National Park Service
U.S. Department of the Interior

Virgin Wild and Scenic River
Utah

Virgin Wild and Scenic River Comprehensive Management Plan / Environmental Assessment
Finding of No Significant Impact

BACKGROUND

In compliance with the National Environmental Policy Act, the National Park Service (NPS) and Bureau of Land Management (BLM) prepared a joint comprehensive river management plan / environmental assessment (CMP/EA) to examine various alternatives and environmental impacts associated with management of the Virgin Wild and Scenic River. This decision document addresses NPS actions in the Virgin Wild and Scenic River plan within Zion National Park. The Bureau of Land Management is responsible for preparing a separate decision document that addresses actions on BLM lands in the plan.

The Virgin River was designated as a wild and scenic river and added to the national wild and scenic river system by the Omnibus Public Land Management Act in 2009. The purpose of the *Virgin River Comprehensive Management Plan / Environmental Assessment Plan* is to guide management to ensure the protection of the river's free-flowing character, water quality, and outstandingly remarkable values for the benefit and enjoyment of present and future generations. The plan provides broad-based management strategies covering the protection and enhancement of the river's values, agency operations, types and levels of development, and visitor use management and visitor capacity for the entire river, and specific management strategies for river segments. The plan is needed to satisfy section 3 of the Wild and Scenic Rivers Act, which mandates that federal agencies charged with administration of a wild and scenic river prepare a comprehensive river management plan to provide for the protection of river values.

SELECTED ACTION

The National Park Service selected action is alternative C, the preferred alternative as identified in the CMP/EA. Under the selected action, the river corridor will be managed with an emphasis on resource protection, and recreational activities that are compatible with resource protection strategies will be available throughout the park. The Virgin River and its tributaries will be managed to maintain or enhance recreational opportunities—public uses will continue to be allowed unless there is a clear need to limit use. Educational and interpretive opportunities will also be enhanced for both natural and cultural resources. The agency staff will develop new connections through education and will build advocacy. Relevance will be maintained through use of new technology for media and outreach. The National Park Service will continue to be open to new recreation experiences compatible with protection of river values and provide a diversity of experiences for a variety of abilities, interests, and cultures. The national park will actively manage visitor areas to maintain use levels or allow a small

increase in use while protecting river values. In areas with visitor-caused impacts, education, site management, and dispersion of visitor use will be emphasized throughout the river corridor.

The primary elements of the selected action include the following:

- A management framework will be implemented to plan for and manage visitor capacity and characteristics of visitor use. Specific indicators, standards, adaptive management strategies, and visitor capacities are identified for each Virgin River segment.
- Visitor use areas will be managed to maintain use levels or allow a small increase in use—including additional trails and routes. The existing wilderness permit system and group size limits will not change.
- Interpretive and educational materials will be developed related to wild and scenic river designation and associated outstandingly remarkable values.
- More attention will be devoted to managing and reducing visitor-created trails. A more active trail maintenance and restoration program will be implemented.
- Efforts will be increased to form partnerships with landowners, land managers and the county to protect river values and reduce the impacts of trespass livestock and the spread of nonnative plants.
- For the North Fork of the Virgin River above the Temple of Sinawava a formalized approval process will be initiated for flow limits for hiking, canyoneering, and boating. The NPS presence will be increased in high use areas such as the Narrows. To reduce crowding in frontcountry and transitional areas, levels of use will be decreased by adjustments to shuttle timing and commercial use. A few visitor-created trails between the Riverside trail and river will be formalized.
- For the North Fork of the Virgin River below the Temple of Sinawava, riverbank conditions, water quality and trail maintenance requirements, and diversity of recreational experience will be considered in evaluating the horseback riding concession for permit renewal. A natural surface trail will be developed from the Temple of Sinawava to the Zion Lodge. The trail to the Upper Emerald Pools will be formalized and visitor-created trails revegetated. The development of more formal trails will be considered in high use areas. Visitor use limits will be considered to mitigate resource impacts. Park facilities that are in floodplains will be protected from flooding by minimal means (consistent with section 7 of the Wild and Scenic Rivers Act) that can include levees and armoring. The need for irrigation water for park use will be reduced.
- Best management practices for road maintenance on the Kolob Creek Scenic Drive will be instituted.
- Day use limits (permits) may be considered for Taylor Creek. A variety of management strategies will be followed to maintain wilderness character and protect river values, including adjustments to the Taylor Creek parking lot to manage crowding. Modest improvements will be made to trails in the Taylor Creek area. A standard for new climbing bolts will be developed to protect river values.
- Day use limits (permits) will be considered for La Verkin Creek to maintain wilderness character and protect river values.
- Opportunities will be pursued to reduce impacts of private diversion structures on North Creek.

- Physical access to the East Fork of the Virgin River Research Natural Area will remain limited to approved researchers. Modern technology will be used to provide virtual access to visitors on cultural resources and natural processes.
- Some management strategies in the selected action could be refined based on the outcome of the 2013–2014 Frontcountry Transportation and Visitor Use Study.

MITIGATION MEASURES

As stated in the river comprehensive management plan, the following mitigation measures will be applied to avoid or minimize potential impacts and prevent degradation of outstandingly remarkable river values due to implementation of the selected action.

Cultural Resources

- Continue to develop inventories for and oversee research about archeological, historic, and ethnographic resources to better understand and manage the resources, including cultural landscapes; conduct any needed archeological or other resource-specific surveys and National Register of Historic Places evaluations and identify recommended treatments; incorporate the results of these efforts into site-specific planning and environmental analysis documents; and continue to manage cultural resources in accordance with federal regulations and agency guidelines.
- Archeological surveys would precede any ground-disturbing construction. Known archeological resources would be avoided during all construction activities. If during construction previously undiscovered archeological resources were uncovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate management strategy developed in consultation with the state historic preservation office and, if necessary, associated American Indian tribes.
- Continue ongoing consultations with traditionally associated American Indian tribes; protect sensitive traditional use areas to the extent feasible by avoiding or minimizing impacts on ethnographic resources and continuing to provide access to traditional use and spiritual areas; protective measures could include identification of and assistance in accessing alternative resource gathering areas and screening new development from traditional use areas
- Encourage visitors through park interpretive programs to respect and leave undisturbed any inadvertently encountered archeological resources.

