area</li> </ul>
All	Mexican Spotted Owl	Spotted owl nesting & fledging	No evidence of adverse effect from human activity	<ul style="list-style-type: none"> <li>· Continue to monitor nest site on a yearly basis</li> <li>· Continue to search for new nest sites as time and money allow</li> </ul>	<ul style="list-style-type: none"> <li>· Limit number of day hikers</li> <li>· Limit day use beyond a certain point</li> <li>· Close canyon during critical nesting periods</li> <li>· Move campsite</li> <li>· Close area to camping</li> </ul>
All	Peregrine Falcon	Falcon nesting & fledging	No evidence of adverse effect from human activity	<ul style="list-style-type: none"> <li>· Continue to monitor active sites on a yearly basis</li> <li>· Continue to search for new nest sites as time and money allow</li> </ul>	<ul style="list-style-type: none"> <li>· Close area to climbing during critical times</li> <li>· Close area to climbing on permanent basis</li> </ul>
All	Shivwits Milkvetch	Number & health of plants	No evidence of adverse effect from human activity	<ul style="list-style-type: none"> <li>· Continue to monitor yearly in the spring</li> </ul>	<ul style="list-style-type: none"> <li>· Better define trail</li> <li>· Move trail</li> <li>· Patrol when soil is wet</li> <li>· Close trail to horse use</li> </ul>
All	Cultural Resource Sites	Site condition – vandalism of sites	No evidence of adverse effect from human visitation – no vandalism	<ul style="list-style-type: none"> <li>· No regular schedule – visit sites with features as part of regular backcountry patrol – highest priority sites are those with heavy visitation</li> <li>· Other sites visited as needed</li> </ul>	<ul style="list-style-type: none"> <li>· Education</li> <li>· Limit access to sites</li> <li>· Limit access to area</li> <li>· Physical barriers around sites</li> <li>· Signs</li> <li>· Increased law enforcement patrols</li> <li>· Temporary or permanent closure of area</li> </ul>

**Table 15: Visitor Experience Indicators and Standards**

<b>Zone</b>	<b>Item Monitored</b>	<b>Indicator</b>	<b>Standard</b>	<b>Monitoring Method &amp; Schedule</b>	<b>Management Options</b>
Pristine	Hiker encounters	Number of encounters	90% of visitors would not see or hear more than 2 group per day	Staff would complete form whenever in backcountry	<ul style="list-style-type: none"> <li>· Education</li> <li>· Reduce group size limit</li> <li>· Limit number of hikers on route</li> </ul>
	Group encounters	Number of group encounters larger than 6 people per group outside of canyons	90% of visitors hiking would not encounter groups larger than 6	Staff would complete form whenever in backcountry	<ul style="list-style-type: none"> <li>· Reduce group size limit</li> </ul>
Primitive	Hiker encounters	Number of encounters	90% of visitors would not see more than 10 other hiker groups per day	Staff would complete form whenever in backcountry	<ul style="list-style-type: none"> <li>· Education</li> <li>· Reduce group size limit</li> <li>· Limit number of hikers on trail</li> </ul>
	Stock group encounters	Number of encounters	On trail open to stock use; stock users would not see more than 1 other stock group on the same trail	Staff would complete form whenever in backcountry	<ul style="list-style-type: none"> <li>· Education</li> <li>· Reduce group size limit</li> <li>· Limit number of stock on trail</li> </ul>
Transition · Observation Point Trail · Narrows below Orderville Cyn. · Timber Creek Trail	Visitor satisfaction	Visitor satisfaction	80% of visitors satisfied with hiking experience	Visitor survey completed every 5-years.	<ul style="list-style-type: none"> <li>· Education</li> <li>· Establish group size limit</li> <li>· Limit number of hikers on trail</li> </ul>

## **Mitigation Measures for Alternative B**

Mitigation is defined in the Code of Federal Regulations (40 CFR 1508.20) as:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

The following mitigations measure would apply to activities and actions proposed in Alternative B for the backcountry in ZION.

### **Wilderness**

- Minimize use of motorized equipment or mechanical means of transport through the use of Minimum Requirement Analysis (Appendix B).
- In keeping with wilderness character, natural materials would be preferred to repair or construct wilderness facilities (e.g., water bars, sign posts, tent pads) or restore desired conditions to impacted areas.

### **Visitor Use and Experience**

- Inform visitors of planned and current area closures due to management activities through press releases, notices at trailhead and visitor facility bulletin boards, backcountry permitting, the park website, and other means as necessary.
- To protect visitors, temporarily close trails and/or roads, use cautionary signing on trails and/or roads, and close facilities if warranted.
- Limit the number, area, and duration of trail and areas closures in order to maintain opportunities for solitude and primitive, unconfined recreation.

### **Threatened, Endangered, and Sensitive Animal Species**

- Comply with the Endangered Species Act.
- Consult threatened and endangered species recovery plans and scientific literature when proposing management activities in species habitats.
- Limit disturbances near nest sites/eyries for Mexican spotted owl, peregrine falcon, and goshawks (March-September).

### **Threatened, Endangered, and Sensitive Plant Species**

- Comply with the Endangered Species Act.
- Consult threatened and endangered species recovery plans, specialists, and scientific literature when proposing management activities in species habitats.

### **Vegetation**

- Stock must be fed certified weed-free feed 24 hours prior to spending the night in the backcountry and while in the backcountry.
- All equipment, including hand tools, must be washed before use in the park. This is to ensure that all soil and potential weed seeds are removed.

## Soils

- Trails would be closed to stock use during periods of wet weather or due to other resources concerns.

## Cultural Resources

When proposing to designate campsites the following approach would be used:

- an archeological survey would be conducted around all proposed campsites;
- if cultural sites are found (1) the campsite would be relocated, (2) if the campsite could not be relocated a detailed site recording would be conducted including on-site artifact identification, analysis, spatial analysis from artifact distributions, systematic artifact collection, and detailed feature documentation;
- document data recovery efforts in a professional report and submit it to the SHPO for review;
- curate all cultural resource materials - artifacts and documentation - in park collections.

## Alternatives Considered But Dismissed From Further Analysis

The following components of alternatives were identified by the public through scoping (for a complete description of scoping, refer to the *Consultation and Coordination* section of this document). For the reasons stated below the following actions or components of alternatives will not be analyzed further in this document.

**Allowing commercial use (guiding) in the Pristine Zone.** The GMP completed in 2001 states: *No commercial recreational activities, motorized/mechanical uses, or saddle stock will be permitted [in the Pristine Zone] in order to minimize impacts to other visitors and resources.*

During scoping we asked the public if they were in support of allowing commercial guiding in the Primitive Zone. An overwhelming majority responded that they opposed guiding in the Primitive Zone. Many of those individuals also stated that they supported the continued ban on guiding in the Pristine Zone. Since the majority of those who commented oppose guiding in the Primitive Zone and since the Pristine Zone is more restrictive than the Primitive Zone, an alternative or component of an alternative to allow commercial guiding in the Pristine Zone will not be addressed further.

**Opening Goose Creek Canyon Research Natural Area to canyoneering.** The National Park Service Natural Resource Management Reference Manual #77 states: *Research Natural Areas (RNAs) are part of a national network of sites designed to facilitate research and preserve natural features RNAs are usually established in a typical example of an ecological community type, preferably one having been little disturbed in the past and where natural processes are not unduly impeded. The tract is set aside permanently and is managed exclusively for approved non-manipulative research; i.e., research that measures but does not alter existing conditions. Resource use should be managed to prevent any activity that could lessen the site's integrity or permit interference with ongoing research projects. Consequently, camping, trail construction (except to provide essential access), vegetation management, range and pasture use, or mineral entry are not allowed. Any potentially disruptive recreational pursuits should not be allowed in these tracts because of the likelihood of negative effects on the ongoing research activity.*

NPS *Management Policies 2006* further states: *RNAs contain prime examples of natural resources and processes, including significant genetic resources, that have value for long-term observational studies or as control areas for manipulative research taking place outside the parks..... Activities in RNAs generally will be restricted to non-manipulative research, education, and other activities that will not detract from an area's research values. (4.3.1)*

During the GMP process several areas in the park were identified and analyzed as potential RNAs. The RNAs were selected to represent and include important physical processes, biological species and communities, and cultural resources within landscapes of applicable size to allow them to be affected by natural forces. Landscape units were selected that contain outstanding examples of several ecological units and multiple resource attributes. Goose Creek Canyon was identified because it encompassed 5 ecological units (slot canyon, riparian fluvial and aquatic, springs and seeps, hanging canyons, relict forests) and contains prime Mexican spotted owl habitat.

The park closed RNAs to public recreational use in order to maintain the integrity of these areas for research and to provide undisturbed habitats that can be used for comparison purposes. There are other canyons in the park that provide the canyoneering public with an experience similar to that of hiking Goose Creek. For these reasons this alternative will not be addressed further.

**Although not an alternative, one comment letter stated that an environmental impact statement should be prepared for this planning effort.** The first step the NPS takes in determining the Appropriate NEPA Pathway (as described in Director’s Order-12 – *Conservation Planning, Environmental Impact Analysis and Decision Making*) is to complete an environmental screening form. The form asks resource specialist to document any potential environmental impact of the proposed action on their resource specialty. If there are not significant impacts identified and if no significant impacts are identified through external scoping, then it is appropriate to prepare and environmental assessment. No significant impacts to human environment were identified either through the environmental screening form or through external scoping. So ZION determined that at this time an EA is the appropriate NEPA pathway.

## Summary and Comparison of Alternatives and Impacts

This section of the document provides the following:

- a comparison by alternative of the achievement of the goals for backcountry management (Table 16);
- a comparison by alternative of the main actions proposed in this plan/EA (Table 17); and
- a comparative summary of impacts by alternative (Table 18).

<b>Goal</b>	<b>Alternative A – No Action</b>	<b>Alternative B – Proposed Action</b>
Protect and preserve the park’s natural and cultural resources and values, and the integrity of the wilderness character for present and future generations.	Partially meets the goal. But does not provide a mechanism to ensure protection of resources and values in the long term.	Meets the goal by employing the VERP process through which indicators and standards for both resource protection and visitor experience were identified. Along with a monitoring program and management options to mitigate effects if identified threshold are met or exceeded.
Provide for the maximum freedom of public use and enjoyment of the park’s backcountry in a manner that is consistent with park purposes and the protection of park resources and values.	Partially meets the goal.	Meets the goal by: (1) adjusting visitor use numbers to better match the capacity of the backcountry area – in some cases increasing visitor capacity; (2) continuing to allow cross-country travel and at-large-camping in areas where natural and cultural resources are more resilient; and (3) providing an array of backcountry opportunities (degree of solitude, challenge, and accessibility).

<b>Table 16: Comparison of the Achievement of Goals by Alternative</b>		
<b>Goal</b>	<b>Alternative A – No Action</b>	<b>Alternative B – Proposed Action</b>
Provide for public understanding and support of wilderness values.	Partially meets the goal.	Meets the goal by providing backcountry/wilderness education through: (1) the on-line permits and reservation system; (2) one-on-one visitor contact at the Visitor Center backcountry desk; and (3) visitor contact during backcountry patrols and resource and visitor experience monitoring as part of the VERP process.

<b>Table 17: Alternative Comparison</b>		
<b>Zone</b>	<b>Alternative A No Action/Current Management</b>	<b>Alternative B Proposed Action/Preferred Alternative</b>
<b>Common to all Zones except RNA</b>	<ul style="list-style-type: none"> <li>· alteration of the rock prohibited; including scarring, chiseling holds, gluing handholds or footholds onto existing rock &amp; otherwise defacing natural rock</li> <li>· “clean-climbing” or minimum impact ethic encouraged; use of pitons discouraged</li> <li>· climbs temporarily or permanently closed for threatened &amp; endangered wildlife species protection or other resource issues – closures kept to the minimum to protect the identified resource</li> <li>· number of new climbs not monitored or limited</li> <li>· access to climbs on established &amp; marked routes encouraged</li> <li>· power drills prohibited &amp; excess bolting discouraged</li> <li>· subdued colors for slings, bolts, webbing, chalk, &amp; other paraphernalia encouraged</li> <li>· overnight bivouacs on climbing routes managed by backcountry permit</li> <li>· overnight climbers must tube waste &amp; carry it out</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A, with addition of monitoring as described in Table 14</li> </ul>
<b>Common to all Zones</b>	<ul style="list-style-type: none"> <li>· aircraft or motorized equipment not allowed (except during emergency operations or absolutely critical for the protection of natural and cultural resources as determined on a case-by-case basis through a Minimum Requirement Analysis and approved by the Superintendent)</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
<b>Pristine</b>	<ul style="list-style-type: none"> <li>· day and overnight use</li> <li>· not expected to encounter other groups</li> <li>· group size limited to 12 people</li> <li>· canyons managed by backcountry permit &amp; limited to 12 people per day per canyon</li> <li>· day use in areas other than canyons, group size &amp; numbers of groups not currently limited through a permit system</li> <li>· day use could be limited by permit system if use regularly exceeds 12 people per day per route</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> <li>· not expected to encounter more than 2-groups per day</li> <li>· not expect to encounter other groups larger than 6 people</li> <li>· group size limit of 6 for technical canyons</li> <li>· group size limit of 12 elsewhere in zone - encounters monitored &amp; if encounters with larger groups occur, group size limit would be reduced</li> <li>· use limits based on VERP indicators &amp; standards (Table 15)</li> </ul>
	<ul style="list-style-type: none"> <li>· overnight camping managed by backcountry permit</li> <li>· limited to 12 people per day per area</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· stock use prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>

<b>Table 17: Alternative Comparison</b>		
<b>Zone</b>	<b>Alternative A No Action/Current Management</b>	<b>Alternative B Proposed Action/Preferred Alternative</b>
	<ul style="list-style-type: none"> <li>· non-designated routes &amp; paths, no designated trails</li> <li>· existing routes reflect the character of wilderness &amp; managed to maintain wilderness resource</li> <li>· maintenance &amp;/or construction of trails allowed as needed for resource protection</li> <li>· routes &amp; paths could be defined &amp; maintained if necessary to prevent resource damage</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A, with addition of monitoring as described in Table 14</li> </ul>
	<ul style="list-style-type: none"> <li>· directional &amp; location signs with or without mileages generally not present</li> <li>· directional signs could be necessary to reduce incidents of visitor injury or rescue or to promote resource protection</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· at-large camping throughout the zone; in some areas campsites designated to protect resources</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A, with addition of monitoring as described in Table 14</li> </ul>
	<ul style="list-style-type: none"> <li>· commercial use prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· all fire management units &amp; strategies with mitigation; Minimum Requirement Analysis &amp; minimum impact suppression techniques</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
<b>Primitive</b>	<ul style="list-style-type: none"> <li>· day and overnight use</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· group size limit of 12 people</li> <li>· canyons managed by backcountry permit; limited to 50 people per day per canyon</li> <li>· Narrows limited to 80 people per day for through hikes &amp; managed by backcountry permit</li> <li>· technical rock climbing group size limited to 12 people; the numbers of groups not limited</li> <li>· expect to encounter no more than 12 groups per day</li> <li>· day use areas other than canyons that require a permit, visitor use could be limited by permit system if use regularly exceeds 50 people per day per trail</li> </ul>	<ul style="list-style-type: none"> <li>· group size limit of 12 people</li> <li>· use in some canyons increased from 50 to 80 (Subway &amp; Keyhole); permit required</li> <li>· Narrows for through hikes decreased from 80 people per day to 40 people per day; permit required</li> <li>· technical rock climbing group size of 12 people; the numbers of groups not limited</li> <li>· not expected to encounter more than 10 other groups per day (Table 15)</li> <li>· use limits would be based on VERP indicators &amp; standards (Table 15)</li> </ul>
	<ul style="list-style-type: none"> <li>· stock group size limited to 6 animals &amp; 6 people per day</li> <li>· stock parties encounter no more than one other stock party in a single day</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· trails designated and maintained</li> <li>· existing trails &amp; routes reflect the character of wilderness &amp; managed to maintain wilderness resource</li> <li>· routes &amp; paths could be defined &amp; maintained if necessary to prevent resource damage</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A, with addition of monitoring outlined in Table 14</li> </ul>
	<ul style="list-style-type: none"> <li>· directional &amp; location signs with or without mileages present on all maintained trails</li> <li>· directional signs could be present along heavily used routes if necessary to ensure visitor safety or resource protection</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>

**Table 17: Alternative Comparison**

<b>Zone</b>	<b>Alternative A No Action/Current Management</b>	<b>Alternative B Proposed Action/Preferred Alternative</b>
	<ul style="list-style-type: none"> <li>· most camping sites designated &amp; all camping managed by backcountry permit</li> <li>· Narrows: 72 people per night; 12 designated campsites</li> <li>· LaVerkin Creek: 90 people per night; 17 designated campsites</li> <li>· Hop Valley: 26 people per night; 3 designated campsites</li> <li>· West Rim: 56 people per night; 9 designated campsites</li> <li>· areas open to at-large camping: East Rim, Lower Right Fork, &amp; Wildcat Canyon Trail limited to 50 people per night – Southwest desert limited to 30 people per night</li> <li>· areas open to at-large camping could be converted to designated campsite to protect resources</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A – except:</li> <li>· Coalpits/Chinle: 72 people per night in 6 designated sites</li> <li>· areas open to at-large camping: East Rim, Lower Right Fork, &amp; Wildcat Canyon Trail limited to 50 people per night per area</li> <li>· areas open to at-large camping may be converted to designated campsite to protect resources – dependent on VERP standards (Table 14)</li> </ul>
	<ul style="list-style-type: none"> <li>· stock limited to horses, mules, &amp; burros</li> <li>· stock must be fed certified weed-free feed 24 hours prior to entering the park and while in the park</li> <li>· trails closed to stock use during wet weather or due to other resources concerns</li> <li>· stock use allowed on the following designated trails: Chinle Trail to Coalpits Wash, West Rim Trail from Lava Point to Cabin Springs &amp; Telephone Canyon Trail, Wildcat Canyon Trail &amp; Northgate Peaks Trail, Connector Trail, Hop Valley Trail, LaVerkin Creek Trail from Lee Pass to junction with Beartrap Canyon (not allowed upstream from Beartrap Canyon and not allowed to Kolob Arch), East Mesa Trail from east park boundary to junction with Observation Point Trail (not allowed out to Observation Point), East Rim Trail from East Entrance and east park boundary to Cable &amp; Deer Trap Mountains</li> <li>· off-trail use in lower Coalpits Wash from the trailhead to the junction with Scoggins Wash, Scoggins Wash itself &amp; the Stock Trail, &amp; Huber Wash where the surrounding terrain confines use to the wash bottom</li> <li>· overnight camping with stock allowed at one designated campsite in Hop Valley; limited to one night stay</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· commercial use prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· all fire management units &amp; strategies with mitigation; Minimum Requirement Analysis &amp; minimum impact suppression techniques</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
<b>Transition</b>	<ul style="list-style-type: none"> <li>· day use only</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· day hiker group size or numbers of hikers per day not limited by permit</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A, with addition of monitoring outlined in Table 14</li> </ul>
	<ul style="list-style-type: none"> <li>· Observation Point Trail, Timber Creek Trail, and the lower Narrows from Orderville Canyon south to Mystery Canyon managed as special transition zones since they lie within recommended wilderness; maintained to meet wilderness requirements but allow higher use levels than the majority of the recommended wilderness</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· trails designated &amp; maintained</li> <li>· trails signed</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>