Soils

- New facilities will be built on soils suitable for development, such as those less readily prone to water inundation or erosion or that have been previously disturbed, and would minimize soil erosion by limiting the time that soil is left exposed and by applying other erosion-control measures, such as erosion matting, silt fencing, and sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies.

- Once work is completed, disturbed areas will be revegetated with native plants in a timely manner.

Vegetation

- Areas used by visitors (e.g., trails) will be monitored for signs of native vegetation disturbance. Public education, revegetation of disturbed areas with native plants, erosion-control measures, and barriers will be used to control potential impacts on plants from trail erosion or visitor-created trails.
- River access / crossing points will be designated and barriers and closures will be used to prevent trampling and loss of riparian vegetation.
- Revegetation plans will be developed for disturbed areas. The use of native species will be required to revegetate disturbed areas. Revegetation plans will specify seed/plant source, seed/plant mixes, and/or soil preparation. Salvage vegetation will be used to the extent possible.

Nonnative Plant Species

- Agency staff will work with landowners to implement a noxious weed control program for which standard measures could include the following elements: ensuring that construction-related equipment arrives on-site free of mud or seed-bearing material; certifying all seeds and straw material as weed-free; identifying areas of noxious weeds before construction; treating noxious weeds or noxious weed topsoil before construction (e.g., topsoil segregation, storage, herbicide treatment); and revegetating with appropriate native species.

Threatened and Endangered Animal Species

- Protective actions will occur during normal agency operations as well as before, during, and after construction to minimize immediate and long-term impacts on rare, threatened, or endangered animal species. These actions will vary by the specific project, but protective actions specific to rare, threatened, or endangered animal species could include the following:
  - Surveys for rare, threatened, and endangered species will be conducted as warranted.
  - Facilities/actions will be located and designed to avoid adverse effects on rare, threatened, and endangered species. If avoidance is infeasible, adverse effects on rare, threatened, and endangered species will be minimized and compensated for as appropriate and in consultation with the appropriate resource agencies.
  - Work will be conducted outside of critical periods for the specific species.
- Restoration and/or monitoring plans will be developed and implemented as warranted. Plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- Measures to reduce adverse effects of nonnative plants and wildlife on rare, threatened, and endangered species will be implemented.

Water Resources

- To prevent water pollution during construction, erosion-control measures will be used to minimize discharge to water bodies (consistent with section 7 of the Wild and Scenic Rivers Act). Construction equipment will also be regularly inspected for leaks of petroleum and other chemicals.
- The use of heavy equipment in a waterway will be minimized.
- The existing wire rock-filled gabions and earthen levees would be allowed to deteriorate along the North Fork Virgin River below the Temple of Sinawava, eventually leading to improved free-flowing condition and floodplains as more natural stream dynamics (meandering and seasonal flooding) would return to this segment.

ALTERNATIVES CONSIDERED

Two other alternatives besides the selected action were considered for the Virgin River comprehensive management plan. Alternative A, the no-action alternative, would continue current management practices into the future. Its goal would be to retain the existing river-related visitor experience and resource management strategies based on existing agency planning. Ongoing coordination with other agencies would continue. No action does not imply discontinuing the present uses or management actions, nor does it mean removing the existing wild and scenic river designation. But because there would be no approved comprehensive management plan as required by section 3(d)(1) of the Wild and Scenic Rivers Act, this alternative would not be in compliance with this section of the act. The agencies would strive to protect and manage the free-flowing condition, water quality, and the outstandingly remarkable values for which the rivers were designated through other management actions.

Under alternative B, the Virgin River and its tributaries would be managed with an emphasis on resource protection, including interpreting natural and cultural resources and restoring natural resources. Restoration of natural river processes would take precedence over recreational activities. A variety of appropriate recreational activities would be available throughout the park and on BLM-managed lands that are compatible with resource protection. Visitor use levels would generally remain the same in low use areas where use is not impacting river values, but would be reduced in areas experiencing impacts on river values. The monitoring program and adaptive management would ensure that recreation or other actions do not negatively impact river values.

THE ENVIRONMENTALLY PREFERABLE ALTERNATIVE

According to Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Of the three alternatives considered, alternative C best meets the CEQ criteria and is the environmentally preferable alternative—alternative C will result in fewer impacts on the environment

and will better protect resources than alternatives A and B. Alternative C will provide a high level of protection of natural and cultural resources throughout more of the Virgin River. The alternative will provide protection of river values by integrating resource protection with visitor use. This alternative will also continue protection of the undeveloped river segments, and it will enhance cooperative protection of natural and cultural resources in and around the national park. Finally, alternative C provides the widest range of neutral and beneficial uses of the environment of the three alternatives.

WHY THE SELECTED ACTION WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse.

A significant effect may exist even if the agency believes that on balance the effect will be beneficial.

Implementing the selected action (alternative C) generally will result in beneficial impacts. An exception is moderate adverse impacts in the quality of river-related visitor experiences on the Emerald Pools Trail and in the lower Narrows during peak times due to crowding. But overall there will be negligible to moderate beneficial impacts on river-related visitor experiences on low use segments and in high use frontcountry areas during the peak season. There will be minor beneficial impacts on the free-flowing river condition and floodplains, water quality, fish and wildlife and scenic outstandingly remarkable values, and park operations. There also will be moderate beneficial impacts on the ecological processes outstandingly remarkable value, and minor to moderate beneficial impacts on socioeconomics. None of these impacts meet the threshold of significant impacts that would require analysis in an environmental impact statement.

Degree of effect on public health or safety.