<b>Zone</b>	<b>Alternative A No Action/Current Management</b>	<b>Alternative B Proposed Action/Preferred Alternative</b>
	<ul style="list-style-type: none"> <li>· backcountry camping prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
	<ul style="list-style-type: none"> <li>· commercial use prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· limited commercial interpretive guiding allowed on specified trails: Observation Point Trail, lower Narrows from Mystery Falls upstream to Orderville Canyon, &amp; Timber Creek Overlook Trail</li> </ul>
	<ul style="list-style-type: none"> <li>· Suppression &amp; Conditional fire management units &amp; all fire management strategies with mitigation; Minimum Requirement Analysis &amp; minimum impact suppression techniques</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A</li> </ul>
<b>Research Natural Area</b>	<ul style="list-style-type: none"> <li>· closed to recreational use</li> <li>· limited to research &amp; some educational trips by permit</li> <li>· group size 12 people per day</li> <li>· trails not designated or maintained</li> <li>· routes generally not discernable</li> <li>· signs or cairns not allowed</li> <li>· campsites not designated</li> <li>· stock use prohibited</li> <li>· commercial use prohibited</li> </ul>	<ul style="list-style-type: none"> <li>· same as Alternative A – except:</li> <li>· group size 6 people per day, unless a larger group size is critical for protection of natural or cultural resources; to be determined on case-by-case basis through a Minimum Requirement Analysis &amp; approved by the Superintendent</li> </ul>

<b>Impact Topic</b>	<b>Alternative A – No Action</b>	<b>Alternative B – Proposed Action</b>
Wilderness	Impacts to wilderness character and visitor’s wilderness experience would be direct, negligible to minor, adverse, & short-term. Impacts could be beneficial for some visitors.	Same as Alternative A
Visitor Use and Experience	Impacts would be direct, minor to moderate, beneficial, & long-term. Although for some, impacts would be direct, adverse, minor, & short-term.	Impacts would be direct, beneficial, moderate & long-term for most visitors. Although for some, impacts would be direct, adverse, minor, & short-term.
Threatened, Endangered, Sensitive Animal Species	<p>Threatened or Endangered Animals: impact would be direct, adverse, negligible to minor, &amp; short-term.</p> <p><b>Effects Determinations:</b></p> <ul style="list-style-type: none"> <li>-<b>Mexican Spotted Owl &amp; Critical Habitat: may affect, but is not likely to adversely affect.</b></li> <li>-<b>Bald Eagle: no effect.</b></li> <li>-<b>California Condor: may affect, but is not likely to adversely affect.</b></li> <li>-<b>Western yellow-billed cuckoo: no effect.</b></li> <li>-<b>Southwestern Willow Flycatcher: no effect.</b></li> <li>-<b>Desert Tortoise: no effect.</b></li> <li>-<b>Virgin River Chub: no effect.</b></li> <li>-<b>Woundfin: no effect.</b></li> </ul> <p>Sensitive Animal Species: impact would be direct, adverse, minor to moderate, &amp; short-term.</p>	Same as Alternative A

<b>Table 18: Comparative Summary of Impacts by Alternative</b>		
<b>Impact Topic</b>	<b>Alternative A – No Action</b>	<b>Alternative B – Proposed Action</b>
Threatened, Endangered, Sensitive Plant Species	<p>Shivwits Milkvetch &amp; Critical Habitat: direct, negligible to minor, short-term, &amp; localized adverse impact.</p> <p><b>Effects Determinations:</b>            -Shivwits Milkvetch &amp; Critical Habitat: <b>may affect, but is not likely to adversely affect.</b>            -Holmgren Milkvetch: <b>no effect.</b>            -Dwarf Bear-poppy: <b>no effect.</b>            -Slier Pincushion Cactus: <b>no effect.</b></p> <p>Sensitive Plant Species: impacts would be adverse, direct, minor to moderate, &amp; short-term.</p>	<p>Shivwits Milkvetch &amp; Critical Habitat: direct, negligible, short-term, &amp; localized adverse impact.</p> <p><b>Effects Determinations:</b>            -Shivwits Milkvetch &amp; Critical Habitat: <b>no effect.</b>            -Holmgren Milkvetch: <b>no effect.</b>            -Dwarf Bear-poppy: <b>no effect.</b>            -Slier Pincushion Cactus: <b>no effect.</b></p> <p>Sensitive Plant Species: impacts would be adverse, direct, negligible &amp; short-term.</p>
Vegetation	Impacts would be direct, moderate, & could potentially be long-term depending on the type of vegetation community affected.	Impacts would be direct, minor, & would likely be short-term due to monitoring & identified mitigation.
Soils	Impacts would be adverse, direct, minor to moderate, & long-term.	Same as Alternative A
Floodplains	Impacts would be direct, adverse, negligible, & short-term.	Same as Alternative A

## Environmentally Preferred Alternative

As stated in Section 2.7 D of Director’s Order-12 and Handbook, the environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in the National Environmental Policy Act [Sec. 101 (b)]. This includes alternatives that:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Simply put, *this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources* (Question 6a in Council on Environmental Quality 1981). In the NPS, the No Action Alternative may also be considered in identifying the environmentally preferred alternative.

Alternative A represents current backcountry management as described in the 2001 GMP, which continues existing management and use levels until a backcountry management plan is

completed. The GMP also identified the need to apply the visitor carrying capacity concept before backcountry management decisions were made. Alternative A does not provide for an ongoing monitoring program to assess the affects of visitor use on park resources or to assess the quality of visitor's backcountry experience.

Alternative B, the Proposed Action/Preferred Alternative, would guide the NPS in providing opportunities for a variety of backcountry recreational activities and experiences while recognizing and protecting the wilderness resource values of ZION's backcountry. Backcountry visitor use management decisions would be based on standards developed through the NPS VERP process. The Preferred Alternative as compared to the No Action Alternative would:

- Improve visitor experience and resource protection through the employment of the VERP process. This includes the identification of indicators and standards for both resource protection and visitor experience, along with a monitoring program and management options designed to mitigate effects if identified threshold are met or exceeded.
- Provide an array of backcountry opportunities (with different degrees of solitude, challenge and accessibility) while protecting resources for future generations.
- Achieve a balance between visitor wants and resource protection through the implementation of VERP monitoring. Carrying capacity adjustments can be made to protect either the visitor experience or to protect resources when monitoring shows a need.

Therefore, Alternative B, the Proposed Action/Preferred Alternative, would also be the environmentally preferred alternative.

## **AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES**

### **Introduction**

In this environmental assessment the *Affect Environment* and *Environmental Consequences* sections are combined. The *Affected Environment* describes the area and resources that could have potential impacts from implementation of either of the alternatives. The *Environmental Consequences* describe the direct, indirect, and cumulative impacts to those resources from the actions proposed in the alternatives. The *Environmental Consequences* also analyzes any impairment to park resources.

### **Methodology for Assessing Impacts**

Topics analyzed in this chapter include: wilderness; visitor use and experience; threatened, endangered, and sensitive animal species; threatened, endangered, and sensitive plant species; vegetation; soils; and floodplains.

Direct, indirect, and cumulative effects, as well as impairment are analyzed for each resource topic carried forward. Potential impacts are described in terms of type, context, duration, and intensity. General definitions are as follows, while more specific impact thresholds are given for each resource topic.

- **Type** describes the classification of the impact as either beneficial or adverse, direct or indirect:
  - Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource towards a desired condition.
  - Adverse: A change that moves the resources away from a desired condition or detracts from its appearance or condition.
  - Direct: An effect that is caused by an action and occurs in the same time and place. **All impacts identified in this document are “direct” unless otherwise stated.**
  - Indirect: An effect that is caused by an action but is later in time and farther removed in distance, but is still reasonably foreseeable.
- **Context** describes the area or location in which the impact will occur. Are the effects site-specific, local, regional, or even broader?
- **Duration** describes the length of time an effect will occur, either short-term or long-term. Because definitions of duration can differ by resource topic, definitions are provided separately for each impact topic.
- **Intensity** describes the degree, level, or strength of an impact. For this analysis, intensity has been categorized into negligible, minor, moderate, and major. Because definitions of intensity vary by resource topic, intensity definitions are provided separately for each impact topic.

### Cumulative Effects

Cumulative effects are also considered in this analysis. A cumulative effect is described in the CEQ regulations (1508.7) as: *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action.* Cumulative impacts can result from individually minor but collectively major actions taking place over a period of time.