As stated in the plan, the health and safety of park visitors, staff, and neighbors are of great importance to the National Park Service. It is also noted that visitors take inherent risks when they enter the wilderness canyons and when they rock climb in the park. To help inform visitors about these risks, information on park conditions and safety is provided to visitors through a variety of ways (e.g., the park website, brochures, and communication with park rangers), which will continue under the selected action. The elements in the selected action pose no new appreciable adverse effect on public health and safety and will not result in any additional risks to human health or safety not already inherent in the arid canyons of southwestern Utah. Further, the selected action continues to allow the placement of fixed anchors when necessary for climber safety. Flow limits would be continued for hiking and canyoneering trips. Limited riverbank stabilization on the North Fork of the Virgin River below the Temple of Sinawava may be implemented if necessary to protect human health and safety (consistent with section 7 of the Wild and Scenic Rivers Act). Finally, the plan calls for the monitoring of human waste in the river segments, and sets standards, which will safeguard the health of visitors and managers. With all of these safety procedures in place, it is expected that any impacts on public health and safety as a result of implementing the selected action will be negligible.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

All of the actions described in this plan focus on the Virgin River wild and scenic segments. As described in the environmental assessment, the selected action will be beneficial to these rivers and their outstandingly remarkable values. No actions will be taken that will have more than a negligible effect on wetlands in the area, and therefore analysis of this topic was considered but dismissed from

the plan. The Virgin River system contains some of the best examples in the region of pre-contact American Indian sites, as well as places and resources important to the cultural traditions of contemporary American Indian tribes. No actions in this plan will affect these resources. The East Fork Virgin River Research Natural Area also is a special area, with its relatively intact and abundant riparian vegetation, key bighorn sheep lambing grounds, and rich archeological resources. This area, which is closed to recreational use, will not be affected by the selected action. The project area has no prime farmlands.

Degree to which effects on the quality of the human environment are likely to be highly controversial.

None of the elements proposed in the selected action have the potential to be highly controversial. The elements proposed in the selected action are similar to those used to enhance experience and protect resources in other wild and scenic rivers. This determination is supported by the small number and relatively uncontroversial nature of public comments received on the environmental assessment.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.

None of the elements proposed in the selected action pose uncertain, unique, or unknown risks. The actions are all straightforward, similar to actions taken on other wild and scenic rivers, and are consistent with NPS management policies and with the mandates of the Wild and Scenic Rivers Act. There is no uncertainty about the short- or long-term effects on the human environment, or that the actions pose unique or unknown risks.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The selected action will result in improvements to visitor experiences and resource restoration that is consistent with NPS policy and the Wild and Scenic Rivers Act. There is no potential that the elements in the selected action will set a NPS precedent for future actions with significant effects or represents a decision in principle that will influence future considerations.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

When the effects of the selected action are added to other actions occurring independently of this plan, including future improvements to infrastructure and ongoing maintenance activities in Zion National Park, BLM management actions, and nonfederal management actions, no adverse cumulative impacts will result. Rather, there will be beneficial cumulative impacts on all the topics analyzed. These beneficial cumulative impacts would range from negligible beneficial impacts on park operations to moderate beneficial cumulative impacts on the socioeconomic environment. Most of the beneficial cumulative impacts on the wild and scenic river's outstandingly remarkable values will be minor in extent. None of these beneficial cumulative impacts meet the threshold of being a cumulatively significant impact. The selected action will add to appreciable increments to the overall cumulative impacts.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The National Park Service determined the elements described in the selected action will not degrade outstandingly remarkable values and will have no impacts, or only negligible impacts on cultural or historical resources, including archeological resources, historic structures, cultural landscapes, and ethnographic resources. No significant scientific resources will be lost or destroyed. The state historic preservation office concurred with the NPS findings on October 7, 2013.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.

The National Park Service determined that the selected action will have a minor beneficial effect on the wildlife outstandingly remarkable value, which includes threatened and endangered species. Zion National Park is known to support the federally endangered Shivwits milk-vetch, threatened Mexican spotted owl, threatened desert tortoise, and the California condor, which in this area is designated as an experimental population, nonessential. Because the Shivwits milk-vetch and desert tortoise do not occur within any of the designated wild and scenic river boundaries, the selected action will not affect these species or the plant's critical habitat. Elements of the selected action will have minor beneficial effects on the Mexican spotted owl and its critical habitat, and on the California condor. This impact intensity equates to a "may affect, not likely to adversely affect" determination under section 7 of the Endangered Species Act. The U.S. Fish and Wildlife Service concurred with this determination on November 20, 2013.

Whether the action threatens a violation of federal, state, or local environmental protection law.

This action violates no federal, state, or local environmental protection laws. Additionally, the selected action aligns well with section 10 of the Wild and Scenic Rivers Act which directs that, "Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values." Protection of the river includes documenting and eliminating adverse impacts on values (free-flow, water quality, outstandingly remarkable values), including activities that were occurring on the date of designation. Enhancement of river values includes seeking opportunities to improve conditions.

PUBLIC INVOLVEMENT AND AGENCY CONSULTATIONS

Public involvement concerning the *Virgin River Comprehensive Management Plan / Environmental Assessment* took place throughout the planning process. During the initial scoping period, a newsletter describing the related legislation, planning approach, components of the plan, the draft outstandingly remarkable values, and other pertinent information related to the planning process was mailed out to individuals on the park mailing list, and federal, state, and nongovernmental agencies. Consultation with the U.S. Fish and Wildlife Service, the Hopi Tribe, the state historic preservation office, and the Advisory Council on Historic Preservation occurred during this initial scoping period. Three public workshops were held, the first on Tuesday, October 26, 2010, in Salt Lake City, Utah; the second was held on Wednesday, October 27, 2010, in Springdale, Utah; and the third on Thursday, October 28, 2010, in St. George, Utah. There were approximately 26 attendees total. A total of 64 correspondences were received either by direct input into the NPS Planning, Environment and Public Comment (PEPC) website, a completed hardcopy comment form, email, or formal written correspondence. Correspondences were received from 14 different states and two foreign countries (Austria and Germany). Comments were also received from the following governmental and nongovernmental organizations: Grand Canyon River Guides, American Rivers; Pikes Peak Whitewater Club, American Whitewater Association; San Miguel Whitewater Association; Utah Division of Water Quality; and Utah Whitewater Club.

During the final stages of the planning process, the draft environmental assessment was made available for public review and comment during a 43-day period running from July 29 to September 9, 2013. The document was placed on the PEPC website; mailed to agencies, organizations, and individuals on the park's mailing list; and distributed to local libraries. Public meetings were held during the comment

period in St. George, Utah, on August 20; in Springdale, Utah, on August 21; and in Salt Lake City, Utah, on August 22, 2013. Twenty-five individuals attended the meeting in St. George, 23 individuals attended the Springdale meeting, and no people attended the Salt Lake City meeting. The concerns raised verbally at the meetings were similar to the concerns expressed in the written letters. A total of 26 pieces of correspondence were received, primarily from Utah residents. Letters were received from the Access Fund, American Canyoneers, Kane County government, American Whitewater Association, the Utah Division of State History, and the Hopi Tribe. Individual pieces of correspondence were reviewed and specific comments about the plan were identified and are addressed below. Any subsequent changes to the document are shown in errata sheets attached to this Finding of No Significant Impact.

The Finding of No Significant Impact and errata sheet will be sent to all commenters.

Consultation with the U.S. Fish and Wildlife Service

In accordance with section 7(a)(2) of the Endangered Species Act, NPS staff initiated informal consultation with the U.S. Fish and Wildlife Service St. George office on October 5, 2010. A letter was sent to the U.S. Fish and Wildlife Service on July 29, 2013, requesting concurrence on the NPS determination that the NPS preferred alternative may affect, but would not be likely to adversely affect, the threatened Mexican spotted owl and its critical habitat, and the California condor. The U.S. Fish and Wildlife Service concurred with this determination on November 20, 2013.

Native American and State Historic Preservation Office Coordination

The National Park Service contacted the 12 traditionally associated tribes in a May 2010 letter that it had begun preparation of the river comprehensive management plan. The tribes were invited to consult and participate in the planning process on a government-to-government basis. The plan/environmental assessment was sent to the federally recognized tribes that requested copies. The Hopi Tribe was the only federally recognized tribe that provided comments on the plan/environmental assessment.

The Utah state historic preservation office was notified of the commencement of the river management letter and invited to participate in the planning process in a letter dated April 25, 2012. A letter was subsequently mailed to the state office on July 19, 2013, requesting their concurrence with the NPS determination of no historic properties affected. The state historic preservation office responded on October 17, 2013, concurring with the NPS determination of effect of the selected action.

CONCLUSION

As described above, the selected action does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement. The selected action will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with primarily beneficial impacts that range from short- to long-term, and negligible to moderate in magnitude. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, highly significant cumulative effects, or elements of precedence were identified. Implementation of the selected action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an environmental impact statement is not required for this project and thus will not be prepared.

Approved: _____ 1/8/14
Colin Campbell, Acting Intermountain Regional Director Date

ERRATA SHEET

VIRGIN RIVER COMPREHENSIVE MANAGEMENT PLAN / ENVIRONMENTAL ASSESSMENT

Corrections and revisions to the comprehensive management plan / environmental assessment and responses to public concerns are included in this errata sheet. The revisions have not resulted in substantial modification of the selected action. It has been determined that the revisions do not require additional environmental analysis. The page numbers referenced are from the *Virgin River Comprehensive Management Plan / Environmental Assessment.*

TEXT CHANGES

Page 43: Chapter 1 – Impact Topics Retained for Further Analysis – Table 4. Impact Topics: Impact Topics Analyzed in Detail: (change to: "Wildlife ORV (including the threatened Mexican spotted owl"). Under Impact Topics Eliminated from Detailed Analysis: add "Threatened, Endangered, and Candidate Plant and Animal Species."

Page 46: Chapter 1 – Impact Topics Dismissed from Further Analysis – Threatened, Endangered, and Candidate Plant and Animal Species – add the following:

> "The Endangered Species Act of 1973 requires examination of impacts on all federally listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U. S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of the listed species or critical habitats. In addition, NPS *Management Policies 2006,* and Director's Order 77: *Natural Resource Protection* requires the National Park Service to examine the impacts on federal candidate species, as well as stated listed species.
>
> "In 2010 the U. S. Fish and Wildlife Service directed the National Park Service to their Information, Planning, and Conservation System on the internet to obtain a list of species that may occur in the project area. The list included the following species: greater sage grouse, Mexican spotted owl, southwestern willow flycatcher, yellow-billed cuckoo, Virgin River chub, woundfin, Gierisch mallow, Jones cycladenia, Las Vegas buckwheat, Shivwits milk-vetch, Welsh's milkweed, Utah prairie dog, desert tortoise, and California condor.
>
> "Zion does not have the habitat components to support most of these species. In some cases, the park has surveyed potential habitat for certain species and has not found them (southwestern willow flycatcher, yellow-billed cuckoo). Those that are known to occur in the park are Mexican spotted owl, Shivwits milk-vetch, desert tortoise, and California condor. Impacts on Mexican spotted owl are addressed under wildlife and are analyzed in detail later in this document.
>
> "Shivwits milk-vetch and desert tortoise do not occur within any of the designated river segment boundaries. Therefore, the preferred alternative would have no effect on these

species. The preferred alternative would not result in reduction or adverse modification of Shivwits milk-vetch critical habitat.

"California condor do occupy habitat within wild and scenic river boundaries. There are no actions in this plan that would adversely affect California condor. The plan identifies protective measures to protect water quality and ecological processes, which would benefit California condor. Therefore, the implementation of the preferred alternative may affect, but is not likely to adversely affect this species. Because there would be no measurable effects, this topic is dismissed from further analysis in this document."

Page 78: Add the following sentence to Bureau of Land Management Operations – "The St. George Field Office does not have any deposits of oil shale, tar sands, potash, sodium, or commercially recoverable reserves of coal."

Page 101: Table 6. Summary Table for Kinds and Amounts of Use / Indicators and Standards – Change Alternative B: "No more than 24 people at one time 75% of the time more than a half mile from shuttle stop" to "No more than 24 people at one time 75% of the time more than a half mile upstream from the end of the Riverside Walk."

Page 101: Table 6. Summary Table for Kinds and Amounts of Use / Indicators and Standards – Change Alternative C: "No more than 36 people at one time 75% of the time more than a half mile from shuttle stop" to "No more than 24 people at one time 75% of the time more than a half mile upstream from the end of the Riverside Walk."

Page 104: Table 6. Summary Table for Kinds and Amounts of Use / Indicators and Standards – Amount of Use – Change "114 people per day" to "154 people per day."

Page 143: Change the natural resources section from "Nonnative plant species can adversely affect the ecological processes ORV" to "Nonnative plants, such as tamarisk and Russian olive, can adversely affect the ecological processes ORV."

Page 238: Change the impacts of implementing alternative A (under the ecological processes ORV) from "management activities and strategies would continue; including eliminating nonnative plant species within the riparian areas" to "management activities and strategies would continue; including eliminating nonnative plant species (e.g., tamarisk and Russian olive) within the riparian areas."

PUBLIC COMMENT ANALYSIS

Comment analysis is a process used to compile and correlate similar public comments into a format that the planning team can use to organize, clarify, and address technical information pursuant to National Environmental Policy Act (NEPA) regulations. The process also aids the planning team in identifying the topics and issues to be evaluated and considered throughout the planning process.