Cumulative impacts were addressed by considering the effects of the alternative, combined with the effects of the following past, present, and reasonably foreseeable future actions that were identified in and around the study area. The following actions were identified through internal and external scoping and are considered potential cumulative actions:

**Fire management activities** – Fire management activities fall into one of two categories: planned/prescribed fire or wildland fire. The 5-Year Fuels Treatment Plan (Appendix C in the 2005 FMP) outlines proposed treatments (prescribed fire, mechanical treatments, and herbicide treatments) from 2005 through 2009. All of the treatments proposed may not be completed. The Minimum Requirement Analysis process would be required for any treatment proposing the use of power tools or aerial support. For the purposes of the cumulative analysis for this EA, it is assumed that the following planned/prescribed activities would occur:

- 2005 – Prescribed fire on 420 acres.
- 2006 – Prescribed fire on 2,210 acres.
- 2007 – Prescribed fire on up to 10,000 acres; mechanical treatments along the park boundary and around cultural sites on up to 150 acres; herbicide spot treatments targeting exotics in previously burned areas on up to 30 acres.
- 2008 – Prescribed fire on up to 4,000 acres; mechanical treatments along the park boundary and around cultural sites on up to 20 acres; herbicide spot treatments targeting exotics in previously burned areas on up to 30 acres.
- 2009 – Prescribed fire on up to 10,000 acres; mechanical treatments along the park boundary and around cultural sites on up to 20 acres; herbicide spot treatments targeting exotics in previously burned areas on up to 30 acres.

In the past several years wildland fires in areas around and in ZION have increased in frequency and intensity. In June 2006 ZION experienced the largest wildland fire ever, burning over 10,000 acres in the park's backcountry. From 1950 through 2002 just over 13,000 acres of the park had burned by wildland fire. Of the 467 fires from 1950 through 2002 only 48 burned more than 5 acres.

It is assumed for the purposes of this EA that wildland fire would continue to increase in frequency and intensity in ZION. And that in the future ZION would have fires that burn acreage similar to the 2006 fire season.

**Development on private lands bordering the park** – Lands on the boundary and near the park are being developed at an increasing rate. Over 35 percent of the park is bordered by private lands. Historically, these lands have been used largely for agricultural purposes. However, these lands are being developed to accommodate the demand for rural, primary and secondary homes. This development pattern is most prevalent along the east and southwest boundaries of ZION.

Between 1990 and 2000 Utah's population grew by almost 30 percent, ranking it 4<sup>th</sup> (by percentage of growth) in the United States. Washington County, with an estimated population of 90,354 (U.S. Census Bureau, 2000) has experienced tremendous growth, expanding by more than 42,000 people (nearly 86 percent) between 1990 and 2000 (U.S. Census Bureau, 2000). Kane County has an estimated population of 6,046 (U.S. Census Bureau, 2000) and has experienced a 17 percent increase in population from 1990 to 2000. Iron County has a population estimate of 34,400 (U.S. Census Bureau, 2000) and experienced a population growth of 62 percent between 1990 and 2000 (U.S. Census Bureau, 2000).

For the purposes of the cumulative analysis for this EA, it is assumed that the rate of development of open land near ZION to accommodate the demand for primary and secondary homes would increase. This demand is fueled by a steady increase in population, the proximity of ZION to expanding urban areas (e.g., St. George), and a growing trend of rural development in surrounding counties and adjacent states.

**Exotic plant monitoring and control** – In the backcountry, park staff conduct exotic plant monitoring each year. The monitoring assists in early detection so that targeted plants can be eradicated before they spread. In an average year, park staff would monitor and provide control on over 700 acres in the backcountry. Methods of control included hand tools, herbicides, and motorized tools (with approval through the Minimum Requirement Analysis process). For the purposes of the cumulative analysis for this EA, it is assumed that both monitoring and control of exotic plants would continue at a rate of 700 acres per year.

### **Impairment Analysis Method**

The NPS *Management Policies 2006* requires analysis of potential effects to determine whether or not actions would impair park resources or values.

The fundamental purpose of the National Park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

These laws give the NPS the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact

does not constitute impairment of the affected resources and values. Although Congress has given the NPS the management discretion to allow certain impacts within parks, that discretion is limited by statutory requirements that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values. An impact to any park resource or value may constitute impairment. Impairment may result from NPS management activities, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impact would be more likely to constitute impairment to the extent that it has a major severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

A determination on impairment is made for each of the resource topics carried forward in this Chapter.

## **Wilderness**

### **Affected Environment**

In 1974, approximately 131,000 acres of ZION were recommended to Congress for formal wilderness designation (Map C). This includes potential wilderness (inholdings, private water diversions) as well as recommended wilderness. While not yet legislatively designated, this recommended wilderness is managed as wilderness in accordance with *NPS Management Policies 2006*.

The 1964 Wilderness Act defined wilderness as: *an area where the earth and its community of life are untrammeled by man. In addition, the act states that ...except as necessary to meet the minimum requirements for the administration of the area for the purposes of this act, there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.*

The GMP completed in 2001 stated the following desired condition: *All of the lands within recommended wilderness areas retain their wilderness characteristics and values. Visitors continue to find opportunities for solitude and primitive, unconfined recreation. Signs of people remain substantially unnoticeable. The area continues to be affected primarily by the forces of nature.*

In this environmental assessment, wilderness includes both the biophysical resources of wilderness as well as wilderness character, which can be thought of as the human experience of wilderness. Two commonly used terms to describe wilderness resources and character are naturalness and wildness. While the two terms are similar, they each describe a different value of wilderness. Naturalness encompasses the ecosystem components and processes that belong in the

wilderness, such as native plant communities and native wildlife species. Wilderness encompasses the lack of direct human control, such as vast roadless landscapes and free-flowing rivers.

All activities affecting wilderness must be considered under the Minimum Requirement Analysis concept (Appendix B). This concept is a documented process used to determine if administrative activities affecting wilderness resources or the visitor experience are necessary and how to minimize impacts.

<b>Wilderness Impact Threshold Definitions</b>	
Negligible	A change in the wilderness character could occur, but it would be so small that it would not be of any measurable or perceptible consequence.
Minor	A change in the wilderness character and associated values would occur, but it would be small and, if measurable, would be highly localized.
Moderate	A change in the wilderness character and associated values would occur. It would be measurable but localized.
Major	A noticeable change in the wilderness character and associated values would occur. It would be measurable and would have a substantial or possibly permanent consequence.
Duration	Short-term – lasting the duration of the activity and/or disturbance
	Long-term – lasting beyond the duration of the activity and/or disturbance
Area of Analysis	The area of analysis is referred to as the “study area” and includes recommended wilderness, and portions of the Pristine and Primitive Zones that fall outside of recommended wilderness.

### **Effects Common to Both Alternatives**

Both alternatives share several management strategies, and would therefore have similar impacts. Consistent with current backcountry management, both alternatives limit access to the majority of the study area through a permit system, prohibit commercial use in Pristine and Primitive Zones, provide for a range of camping opportunities from designated sites to open at-large areas, manage trails and routes according to their zone, and prohibit aircraft and machine access. The new impact to most visitors from continued implementation of these policies would be negligible.

A limited amount of recommended wilderness lies within the Transition Zone, which includes several areas with high visitor use. These areas would be managed as “special transition zones” similarly to other recommended wilderness areas with the exception that these areas would allow higher visitation use. The resources would be managed to maintain the wilderness characteristics (e.g., minimal trail maintenance, signage) but allow high numbers of visitors until a determination on wilderness designation was made. This management is consistent with past management, and no new net affect would occur.

### **Effects of Alternative A – No Action**

For the purposes of this analysis, impacts are reviewed in terms of wilderness character and wilderness experience. Wilderness character, described as the extent of naturalness and wildness, is the absence of permanent human structures, including buildings, roads, bridges, dams, and the perpetuation of natural ecological relationships and processes. Wilderness experience is defined as opportunities for solitude and opportunities to experience primitive, unconfined recreation. Opportunities for solitude are measured by number of group encounters. Opportunities for experiencing primitive, unconfined recreation refer to a visitor’s ability to participate in activities such as hiking, canyoneering, rock climbing, primitive camping, and nature observation that “relate intimately to the splendor of the wilderness resource” and do not require permanent improvements or facilities. Generally, these activities are considered unconfined in the sense that

the experience offers freedom of choice for such aspects of movement, routes, and camping once the visitor has entered the backcountry. Wilderness character and wilderness experience are integrally related because much of the wilderness character can only be subjectively determined by visitor's experience (e.g., solitude, natural soundscapes, freedom of movement).

Under Alternative A, permanent markings or structures and the presence of man would be minimal. Directional and location signs would generally not be present in the Pristine Zone unless they were necessary for visitor safety or resource protection. In addition, they would only be present in the Primitive Zone along heavily used routes and designated trails.

Alternative A offers an array of opportunities for visitors to experience solitude within the backcountry of ZION. The experience of solitude varies by individual; in general the number of groups encountered along a trail or route impact an individual's feeling of solitude. In the Pristine Zone (119,446 acres) it is anticipated that no groups (zero) would be encountered, in the Primitive Zone (16,480 acres) it is anticipated that no more than 12 groups would be encountered, and in the Transition Zone within recommended wilderness there would be no limit to the number of groups encountered. The visitor experience surveys conducted in 2002 and 2003 found that these encounter rates are acceptable to most backcountry visitors. Therefore, impacts to the experience of solitude by visitors in the backcountry from implementation of Alternative A would be beneficial, minor, and short-term.