The process includes six main components:

1. employing a comment database for comment management
2. developing a coding structure
3. reading and coding public comments

4. interpreting and analyzing the comments to identify issues and themes, which includes drafting comment summaries
5. responding to comments
6. preparing the Finding of No Significant Impact

A coding structure was developed to help sort comments into logical groups by topic. The coding structure was derived from an analysis of the comments, the range of topics discussed during internal NPS and BLM scoping, and past public involvement. The coding structure was designed to capture all comment content rather than to restrict or exclude any ideas. In order to organize all of the comments in a clear and concise manner for inclusion in the comment analysis and response report, the planning team created response topics that are organized by similar themes and issues.

The NPS PEPC database was used to manage the comments received. After reading the correspondence, the planning team assigned codes to statements made by the public in their letters and at the public meetings. All comments—those of a technical nature; opinions, feelings, and preferences of one element or one potential alternative over another; and those of a personal or philosophical nature—were considered and analyzed.

After reading the comments, the planning team coded comments as either substantive or nonsubstantive. A substantive comment, as defined in the NPS *Director's Order 12 Handbook* (section 4.6A), is a comment that

- questions (with a reasonable basis) the accuracy of information presented in the EIS
- questions (with a reasonable basis) the adequacy of the environmental analysis
- presents reasonable alternatives other than those presented in the EIS
- causes changes or revisions in the proposal

As further stated in Director's Order 12, substantive comments "raise, debate, or question a point of fact or policy. Comments in favor of or against the proposed action or alternatives, or comments that only agree or disagree with NPS policy, are not considered substantive." Typically, only those comments considered to be substantive are analyzed and used to create comment summaries for NPS response; however, some nonsubstantive issues were identified for response during this process.

Then, all substantive comments were categorized and grouped by similar themes. The themes were then summarized using a comment summary that is representative of many comments. In this comment analysis and response report, comment summaries are organized under broad topical categories.

As required under the NEPA process, the National Park Service and Bureau of Land Management have responded to all substantive comments raised by the public as part of finalizing the CMP/EA. In this report, the planning team provided responses to the substantive comments and indicated, where appropriate, how the text in the final document was revised. In addition, the nonsubstantive comments that were identified as being of high importance to the public or needing clarification were also responded to in this report. The comment concerns and responses are as follows.

RESPONSES TO COMMENTS

The following are NPS responses to the concerns that were raised by commenters who reviewed the environmental assessment. Because the National Park Service received a limited number of comments, responses were prepared for all substantive and some nonsubstantive comments. Substantive comments, or nonsubstantive comments that were identified as being of high importance to the public or needing clarification, centered on the following topical areas: new alternative element; impacts on natural resources and processes; requests and questions; management strategy suggestions; and impacts on visitor use, experience, and access. These concerns are addressed below. Any changes to the document are shown in errata sheets attached to this Finding of No Significant Impact.

New Alternative Element

Comment: One commenter supported alternative C with a modification to the number of people-at-one-time standard for the area in the Virgin River near Mystery Canyon (one-quarter-mile upstream from the end of the Riverside Walk). This commenter requested that the people-at-one-time standard for alternative C should be 24 people at one time for 75% of the time, the same standards as alternative B. The commenter believed this standard is more protective of resources for future generations.

Response: A visitor survey was conducted in September 2013 that replicated questions from a 2003 visitor survey. Findings from the 2003 study showed that an average of 24 people at one time was the visitor-based standard for when management action should occur in the lower Narrows. Findings from the 2013 visitor study were quite similar to the 2011 results, showing that an average of 27 people at one time was the visitor-based standard for when management action should occur to limit more visitors from hiking to this area. Because visitors' preferences have remained similar across time, changes will be made to the plan so both alternative B and alternative C set a standard of 24 people at one time 75% of the time more than a half mile from the end of the Riverside Walk. The people-at-one-time standard in the plan will be updated for the North Fork of the Virgin River (above the Temple of Sinawava and below Orderville Canyon).

Comment: One commenter made recommendations for updates to the climbing management elements of this plan. There was concern about how the park might remove fixed anchors in select locations to protect the scenic values. The commenter raised general questions about how fixed anchors would be managed and noted that the removal of bolts might not only impose new risks to climbers but also sacrifice the significant resource protection function that these anchors sometimes provide. The commenter noted that the continued use of fixed anchors, if properly managed, will not degrade wilderness resources or scenic values.

Response: The creation of new fixed anchors or the installation of climbing bolts is currently unregulated throughout the park. Visitors are not permitted to use power drills to place bolts, but otherwise are allowed to decide where to place fixed anchors. NPS Director's Order 41: *Wilderness Stewardship* has identified the need to create a process to authorize new bolt placement within wilderness areas, including the Zion Wilderness. The format of the authorization process has not been identified, and this would be a separate NEPA action. Agencies would not remove existing bolts unless there is risk to health and safety. NPS Director's Order 41: *Wilderness Stewardship* and BLM "Manual 6340 – Management of Designated Wilderness Areas" and Instructional Memorandum 2007-084 ("Use of Permanent Fixed Anchors for Climbing in Designated

Wilderness Areas Managed by BLM") provide direction for management of climbing on NPS and BLM lands.

Impacts on Natural Resources and Processes

Comment: Several commenters were concerned about the health and restoration of natural cottonwood habitat in the main canyon. Commenters mentioned that restoration efforts for the cottonwoods should be included within the scope of this plan, and noted that the removal of rock and wire revetments should be addressed in this plan.

Response: Restoration of the channelized North Fork in Zion Canyon is integrally linked to the removal of the levees that have straightened and confined the river in the vicinity of Zion Lodge since the 1930s. The desirability of undertaking this restoration was clearly identified in the park general management plan, and removal of the approximately two miles of levees and restoration of a more natural river function remains a high priority for the park. Including this action in the comprehensive management plan was considered at length, and it was decided to retain it as an objective for a future action, but not to include it as an action under this plan. Removal of the levees will require a substantial earthmoving effort, construction of new bridges, armoring the historic Zion Canyon Scenic Drive, moving facilities and utility lines near the river. The park does not have the site-specific and detailed plans that would be needed to analyze the impacts of these actions. In addition, the substantial funding needed for implementing a restoration project has not been appropriated, so planning and compliance done now might become dated before the project can be implemented. For these reasons, the restoration of the two-mile channelized reach of the river will remain a high priority for the park and will be presented in a separate compliance document with public involvement when the project is ripe for consideration.

The park also recognizes the paucity of cottonwood regeneration throughout Zion Canyon, even in areas where river function is very natural. Overpopulation of herbivores has been suggested as a cause. If that is the case, then actions such as population reduction have been suggested, but these are very controversial in other parks (an example being elk reduction in Rocky Mountain National Park). They require a very robust scientific basis, and a high level of public, political, and agency support. The details of implementing such an action are also very complex. Restoration of the cottonwood dominated riparian system remains an objective of the park, but fully developing a restoration proposal is beyond the scope of this comprehensive management plan. The park will continue to revegetate riparian areas as the need exists.

Requests and Questions

Comment: A commenter requested that the public comment period be extended. The commenter felt that they did not have enough time to review the draft plan and the Superintendent's Compendium and to provide comments. In addition to the opportunity to provide additional comments, American Whitewater requested a dialog with the park superintendent and park personnel to discuss the compendium drafting process as it relates to the current policy of designating boating flows on the North Fork Virgin River.

Response: The draft CMP/EA was open for public comment beginning July 29 and ending September 9, 2013. During this public comment period, multiple opportunities were provided for public input. This included open house meetings in St. George, Salt Lake City, and Springdale,

Utah. While there is no requirement for the amount of time any environmental assessment must be available for public review, plans such as this are often open for comments over a 30-day period. American Whitewater was given additional time to submit comments. In addition, Zion National Park staff contacted American Whitewater staff asking for further clarification on their comments and to have a conversation on the topics they brought forward. The park clarified that if changes to boater use are proposed in the future, including through the Superintendent's Compendium, the public will be informed and comments will be solicited before any decision is made. After reviewing all of the comments the park has determined that at this time flow limits will continue as identified in the Superintendent's Compendium and the comprehensive management plan.

Comment: Commenters raised specific questions about content of the draft plan. One commenter asked for clarification on how this plan will correlate to Natural Resources Conservation Service (NRCS) North Fork of the Virgin River watershed management plan. One commenter suggested that tamarisk and Russian olive be included in the natural resource, nonnative plant species section of the plan.

Response: The NRCS North Fork of the Virgin River watershed management plan will address several issues identified by landowners including land management agencies, and among the issues will be bacterial water quality because the state standards are not being met. While this plan will address a wider array of issues than the comprehensive management plan because the lands on the larger watershed are subject to a variety of ownership and land uses, it will be complementary to the comprehensive management plan.

The natural resource sections of the plan have been updated to include tamarisk and Russian olive where applicable. Page 143 has been updated to state "Nonnative plants, such as tamarisk and Russian olive, can adversely affect the ecological processes ORV." The impacts of implementing alternative A on the ecological processes ORV on page 238 also has been revised to state: "...management activities and strategies would continue, including eliminating nonnative plant species (e.g., tamarisk and Russian olive) within the riparian areas."

Management Strategy Suggestions

Comment: One commenter suggested that the National Park Service provide and require the use of human waste disposal systems as a management strategy to minimize the impacts from human waste in areas outside of frontcountry. This commenter also stated that a cap on visitor use is the only solution to overcrowding in the frontcountry, and that a permitting system should be introduced as a management option. This commenter believes that some areas are experiencing unacceptable levels of use resulting in significant impacts.

Response: The issues of human waste and crowding have been addressed in the comprehensive management plan. Table 6 summarizes the kinds and amounts of use that can be sustained on each river segment while also protecting the river values. Indicators and standards were developed to track changes in conditions over time, and adaptive management strategies were developed to ensure that conditions remain within desired conditions. Several segments have indicators to monitor crowding and human waste. As noted in table 6, examples of adaptive management strategies to address crowding may include:

a) Educate visitors about the best times to visit popular areas
b) Educate visitors about alternative park attractions and sites (disperse use)

c) Educate visitors on Leave No Trace ethics
d) Rehabilitate social trails
e) Provide signs and maps to educate the public on hiking routes and increase visitor awareness of hiking opportunities
f) Reduce the size of parking areas
g) Disperse visitor use to less-crowded areas
h) Reduce group size limit
i) Limit the number of day hikers on trails (permit system)
j) Adjust shuttle timing
k) Adjust commercial use authorization tours numbers

Examples of adaptive management strategies to address human waste include:

a) Educate visitors about proper waste disposal
b) Recommend the use of solid human waste disposal system and encourage visitors to carry out waste
c) Require the use of solid human waste disposal system and require visitors to carry out waste

Additionally, research is being conducted to gain a better understanding of visitor capacity for the frontcountry. The park is tracking the number of people at one time and encounter rates at attraction sites and on trails to better understand conditions on the ground. In fact, results from a 2013 visitor use and transportation research project will greatly inform managers about crowding and visitor perceptions of crowding along the river corridor. Results from this research should be available by September 2014 and could inform future NEPA planning where necessary.

Comment: One commenter suggested the creation of an ongoing invitation to a working relationship among all property owners through which the Virgin River and its drainage flows needs to be formally included in the Virgin River comprehensive management plan. This commenter provided specific suggestions on how to formalize this type of working relationship.

Response: Formal interagency cooperation is already established for several aspects of river and watershed management in the Virgin River basin. Among these are the Virgin River Resource Management and Recovery Program, which meets at least quarterly, with an objective of protecting and recovering native fish species and riparian birds that are listed under the Endangered Species Act. The Virgin River Land Preservation Association is a community based land trust that works with agencies and private land owners to preserve lands in the Virgin River basin. These existing forums meet the objectives of the comprehensive management plan, so no new entity is needed.

Impacts on Visitor Use, Experience, and Access

Comment: Some commenters acknowledged the high levels of use in the park, yet suggested that use limits should not be imposed because the park should be enjoyed by all. Some commenters believed that visitors should be able to find solitude in certain areas of the park even during busy times, or they could travel outside of the park to find solitude. American Whitewater was concerned that a 600 cubic feet per second (cfs) upper flow limit for boating the Narrows is no longer supported by the prevailing data and was concerned that the stated basis for low water closure on the North Fork Virgin River appears to lack scientific basis.