Under Alternative A, there would continue to be opportunities for visitors to experience primitive, unconfined recreation in the backcountry of ZION. Again, each individual's view of this type of experience varies. For some people the mere requirement to obtain a permit limits their ability for primitive, unconfined recreation. Within the Primitive Zone (16,480 acres) most campsites are designated, trails are designated, there are group size limits, and permits must be obtained for all overnight and some day use activities. These requirements may have a short-term, adverse, and minor impact on some visitor's experience. Other visitors may see these requirements as beneficial, because their expectations of primitive, unconfined recreation are different.

Within the Pristine Zone (119,446 acres) visitors can choose where they camp (subject to regulations) and can travel cross-country; although there are group size limits and a permit is required for some day use activities and all overnight use. These opportunities would have a short-term, beneficial, and minor impact on visitor's ability to experience primitive, unconfined recreation.

In general, any management activities (e.g., trail maintenance, research) that are proposed within recommended wilderness in ZION must go through the Minimum Requirement Analysis (Appendix B) to determine if the activity is appropriate and to determine the minimum tool necessary to perform the activity. This process also takes into account effects on visitor's experience. Therefore, impacts to wilderness character and visitor's wilderness experience from management activities would be expected to be short-term, adverse or beneficial, and negligible to minor depending on the activity and the mitigation identified.

### **Cumulative Effects**

Cumulative impacts to wilderness character and visitor's wilderness experience include actions from Alternative A with the addition of impacts from fire management activities, development of private lands along the park boundary, and from exotic plant monitoring and control. These actions and activities would contribute to increased human presence, landscape changes

associated with management activities, and temporary closures of some areas to wilderness travel because of fire management activities.

There may be potential for a short-term loss of some opportunities for solitude and primitive recreation during management activities. However, a small percentage of the study area would likely be restricted at any one time. The long-term impacts associated with fire and exotic plant management would benefit wilderness character and experience through maintaining the biological diversity and natural integrity of the study area. Both fire management and exotic plant control methodologies were specifically developed with mitigation practices to maintain wilderness resources and values. All actions outside of regular wilderness management would be reviewed through the Minimum Requirement Analysis. Therefore, cumulative impacts would expect to be beneficial, minor to moderate and both short- and long-term.

Overall, the largest cumulative impacts to wilderness character and wilderness experience are associated with increased visitor use and private development along the park boundary. The changes would occur slowly, but would eventually have moderate, adverse long-term cumulative effects. Increase use from visitors and residents would gradually decrease opportunities for solitude and natural sounds. Private development along the park boundary has the potential to increase authorized and unauthorized day use. As use increases visitors could experience more crowding and noise, and observe more resource impacts on trails and routes or in areas where trails are not established. Future carrying capacity studies may propose limits on use in some areas to address the degradation if it occurred. As current use in the majority of the study area is below the encounter rates, this alternative would likely have a negligible cumulative effect on most backcountry users for a long period of time. However, in popular areas and canyons where use is already close to exceeding encounter limits, the adverse cumulative impacts would have minor to moderate impacts over a shorter period of time.

### **Conclusion**

Implementation of Alternative A would continue to protect wilderness character and provide a wilderness experience for backcountry visitors. Generally, opportunities to experience solitude and participate in primitive, unconfined recreation would continue at their current levels for the majority of the study area. Some opportunities for solitude would slowly decrease as visitation increases. In general, impacts under this alternative would be negligible to minor, adverse, and short-term for the majority of visitors. For some visitors management actions outlined in Alternative A would allow for a beneficial wilderness experience.

Cumulative impacts in general would be beneficial or adverse, negligible to moderate, short- and long-term.

### **Impairment Analysis**

Because there would be no major, adverse impacts to wilderness character and experience whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's GMP or other relevant NPS planning documents, there would be no impairment of the wilderness character or experience.

### **Effects of Alternative B – Proposed Action**

For the purposes of this analysis, impacts are reviewed in terms of wilderness character and wilderness experience. Wilderness character, described as the extent of naturalness and wildness, is the absence of permanent human structures, including buildings, roads, bridges, dams, and the

perpetuation of natural ecological relationships and processes. Wilderness experience is defined as opportunities for solitude and opportunities to experience primitive, unconfined recreation. Opportunities for solitude are measured by number of group encounters. Opportunities for experiencing primitive, unconfined recreation refer to a visitor's ability to participate in activities such as hiking, canyoneering, rock climbing, primitive camping, and nature observation that "relate intimately to the splendor of the wilderness resource" and do not require permanent improvements or facilities. Generally, these activities are considered unconfined in the sense that the experience offers freedom of choice for such aspects of movement, routes, and camping once the visitor has entered the backcountry. Wilderness character and wilderness experience are integrally related because much of the wilderness character can only be subjectively determined by visitor's experience (e.g., solitude, natural soundscapes, freedom of movement).

Under Alternative B, permanent markings or structures and the presence of man would be minimal. Directional and location signs would generally not be present in the Pristine Zone unless they were necessary for visitor safety or resource protection. In addition, they would only be present in the Primitive Zone along heavily used routes and designated trails.

Through the application of the VERP process, this alternative would identify indicators, standards, monitoring strategies, and management options that would help preserve wilderness character and improve visitor wilderness experience. As park visitation increases, these indicators and standards would protect wilderness character and experience by triggering management actions to disperse or limit the density of visitors and encounters where wilderness resource values could be jeopardized.

This alternative offers an array of opportunities for visitors to experience solitude within the backcountry of ZION. The experience of solitude varies by individual; in general the number of groups encountered along a trail or route impact an individual's feeling of solitude. In the Pristine Zone (119,446 acres) it is anticipated that no more than 2 groups would be encountered, in the Primitive Zone (16,480 acres) it is anticipated that no more than 10 groups would be encountered, and within the Transition Zone there would be no limit to the number of groups encountered. The visitor experience surveys conducted in 2002 and 2003 found that these encounter rates are acceptable to most backcountry visitors. Therefore, impacts to the experience of solitude by visitors in the backcountry from implementation of encounter rates identified for Alternative B would be beneficial, minor, and short-term.

Under Alternative B, there would continue to be opportunities for visitors to experience primitive, unconfined recreation in the backcountry of ZION. Again, each individual's view of this type of experience varies. For some people the mere requirement to obtain a permit limits their ability for primitive, unconfined recreation. Within the Primitive Zone (16,480 acres) most campsites are designated, trails are designated, there are group size limits, and permits must be obtained for all overnight and some day use activities. These requirements may have a short-term, adverse, and minor impact on some visitor's experience. Other visitors may see these requirements as beneficial, because their expectations of primitive, unconfined recreation are different.

Within the Pristine Zone (119,446 acres) visitors can choose where they camp (subject to regulations) and can travel cross-country; although there are group size limits and a permit is required for some day use activities and all overnight use. These opportunities would have a short-term, beneficial, and minor impact on visitor's ability to experience primitive, unconfined recreation.

In general, any management activities (e.g., trail maintenance, research) that are proposed within recommended wilderness in ZION must go through the Minimum Requirement Analysis (Appendix B) to determine if the activity is appropriate and to determine the minimum tool necessary to perform the activity. This process also takes into account effects on visitor's experience. Therefore, impacts to wilderness character and visitor's wilderness experience from management activities would be expected to be short-term, adverse or beneficial, and negligible to minor depending on the activity and the mitigation identified.

### **Cumulative Effects**

Under Alternative B, cumulative impacts from fire management, private development along the park boundary, and exotic plant control are expected to be the same as Alternative A. Short-term losses of some opportunities for solitude and primitive recreation during management activities may occur. However, a small percentage of the study area would likely be restricted at any one time. The long-term impacts associated with fire and exotic plant management would benefit wilderness character and experience through maintaining the biological diversity and natural integrity of the study area.

As with Alternative A, the largest cumulative impacts to wilderness character and experience are associated with increased visitor use and private development along the park boundary contributing to a gradual loss of solitude and natural sounds. The new encounter rates and adjustments in group sizes and total visitors to canyon areas would have a negligible effect on most backcountry users. In a few popular areas and canyons, the encounter limits and group size reductions would help to ensure that use levels do not increase substantially. Provisions under Alternative B for monitoring and evaluating visitor satisfaction and experience would provide for long-term, minor to moderate beneficial cumulative impacts for the majority of visitors.

### **Conclusion**

Beneficial changes to the wilderness experience would occur in some locations, such as the reduction of group sizes in canyons. Alternative B would establish indicators, standards, and monitoring protocols to assess visitor impacts on both park resources and visitor experience. The proposed standards for group encounters, campsite management, and low levels of modern human presence should protect much of the backcountry as visitation grows, but would generally still allow increases in visitor use across most of the study area. While some visitors may experience short-term, adverse, negligible to minor impacts from area closures and lower group limits, other visitors may consider those same limitations beneficial to their experience. The overall result of Alternative B management for the wilderness characteristics of solitude, quiet, and other wilderness values would be short-term, minor to moderate beneficial impacts. As such the potential and recommended wilderness in ZION would continue to be eligible for formal wilderness designation by Congress.

Alternative B would establish VERP standards for desired visitor experiences and resource protection. Together these policies should produce short-term moderate beneficial impacts through better management even though the reduction in group sizes may produce short-term adverse impacts for some users. By reducing group sizes and raising the encounter levels, this alternative would result in overall short-term, negligible to minor beneficial impacts to visitor experience while increasing resource protection.

Cumulative effects under Alternative B would be long-term, minor to moderate, and beneficial for the majority of visitors.

## Impairment Analysis

Because there would be no major, adverse impacts to wilderness character and experience whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's GMP or other relevant NPS planning documents, there would be no impairment of the wilderness character or experience.

## Visitor Use and Experience

### Affected Environment

In 2006, over 2.5 million people visited ZION (Table 19). Visitors participate in a wide range of activities, including hiking, canyoneering, rock climbing, attending ranger guided programs, and nature observation. Zion Canyon attracts the majority of visitors; most walk on at least one trail during their visit. Trails range from short, easy walks from points along the Zion Canyon Scenic Drive to long, strenuous hikes such as the East and West Rim Trails.

Visitors hike on over 90 miles of maintained trails, with the majority of those trails in the backcountry. Visitor also hike cross-country, often on well-used routes. There are over 90 miles of well-used routes in the park, mainly through technical slot canyons (Map E).

Backcountry camping continues to be a popular activity in ZION, although this use has leveled off since 2000. There are 41 designated backcountry campsites (Map F) accommodating 244 people per night. In general, the rest of the park is open to at-large camping by permit with some limitations (e.g., total number of campers per area, distance from trailhead).

Visitor use in ZION has changed over the years, especially for those backcountry activities that require a permit. In 1998 backcountry camping (with a permit) was more popular than day use activities that required a permit. With the popularization of canyoneering, day use requiring a permit has risen from 26 percent of the total permits distributed to over 58 percent. While backcountry camping permits decreased from 47 percent of the total permits distributed to 26 percent (Table 19).

Overall, backcountry visitors seek varying degrees of solitude and visitors enjoy natural sounds during most of their experiences. The park's shuttle buses, which operate on the Zion Canyon Scenic Drive from April through October, are propane powered and produce a minimum of unnatural sound. Once a visitor ventures from traveled roadways, unnatural sound diminish.

<b>Year</b>	<b>Total Park Visitors</b>	<b>All Backcountry (permits/people)</b>	<b>Narrow Canyon Day Use (permits/people)</b>	<b>Narrow Canyon Camping (permits/people)</b>	<b>Backcountry Camping (permits/people)</b>	<b>Climbing Bivouacs (permits/people)</b>
2006	2,589,250	7,677 / 27,726	4,461 / 18,781	898 / 3,030	2,062 / 5,379	198 / 385
2005	2,608,564	6,049 / 20,712	3,214 / 13,365	463 / 1,452	2,066 / 5,285	200 / 375
2004	2,699,241	7,292 / 25,739	4,142 / 17,166	952 / 3,065	1,944 / 5,005	241 / 458
2003	2,480,690	7,156 / 24,944	3,692 / 16,204	852 / 2,608	2,316 / 5,549	298 / 583
2002	2,614,734	7,801 / 27,298	3,812 / 16,623	1,091 / 3,414	2,505 / 6,471	392 / 789
2001	2,249,389	7,358 / 25,999	3,437 / 15,641	934 / 3,046	2,519 / 6,351	433 / 881
2000	2,454,248	6,947 / 23,875	2,910 / 13,095	1,051 / 3,493	2,618 / 6,547	371 / 754
1999	2,471,564	5,358 / 16,835	1,990 / 8,392	761 / 2,482	1,938 / 4,608	669 / 1,353
1998	2,387,714	3,950 / 11,963	1,039 / 4,554	471 / 1,703	1,874 / 4,603	566 / 1,103

<b>Visitor Use and Experience Impact Threshold Definitions</b>	
Negligible	Visitors would not be affected, or changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.
Minor	Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
Moderate	Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.
Major	Changes in visitor use and/or experience would be readily apparent and would have important consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.
Duration	Short-term – lasting the duration of the activity and/or disturbance
	Long-term – lasting beyond the duration of the activity and/or disturbance
Area of Analysis	The area of analysis is referred to as the “study area” and includes recommended wilderness, and portions of the Pristine and Primitive Zones that fall outside of recommended wilderness.

## **Effects of Alternative A – No Action**

### ***Pristine Zone***

Under this alternative, visitors would generally not expect to encounter other groups (zero encounter rate), and group size would continue to be limited to 12 people. For most of the Pristine Zone, people would continue to find opportunities for solitude and natural soundscapes.

Visitor use in the technical canyons would continue to be managed by backcountry permit. Day use in areas other areas would not be limited through a permit system unless the use regularly exceeds 12 people per day per route. When these areas exceed this threshold, managers would take action to protect visitor experience and reduce group limits, which would help to mitigate the experience of crowding. However, as these actions would be reactive rather than proactive; it’s likely that the quality of the experience of solitude and naturalness would diminish to a detectable level before management action would be taken. This transition period would have a short-term, minor to moderate, adverse impact on visitors particularly during peak season and in popular areas. Canyon users, due to the limited terrain and travel routes, are more likely experience crowding if canyoneering continues to increase at current rates. As such, it’s likely they would experience short-term, minor, adverse impacts.

Overnight camping would continue to be managed by backcountry permit, and would largely be open to camping throughout the zone except where campsites are designated to protect resources. Trails would not be designated unless necessary for resource protection. For some visitors, this freedom to choose where to travel, camp or climb is considered a defining characteristic of a wilderness experience. This would be a moderate, beneficial, short-term impact on those visitors who value less restricted access, personal choice and a wild setting.

### ***Primitive Zone***

Under this alternative, group size would continue to be limited to 12 people and would be managed by permit in technical canyons. Canyon use would be limited to 50 people per day per canyon. Visitor use in the Narrows would be limited to 80 people per day for through hikes. The effect of the use numbers would be negligible to minor to most visitors, as these reflect current

limits. However, if day use areas other than canyons regularly exceed 50 people per day per trail and wilderness values are diminished as a result, a permit system may be implemented which could result in an adverse, short-term, minor impact as a result of limited access. However, a long-term, moderate, beneficial impact would occur as a result of the permit system, due to increased protection of the wilderness experience in those areas.

Camping in the Primitive Zone would mostly be in designated sites and managed by backcountry permit. Several areas would remain open to at-large camping. In addition, the southwest desert would be limited to 30 people per night. Open at-large camping areas could be converted to designated campsites to protect resources. The closure of these unrestricted camping areas could have a short-term, minor, adverse impact on backcountry users, as their option to camp at locations of their choosing would be diminished. However, long-term, moderate, beneficial effects could also result because only the designated campsites would be disturbed, resulting in fewer impacts to both natural and cultural resources.

Stock use would be limited to specific designated trails and routes. For the majority of ZION visitors who are generally not stock users, the resulting impacts would range from minor to moderate, short-term, beneficial impacts, depending on personal visitor preferences regarding stock use. Generally, stock use would be concentrated on the designated trails and routes; cross-country travel would not be allowed. For stock users, the limited access to the backcountry may have an adverse, minor, short-term impact on their experience through limiting the areas they are able to travel.

#### ***Transition Zone***

The Transition Zone within recommended wilderness, which currently experiences high levels of use, is not managed by day use limits. It is expected that this use would increase over time potentially diminishing visitor's experiences in these areas. It is also expected that with increasing use and without any type of monitoring visitor created trails would continue to increase. This would also potentially increase erosion in the area which could have an adverse effect on natural resources, which in turn could have an indirect, adverse, and minor impact on visitor's experience in the short-term.

#### ***Research Natural Area Zone***

Under this alternative, Research Natural Areas would continue to be closed to general recreational visitor use. Therefore, there would be no new effects of the implementation of Alternative A on visitor use and experience within the Research Natural Area Zone.

#### **Cumulative Effects**

Implementation of the Fire Management Plan, development of private lands along the boundary of the park, and the implementation of exotic plant monitoring and control program would cumulatively have a short-term, minor, adverse effect to visitor's experiences in the backcountry. All of these actions would increase human presence and signs of human activity in the backcountry, reducing the visual quality, experience of solitude, and wilderness resources in the short-term, when these actions were taking place. However, as the beneficial effects of noxious weed management and fuels reduction efforts are realized, visitors would experience long-term, moderate, beneficial cumulative impacts, due to improved ecological conditions in these areas.

#### **Conclusion**

The continuation of current management would likely result in long-term, minor to moderate beneficial impacts to visitors recreating in the study area. Opportunities for experiencing solitude, quiet, and the feeling of being immersed in pristine resources would be available throughout most

of the study area. However, some visitors would be inconvenienced under this alternative if they did not receive a permit, or if they had to change their destination or timing of their trip. This would result in an adverse, minor, short-term impact to those visitors who valued personal choice.

Cumulative impacts would be short-term, minor, and adverse because of increased human presence, signs of human activity in the backcountry, and potential reductions in solitude. Over the long-term, however, the cumulative impact could be moderate and beneficial from improved ecological conditions.

## **Effects of Alternative B – Proposed Action**

Alternative B follows the VERP framework as the basis of adaptive management of visitor use and carrying capacity for ZION backcountry resources. This alternative would include a monitoring program for evaluating if and when management actions must be taken to keep visitor experience and use within acceptable standards. In this alternative, aspects of visitor use and experiences would be monitored during backcountry patrols and through qualitative visitor surveys. Monitoring activities may result in short-term, negligible to minor, adverse impacts for some visitors who may object to being surveyed during their experience in the park. However, as the results from the monitoring activities would be used to make long-term management decisions, a beneficial long-term effect to visitors would be gained from management adjustments to maintain VERP standards.