Response: Zion National Park and the surrounding BLM lands contain a variety of exceptional recreational opportunities. Within the Virgin River corridor particularly, the dramatic setting, dominated by scenic grandeur, contributes to a spectrum of river-related uses and experiences—from the self-reliant adventure of canyoneering or hiking and backpacking through narrow river and creek channels, to enjoying photography and other artistic pursuits, to viewing scenery or camping, to opportunities to experience serenity, solitude, and general enjoyment along the river corridor. Balancing the need for protection of resources with providing high-quality visitor experiences is a challenge for Zion and many other national parks. Zion National Park is nestled in a larger area of incredible beauty and recreational opportunities; ultimately the park has to manage for the resources in its boundaries regardless of surrounding lands. Therefore, the park protects solitude, particularly in wilderness, and other high-quality visitor opportunities. This plan will serve as a guide for park managers as they implement management strategies that protect all of the river values that relate to the Virgin River and its tributaries. Additionally, it should be noted that the Wild and Scenic Rivers Act, section 3(d)(1), requires all comprehensive management plans to address user capacity in order to protect and enhance river values. Therefore, capacity was a required component that was addressed in the plan.

Concerning boating limits during flow rates higher than 600 cfs, Zion National Park management strongly believes it is important to consider the issue in the larger context of visitor use and public risk management in the park. The park's management strategy relating to visitors accessing the Virgin River and slot canyons prone to flash flooding events is rooted in past incidents. Multiple deaths have occurred in Zion National Park due to flash flood events. The park takes visitor safety concerns very seriously. In 2000 when it became permissible for kayakers to boat the river, requirements of using whitewater craft and obtaining wilderness permits were created with visitor safety in mind. The 600 cfs limit for kayaking the Narrows was also developed with safety in mind. When Zion National Park requested assistance for rescue operations from local boaters in 2010, boaters commented that rescue operations are too difficult when flow is greater than 600 cfs, and they would not be willing to assist with rescues when flows exceed 600cfs. After considering the difficulty of rescue and the lack of demand for permits, Zion National Park instituted a 600 cfs upper limit for kayaking the Narrows. Park records indicate that there have been many years since 1970 when flows never exceeded 500/600 cfs. Additionally, most years only had five or fewer days in the spring that exceeded the 500/600 cfs threshold. Spring flows vary each year and depend on snowpack and snowmelt. Since 2000 (the last 13 years), high flows during spring runoff have only occurred during two of those years.

Concerning low water closures along the Virgin River, the lower limit is based two things: 1) boater-hiker potential conflicts above Temple of Sinawava, and 2) potential impacts on the native fish below Temple of Sinawava as stated in the draft comprehensive management plan.

Once the river flow reaches 150 cfs visitors can safely begin hiking up into the Narrows from the end of the Riverside Walk. There can be as many as 360 hikers per hour in the less than two-mile river segment between Orderville Canyon and the end of the Riverside Walk. This river segment is also very narrow; the river extends from wall to wall in many places in the canyon. It would be very difficult for a boat to navigate safely through this crowd of people. For this reason the lower boating limit from Orderville Canyon to the Temple of Sinawava will remain at 150 cfs.

This limit also applies to the North Fork of the Virgin River below the Temple of Sinawava. Below the Temple of Sinawava, the park is concerned about adverse impacts on native fish. In 2001, as the park was evaluating kayak use in the Virgin River, the possible impacts of boating on native fish species were explored with the Utah Division of Wildlife Resources. Specialists from the division observed that fish have a flight response and retreat to cover when approached in clear water. They

did not observe such a response when the water was turbid (low visibility due to suspended sediments). The professional recommendation was to limit boating to flows high enough to pick up sediment and increase turbidity. An analysis of the relationship between flow and turbidity was undertaken; however, limited data were available for the North Fork at the flows under consideration. Therefore, flows where the turbidity increased to more than 20 NTU (turbidity units) was determined to occur in a range between 100 to 160 cfs. After consulting with local kayakers, the National Park Service selected 150 cfs as a reasonable number that both protected native fish populations and that allowed boaters access when appropriate.

APPENDIX A: NONIMPAIRMENT FINDING

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

However, the laws do give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service 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 these resources or values. An impact on any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute an impairment when there is a major or 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
- identified as a goal in the park's general management plan or other relevant NPS planning documents

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them

- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system
- any additional attributes encompassed by the specific values and purposes for which the park was established

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS threshold for considering whether there could be an impairment is based on whether an action would have major (or significant) effects.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissal of the above topics, the remaining resources for evaluation for possible impairment in the Virgin River Comprehensive Management Plan include: river free-flowing conditions and floodplains; water quality; ecological processes; fish; wildlife; and scenic/visual resources. As noted earlier, the selected action will have no or only negligible impacts on cultural or historical resources, and therefore no impairment will occur to these resources.

FREE-FLOWING CONDITION AND FLOODPLAINS

One of the key values of wild and scenic rivers is their free-flowing condition. A requirement of the Wild and Scenic Rivers Act is to provide a comprehensive river management plan that protects a designated river's free-flowing condition. A goal of the Virgin River plan is to protect and enhance free flow, promoting the river's ability to shape the geologic landscape by reducing impediments to free flow, and ensuring flows that are largely natural. The condition of the river system's floodplains is related to the river's free-flowing condition.

The streamflows in the Virgin River and almost all of its tributaries are natural and free-flowing. There are no large reservoirs on the watershed that would significantly affect flood flows. Therefore, discharge patterns show the full range of natural conditions. Water flow in the park is protected by federal reserved and appropriate water rights held by the National Park Service and recognized in the Zion National Park Water Rights Settlement Agreement. The Utah state engineer also manages the Virgin River Basin as if it is fully appropriated, so no new diversions of water are permitted. Likewise, much of the floodplains of the river and its tributaries have not been altered by people. However, the North Fork Virgin River above Birch Creek was channelized to protect the Zion Lodge. Earthen levee systems and rock-filled gabions along the riverbanks near Zion Lodge and through the Watchman campground have altered the historic floodplains in these areas.

No adverse impacts on the Virgin River's free-flowing condition or floodplains will occur as a result of the selected action. Implementation of the selected action will result in the eventual dissolution of some gabions and levees in one segment of the North Fork Virgin River, resulting in long-term, minor, beneficial impacts on the free-flowing condition and floodplains. The selected action will protect and enhance the free-flowing condition of the designated river segments. Therefore, the selection action will not result in impairment to the Virgin River's free-flowing condition and floodplains.