### ***Pristine Zone***

Under Alternative B, visitors would not expect to encounter more than 2 groups per day, which is an increase in visitor encounters from Alternative A. Group size in technical canyons would be reduced to 6 people per day; group size limits would remain at 12 elsewhere in the zone. The reduction of group size in technical canyons would have a short-term moderate beneficial impact on visitors who value solitude, and the experience that it supports. Additionally, the group size would reduce the perception of crowding, noise, and bottlenecks in technical sections of the canyons.

For those visitors that receive a permit, reducing the group size to 6 would have a beneficial, short-term, negligible effect. Raising the encounter rate to 2 would allow for more groups to enter the canyon areas and reduce the negative impact of the lower group size limits. On the other hand, visitors that were not able to receive a permit at their preferred time would experience a negative effect by the restrictions. An unknown number of visitors would be displaced to other less crowded areas or areas without group size limits.

Overnight camping would continue to be managed by backcountry permit and camping would be allowed throughout the zone. Trails would not be designated unless necessary for resource protection. For some visitors, this freedom to choose where to travel, camp or climb is considered a defining characteristic of a wilderness experience. This would be a moderate, beneficial, short-term impact on those visitors who value less restricted access, personal choice and a wild setting.

### ***Primitive Zone***

The group size in this zone would be limited to 12 people, including technical canyons and rock climbing. Visitor use numbers in the Keyhole and Subway would be increased to 80 people per day, whereas visitor use numbers in the Narrows for through hikes would be decreased to 40 people per day. The overall effect would increase visitor access to a canyon experience, while reducing crowding in the Narrows. For those visitors who valued a specific canyon experience,

this could have an adverse, minor to moderate, short-term impact. While some visitors may find that they are not able to get a permit for the trip of their choice or in the season of their choice, the experience of solitude and remoteness would be preserved for the visitors that did receive a permit. The experience of crowding in technical canyons and delays at bottlenecks would be reduced, and thereby these visitors would experience a short-term, beneficial, minor to moderate impact through the reduction in visitor numbers in highly popular areas. The overall impact of visitor limits would be negligible to minor to the majority of ZION visitors.

Camping in the Primitive Zone would mostly be in designated sites and managed by backcountry permit. In the southwest desert area additional campsites would be designated and the area would be closed to at-large camping. Other areas in the zone would remain open to at-large camping. The closure of unrestricted camping areas could have a short-term, minor, adverse impact on backcountry users, as their option to camp at locations of their choosing would be diminished. However, long-term, moderate, beneficial effects could also result because only the designated campsites would be disturbed, resulting in fewer impacts to both natural and cultural resources.

Stock use would be limited to specific designated trails and routes. For the majority of ZION visitors who are generally not stock users, the resulting impacts would range from short-term minor to moderate beneficial impacts, depending on personal visitor preferences regarding stock use. Generally, stock use would be concentrated on the designated trails and routes; cross-country travel would not be allowed. For stock users, the limited access to the backcountry may have an adverse, minor, short-term impact on their experience through limiting the areas they are able to travel.

#### ***Transition Zone***

Limited commercial interpretive guiding on specified trails would be allowed in the Transition Zone within recommended wilderness under this alternative. The Transition Zone is currently not managed by day use limits and the area currently experiences high levels of visitor use. Commercially guided hikes would offer a different type of experience for visitors who were seeking an experience of private interpretation in the backcountry, and for those visitors these hikes would provide beneficial, minor, short-term impacts to their experience.

#### ***Research Natural Area Zone***

Under this alternative, Research Natural Areas would continue to be closed to general recreational visitor use. This plan/EA does not propose to change any management of these areas that would affect general visitor use or experience. Therefore, there would be no effects of the implementation of Alternative B on visitor use and experience within the Research Natural Area Zone.

#### **Cumulative Effects**

Implementation of the Fire Management Plan, development of private lands along the boundary of the park, and the implementation of exotic plant monitoring and control program would cumulatively have a short-term, minor, adverse effect to visitor's experiences in the backcountry. All of these actions would increase human presence and signs of human activity in the backcountry, reducing the visual quality, experience of solitude, and wilderness resources in the short-term, when these actions were taking place. However, as the beneficial effects of noxious weed management and fuels reduction efforts are realized, visitors would experience long-term, moderate, beneficial cumulative impacts, due to improved ecological conditions in these areas.

## **Conclusion**

Under Alternative B, the existing range of visitor experiences would be largely preserved while controlling resource impacts. Maintaining visitor use limits would help to ensure that visitors have many opportunities to experience solitude, natural soundscapes and unconfined recreation. The new encounter rates and group size limits would likely have a negligible to beneficial effect on most visitors in the study area. Introducing commercial guiding into recommended wilderness within the Transition Zone would likely provide experiences for visitors who would not otherwise choose to experience the backcountry, while also protecting resources and providing additional opportunities for interpretation. The addition of and adherence to VERP standards would produce a beneficial, moderate, long-term impact through adaptive management to protect the key characteristics and wilderness value of ZION's backcountry resources. Because of designated campsites and trails, and permit requirements some visitors may experience adverse, minor, and short-term impacts because of a perceived loss of freedom of choice.

Cumulative impacts would be short-term, minor and adverse because of increased human presence, signs of human activity in the backcountry, and potential reductions in solitude. Over the long-term, however, the cumulative impact could be moderate and beneficial from improved ecological conditions.

(Animal, Plant and Soil Analysis eliminated by ZCC)

## **Floodplains**

### **Affected Environment**

All of the river channels in ZION have floodplain terraces associated with the wetted channels, though these are generally narrow and often intermittent along channels due to the steep terrain and narrow canyons. These floodplains are considered part of the river's active channel in that it is normal for rivers to repeatedly inundate, scour and deposit sediment on these lands. Floodplains are essential to natural streams because they are the means by which large flood flows move through the river system. They are also some of the most biologically productive lands due to the availability of water, and the frequency of natural disturbance. The species diversity is typically much greater than on adjacent uplands that are much more arid.

Floodplains in ZION's backcountry have not been delineated because no permanent structures exist or are planned in this area. As a result, a measure of the acreage of floodplains in ZION is not available. It can be said that campsites on the floodplains are consistently located above the bankfull channel (which would flood every 1.5 to 2 years) and are generally above the level of larger floods with recurrence intervals of 20-50 years.

Floodplain terraces are often selected for campsites due to the proximity to water, availability of shade from riparian trees and level land. In many parts of the park they are the only lands that most campers would consider desirable for camping. Twenty six designated campsites currently exist in floodplains in the park, and three new sites are proposed along Coalpits Wash. The number of campsites in floodplains where at-large camping is permitted is not known.

<b>Floodplain Impact Threshold Definitions</b>
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Negligible	Floodplains would not be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight, local, and would likely be short-term.
Minor	Changes in floodplains would be measurable, although the changes would be small, would likely be short-term, and the effects would be localized. No mitigation measure associated with water quality or hydrology would be necessary.
Moderate	Changes in floodplains would be measurable and long-term but would be relatively local. Mitigation measures associated with water quality or hydrology would be necessary and the measures would likely succeed.
Major	Changes in floodplains would be readily measurable, would have substantial consequences, and would be noticed on a regional scale. Mitigation measures would be necessary and their success would not be guaranteed.
Duration	Short-term - recovery will take less than one year
	Long-term - recovery will take longer than one year
Area of Analysis	The area of analysis is referred to as the “study area” and includes recommended wilderness, and portions of the Pristine and Primitive Zones that fall outside of the recommended wilderness.

## Effects of Both Alternative A and Alternative B

For this analysis the effects on floodplains would be the same for both alternatives. This is because no permanent structures are proposed in floodplains in either alternative.

Although, there are two areas of concern associated with floodplain resources and potential impacts associated with the actions proposed in this document. First are safety issues that occur when people camp in flood hazard areas. Floodplain terraces are often selected for campsites due to the proximity to water, availability of shade from riparian trees and level land. Where campers are required to camp in designated sites in flood hazard areas, it is the responsibility of the NPS to evaluate the risks involved and take reasonable measures to mitigate these risks. A formal evaluation of these risks is presented in a Floodplain Statement of Findings in Appendix F.

The second area of concern is whether the formal and informal use of campsites constitutes and impact to floodplain function by (1) impeding water flow during flood events, or (2) disturbing riparian vegetation and wildlife. In all cases, the modifications used to make campsites is minimal, consisting primarily of clearing the soil surface of loose rocks and some dead vegetation. Occasionally some minor vegetation removal occurs, and some visitors are inclined to arrange small rocks in lines around their campsites. No cut and fill of the soil surface or other alterations of topography is made.

In all instances, the minor impacts to the soil surface and vegetation have no potential to alter floodplain function. Therefore any adverse impacts to floodplains for both alternatives would be negligible and short-term.

### Cumulative Effects

Other activities that could affect floodplains within the study area include fire management activities, development of lands bordering the park, and exotic plant monitoring and control. Overall, the impacts of actions described in either Alternative A or B, when combined with impacts from these other actions that could affect floodplains, would result in short-term, minor, adverse cumulative impacts.

### Conclusion

In all instances, the minor impacts to the soil surface and vegetation from visitors camping in either designed or non-designated backcountry campsites would have no potential to alter

floodplain function. Therefore any adverse impacts to floodplains for both alternatives would be negligible and short-term.

Overall, the impacts of actions described in either Alternative A or B, when combined with impacts from other actions that could affect floodplains, would result in short-term, minor, adverse cumulative impacts.

### **Impairment Analysis**

Because there would be no major, adverse impacts to floodplains whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's GMP or other relevant NPS planning documents, there would be no impairment of the park's floodplains.

## **CONSULTATION AND COORDINATION**

### **Public Involvement Summary**

Public participation is an important part of any planning process. For this plan/EA process, ZION used several strategies to involve the public. External scoping was initiated in August 2005 and continued throughout the planning process. To facilitate public scoping the park:

- Distributed over 300 scoping newsletters to individuals, organizations, and government agencies. The newsletter outlined the proposal and described the process for public involvement (Appendix D).
- Posted the newsletter and workshop notices on the ZION Internet Homepage.
- Hosted four public information workshops:
  - Salt Lake City, Utah, September 8, 2005
  - Kanab, Utah, September 12, 2005
  - Springdale, Utah, September 13, 2005
  - Cedar City, Utah, September 14, 2005
- Published notices of the planning/EA process and workshop information in local newspapers, and on local radio and television stations.

The park received 181 scoping comment letters. The general concerns identified in the letters and areas where those concerns are addressed in this document are summarized below.

- Are current daily backcountry use limits for slot canyons appropriate? Use limits are discussed on pages 35-41 of this document.
  - The majority stated that limits were too low
- Are current backcountry group size limits appropriate? Group size limits are discussed on pages 35-41 of this document.
  - The majority stated that existing group size limits are OK, park should find ways to encourage smaller groups.
- Should commercial guiding be allowed in the Primitive Zone? Commercial guiding is discussed on pages 43 and 44 and in Appendix G.
  - The majority stated that commercial guiding should not be allowed in the backcountry.
- Does current backcountry management allow for an appropriate level of protection for natural and cultural resources? Actions to protect natural and cultural resource can be found throughout Alternative B beginning on page 29.
  - Most who commented believe that resources are being protected.

- What other issues exist concerning backcountry management in ZION?
  - Some believe that wilderness experience and wilderness values are not a priority when visiting ZION (Refer to Alternative B beginning on page 29).
  - Management in the backcountry was overly restrictive (Refer to Alternative B beginning on page 29).
  - Trails need maintaining, especially trails/routes into and out of canyons (Mystery, Spry, Keyhole, etc.) (Refer to Alternative B beginning on page 29).
  - Permits system is too difficult to use, that permits are too expensive; there should be self-serve kiosks for obtaining permits. While adjustments to the permit system do not need this document to be accomplished, a discussion of the permit system can be found on pages 45 and 46.

### **Coordination with Native American Indian Tribes, SHPO, and USFWS**

**National Historic Preservation Act.** In accordance with the National Historic Preservation Act (NHPA), letters requesting tribal consultation (Appendix D) were mailed in August 2005 to the following tribes: Hopi Tribe, Kaibab Paiute Tribe, Moapa Band Paiute Tribe, Northern Ute Tribe, Paiute Indian Tribe of Utah, Southern Ute, Ute Mountain Ute, White Mesa Ute, Navajo Tribe, Skull Valley Goshute, Goshute Indian Tribe, Pueblo of Zuni, and San Juan Southern Ute. We did not receive any scoping comments from any Native American Indian tribe.

**State Historic Preservation Office.** The scoping comment request letter was sent to the SHPO in August 2005 (Appendix D). No comments were received. A copy of this document will be sent to the Utah SHPO for review and comment as part of the Section 106 consultation process.

**U.S. Fish and Wildlife Service.** Park staff contacted the USFWS by letter on August 23, 2005. A reply identifying endangered and threatened species in and around the park was received on August 31, 2005. This correspondence can be found in Appendix E. A copy of this document will be sent to the USFWS for review and comment.

## List of Preparers

Name	Title	EA Contribution
Zion National Park		
Jock Whitworth	Superintendent	Review and Approval
Raymond O'Neil	Plateau District Ranger	Team Leader
Chuck Passek	Chief Ranger (former)	Review
Cody Cole	Plateau Law Enforcement Ranger	Review
Annette Werederich	Backcountry Permit Supervisor	Review
Cindy Purcell	Plateau District Ranger (former)	Team Leader (former)
Fred Hoeger	Kolob District Ranger	Review
Kevin Killian	Canyon District Law Enforcement Ranger	Review
Tom Haraden	Assistant Chief Naturalist	Visitor Services
Sarah Horton	Archeologist	Cultural Resources
Cheryl Decker	Vegetation Specialist	Vegetation
David Sharrow	Hydrologist	Water, Soils, Floodplains
Claire Crow	Wildlife Biologist	Wildlife
Kelly Fuhrmann	Fire Ecologist	Fire Management
Kezia Nielsen	Environmental Protection Specialist	Planning, NEPA
Jack Burns	Concession Management Specialist	Review
National Park Service Intermountain Regional Office		
Cheryl Eckhardt	NEPA/Section 106 Specialist	Review
SWCA Environmental Consultants		
Steve Kandell	Senior Environmental Planer	Environmental Consequences (EC) – Review
Marcie Bidwell	Environmental Planner	EC – Wilderness & Visitor Use & Experience
Larry Semo	Wildlife Biologist	EC – Threatened, Endangered & Sensitive Plants & Animals
Pate Castiglia	Geologist	EC – Soils
Adrian Hogel	Ecologist	EC – Vegetation

## List of Environmental Assessment Recipients

### Federal Agencies

BLM Kanab Field Office  
 BLM St. George Field Office  
 BLM Utah State Office  
 NPS Utah State Coordinator  
 U.S. Fish and Wildlife Service

### State & Local Agencies & Governments

Five County Association of Governments  
 Iron County Commissioners  
 Kane County Commissioners  
 Mayor of Rockville, UT  
 Mayor of Springdale, UT  
 Mayor of Virgin, UT  
 Springdale Town Manager  
 Utah State Clearinghouse  
 Utah State Historic Preservation Officer  
 Washington County Commissioners

## GLOSSARY (EXCERPTS)

**Alternatives** – As related to the National Environmental Policy Act process, alternatives are a range of options that address the purpose of the proposed action. They describe alternative ways to address a problem or issue. Alternatives must meet the stated objectives and provide a reasonable means to address the problem or issue.

**Backcountry** – Zion backcountry constitutes most of the undeveloped area of the park, where no roads or substantial human-made structures exist. Much of Zion’s backcountry, however, does contain maintained trails. Primary backcountry travel is by foot, and on specified trails, by horseback. Camping is regulated in the backcountry: in some areas camping is allowed nearly anywhere, while in other areas camping is only permitted in designated campsites. In the backcountry visitors have opportunities to experience a natural landscape, solitude, and natural quiet.

**Canyoneering** – Similar to mountaineering in that it is much more difficult than mere backpacking or hiking. Canyoneering requires hiking, rappelling, climbing, and swimming with your gear through remote generally hard to access canyons. In ZION, permits are issued for canyoneering routes requiring the use of rappelling equipment.

**Environmental Assessment** – Environmental assessments were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an Environmental Impact Statement is needed for a particular project or action. If an environmental assessment determines an environmental impact statement is not needed, the environmental impact statement becomes the document allowing agency compliance with NEPA requirements.

**Environmental Impact Statement** – Environmental impact statements were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, environmental impact statements are written for large-scale actions or geographical areas.

**Frontcountry** – Areas within ZION where visitors have structured opportunities to enjoy and learn about the park, usually by means of motorized transport on roads. The frontcountry also includes campgrounds, picnic areas, popular trails, the Visitor Center and Museum.

**Impairment** – An impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources and values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

**Issue(s)** – In NEPA, issues are environmental, social, and economic problems or effects that may occur of the proposed action or alternatives (including no action) are implemented or continue to be implemented.

**Management Zones** – Identify how different areas of the park will be managed to achieve a combination of desired conditions. Each zone represents a unique combination of physical, biological, social, and managerial conditions.

**National Environmental Policy Act (NEPA)** – NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental

protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

**Permit** – Is issued by the Superintendent to authorize an otherwise prohibited or restricted activity or impose a public use limit.

**Potential Wilderness** – A wilderness study may identify lands that are surrounded by or adjacent to lands proposed for wilderness designation but that do not themselves qualify for immediate designation due to temporary nonconforming or incompatible conditions. The wilderness recommendation forwarded to the Congress by the President may identify these lands as “potential” wilderness for future designation as wilderness when the nonconforming use has been removed or eliminated.

**Recommended Wilderness** – Lands that have been identified, through a wilderness study, as suitable for inclusion in the national wilderness preservation system. The NPS has recommended these lands as suitable for inclusion to the Secretary of the Interior, who forwarded the recommendation to the President, who then forwarded the recommendation to Congress.

**Scoping** – Internal NPS decision-making on issues, alternatives, mitigation measures, the analysis boundary, appropriate level of documentation, lead and cooperating agency roles, available references and guidance, defining purpose and need, and so forth. External scoping is the early involvement of the interested and affected public.

**Slot Canyon** – Narrow and usually deep canyons formed by water. In ZION they are popular hiking routes that require a level of skill and equipment to navigate.

**Solitude** – The state of being solitary, or alone; seclusion, isolation, or remoteness.

**Technical Canyon** – Refer to Slot Canyon.

**Visitor Experience and Resource Protection (VERP)** – A planning and management framework that focuses on visitor use impacts on the visitor experience and the park resources. These impacts are primarily attributed to visitor behavior, use levels, types of use, timing of use, and location of use.

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