WATER QUALITY

Another key value of wild and scenic rivers is their high water quality. Protecting water quality is another requirement of the Wild and Scenic Rivers Act and a goal of this plan. Protection of water quality is also called for under the Clean Water Act.

Water quality conditions of the North and East Forks of the Virgin River and its tributaries are generally considered natural and high quality. They are reflective of the largely unaltered geohydrologic setting and are generally within state water quality standards. One water quality parameter of concern is fecal bacteria. The level of fecal bacteria is a chronic problem on the North Fork Virgin River upstream of the Temple of Sinawava near Chamberlain's Ranch. The level of contamination on this reach is not meeting state water quality standards, and the source of contamination is under investigation.

The selected action will result in no adverse impacts on water quality. Rather, the selected action will result in a long-term, minor, beneficial impact on water quality due to increased consultations with adjacent permit holders and landowners to reduce the impact of livestock and agricultural operations on water quality, and implementation of a visitor use management program, which will reduce the impact of people on the backcountry throughout the river corridor. Therefore, the selected action will not result in impairment of water quality.

ECOLOGICAL PROCESSES

Outstandingly remarkable values are defined by the Wild and Scenic Rivers Act as the characteristics that make a river worthy of special protection. These values must be rare, unique, or exemplary in a regional or national context. The Wild and Scenic Rivers Act mandates that the administering agencies and their comprehensive management plans protect and enhance a designated river's outstandingly remarkable values. Ecological processes supporting vegetation is an outstandingly remarkable value in some of the Virgin River designated segments due to the presence of exemplary riparian corridors and rare plant communities. The cottonwood galleries along the East Fork Virgin River and Shunes Creek provide rare examples of relatively intact, properly functioning riparian systems. Natural river processes proceed unimpeded, allowing seasonal flooding and meander migration, vegetation recruitment, and plant succession. Riparian vegetation is abundant and diverse. The Virgin River and its tributaries have created unique habitats for rare plant communities in a desert southwest ecosystem. The hanging gardens in Zion National Park, which are more numerous and larger than gardens found elsewhere, support several rare plant and animal species.

The selected action will result in no adverse effects on the river's ecological processes. Elements of the selected action will result in short- and long-term, moderate, beneficial impacts on ecological processes due to limiting access to hanging gardens, implementation of a visitor use management program that will generally reduce the environmental impacts of people on the backcountry, and allowing natural flooding when the gabions and levees along the North Fork Virgin River below the Temple of Sinawava deteriorate, which will benefit the cottonwood gallery. Therefore, the selected action will not result in impairment of the river's ecological processes.

FISH

The river's fish is an outstandingly remarkable value. Protection of this value is required under the Wild and Scenic Rivers Act. The Virgin River and its tributaries provide habitat that support up to 15 species of fish, including unique and intact habitat for four native species of fish: the Virgin spinedace, flannelmouth sucker, desert sucker, and speckled dace. The river and several of its tributaries support regionally significant levels of natural and sustainable reproduction for all four native fish species. Because the four fish species only exist in the Virgin River system, this reaches the level of national significance.

The selected action will have no adverse effects on the river's native fish. There will be minor, long-term beneficial impacts on native fish in the designated river segments due to park and BLM consultations with adjacent permit holders and landowners to reduce the impact of livestock grazing and agricultural operations on water quality, which in turn will benefit fish populations. Therefore, the selected action will not result in impairment of the river's fish.

WILDLIFE (INCLUDING THREATENED AND ENDANGERED SPECIES)

Wildlife is another outstandingly remarkable value in the Virgin River, and its tributaries support many of the park's wildlife populations, due to the habitat for and populations of desert bighorn sheep, Mexican spotted owl (a federally threatened species), and the endemic and rare Zion snail. The Mexican spotted owl breeds in many of the designated river corridors at the highest density in the state and the region. The river corridors provide the core of the designated critical habitat identified in the recovery plan for this species. The productivity of lambing grounds along the East Fork Virgin River and Shunes Creek is critical for the long-term reproductive success of the species in the region. In addition, the river corridors support 7 species of amphibians, and many of the park's 80 mammal and 299 bird species.

The selected action will have very little effect on wildlife and threatened and endangered species in the river corridors. No adverse impacts will occur. There will be a long-term, minor beneficial impact on native wildlife and threatened and endangered species from implementation of adaptive visitor use management strategies, including Leave No Trace principles, continuing general resource management efforts, such as the control of nonnative species and the restoration of habitat. Therefore, the selected action will not result in impairment of the river's wildlife.

SCENIC AND VISUAL RESOURCES

The scenery of the Virgin River system is an outstandingly remarkable value, which is one of the key features why this wild and scenic river was designated and must be protected. One of the goals of the comprehensive management plan is to establish clear direction on managing land uses and associated developments in the river corridors so that river values, including scenery, are protected.

The Virgin River and its tributaries create diverse opportunities for views of the river's unparalleled scenery, which can be both dramatic and subtle. The river and tributary canyons' elements, including contrasts in soil, rock, vegetation, and water that change depending on the time of day and season, combine to offer a landscape character that is unique and unforgettable on a scale that draws visitors from all over the world. The Narrows, Orderville Canyon, Mystery Canyon, and Deep Creek, all part of the North Fork Virgin River and its tributaries above the Temple of

Sinawava, are world-class examples of narrow river canyons framed by soaring cliffs, where lush hanging gardens and the combination of water and light define the landscape. Towering iconic features, such as the Great White Throne, dominate the North Fork Virgin River below the Temple of Sinawava. The Left Fork of North Creek also is particularly diverse in its scenic views.

The selected action will result in no adverse impacts on the river corridor's scenic/visual resources. There will be long-term, minor, beneficial impacts as a result of the scenery conservation best practices protecting the scenic viewshed, limiting new construction within the corridor, implementing adaptive management strategies to reduce visitor impacts such as social trails, revegetation of visitor-created trails and formalizing of a few trails, and supporting natural recruitment of the cottonwood gallery along portions of the Virgin River. Therefore, the selected action will not result in impairment of the river's scenic/visual resources.

SUMMARY

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the superintendent's professional judgment that there will be no impairment of the Virgin Wild and Scenic r River resources and values from implementation of the selected action.