

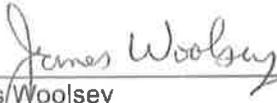


**National Park Service  
U.S. Department of the Interior**

**Great Basin National Park  
Regions 8, 9, 10 and 12**

**FINDING OF NO SIGNIFICANT IMPACT  
Strawberry Creek Restoration Project**

Recommended:

  
James Woolsey  
Superintendent, Great Basin National Park

9/16/2021

Date

Approved:

**CINDY ORLANDO**

Digitally signed by CINDY ORLANDO  
Date: 2021.09.21 14:07:25 -07'00'

Cindy Orlando  
Acting Regional Director, Interior Regions 8, 9, 10 and 12, National Park Service

Date

# 1. Introduction

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment to examine actions and potential environmental impacts associated with the Strawberry Creek Restoration Project. The purpose of this project is to implement restoration actions that support the post-fire recovery of native vegetation and fish habitat, control invasive plant species, and maintain or restore fluvial processes in the Strawberry Creek watershed. The Strawberry Creek Restoration Project is needed to address and mitigate watershed-level effects from the 2016 Strawberry Fire that are still impacting stream condition, fish habitat, and the condition and extent of native upland and riparian vegetation.

This Finding of No Significant Impact (FONSI) will be attached to the *Strawberry Creek Restoration Project Environmental Assessment* (EA) dated August 2021. This FONSI, together with the EA, constitute a complete record of the conservation planning and environmental impact analysis process for this proposal. Attached to this document is the park manager's determination that the Selected Alternative will support the post-fire recovery of the Strawberry Creek watershed and no impairment to park resources will result (Appendix D). The NPS will implement its Selected Alternative, Alternative 1 – Proposed Action, as presented in the EA.

The statements and conclusions reached in this FONSI are based on documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference through listing the applicable page number in the EA.

## 2. Selected Alternative and Rationale for the Decision

The NPS selected Alternative 1 – Proposed Action as the Selected Alternative based on the analysis presented in the EA.

The Selected Alternative will use three restoration strategies to mitigate post-fire conditions in the project area over the next ten years: stream restoration through installation of post-assisted log structures (PALS) and incorporation of large woody debris (LWD) (EA, pgs. 12-15); revegetation of native upland vegetation through seeding and planting (EA, pgs. 15-16); and invasive plant management through survey and treatment of target invasive plant species (EA, pgs. 17-18). Monitoring of stream flow, channel morphology, Bonneville cutthroat trout (BCT) populations, changes in native and invasive vegetation, and effectiveness of restoration treatments will be completed as part of the Selected Alternative (EA, pgs. 19-20). The project will also implement several resource protection measures to minimize or eliminate effects on BCT, wildlife, and introduction or spread of invasive plants (EA, pg. 49).

Installation of PALS (EA, Figure 3) and incorporation of LWD will occur within the natural stream channel and be limited to a 3-mile section of Strawberry Creek between the park boundary and 0.3 miles upstream of the Strawberry Creek Trailhead (EA, Figure 4). A maximum of 350 PALS will be installed in the stream channel using hand tools over the next ten years. LWD will be placed as needed throughout the entire 3-mile project reach. These stream restoration actions were selected to

restore channel complexity, slow or reverse incision, maintain connection between the stream and floodplain to support riparian vegetation, and reintroduce nutrients into the aquatic system to restore in-stream habitat.

Revegetation treatments will promote the establishment and persistence of native, upland vegetation, increase resilience to future disturbances, and improve resistance to invasion by nonnative plants. Seeding treatments will focus on upland habitat types and utilize native species of forbs, grasses, and shrubs that have passed recent purity and viability tests. Aerial seeding will be implemented on 1,060 acres, and hand seedings will be implemented on up to 200 acres. Plantings, using native stock that is locally available, will occur on up to 200 acres where current conditions, soils, terrain, and limitations on ground disturbance allow (EA, Figure 5).

Invasive plant survey and treatment will target invasive forb and annual grass species on 720 acres (EA, Figure 6). Treatment methods will include manual and chemical treatments covered in the 2014 Great Basin National Park Invasive Plant Management Plan, Environmental Assessment, and FONSI (EA, pg. 17) to meet NPS and state mandates to control noxious and/or invasive weed species, reduce fine fuels from annual grasses, and support the establishment and persistence of native vegetation.

## **Rationale**

Alternative 1 was selected because it best meets NPS policy (EA, pg. 9) and the project purpose to:

- Slow or reverse channel incision.
- Reestablish connectivity between the stream channel and floodplain.
- Maintain or restore the extent and condition of riparian vegetation.
- Improve habitat for Bonneville cutthroat trout.
- Control the spread of invasive plant populations.
- Promote the establishment and persistence of native vegetation.

The NPS has also determined that Alternative 1 – Proposed Action, is the environmentally preferable alternative.

## **3. Mitigation Measures**

The Selected Alternative incorporates several mitigation measures to eliminate or minimize effects on cultural resources, Bonneville cutthroat trout, introduction of invasive plants, and wildlife. Mitigations measures are listed in Appendix C of this document.

## **4. Other Alternatives Considered**

In addition to the Selected Alternative, the EA analyzed one other alternative and its impacts on the environment: Alternative 2 – No Action Alternative.

### **Alternative 2: No Action Alternative**

Under the No Action Alternative, the NPS would not implement stream restoration and revegetation treatments. Limited survey and treatment of invasive plants would occur, and only periodic monitoring of BCT populations and fish habitat would take place. Monitoring of water quantity and water quality would be greatly reduced when compared to Alternative 1 (EA, pg. 21). Post-fire impacts on stream condition, populations of Bonneville cutthroat trout, and native vegetation would continue under the No Action Alternative through further stream channel incision and erosion, loss of floodplain connectivity and riparian vegetation, and spread of invasive plants.

## **5. Public Involvement**

The initial public scoping period for the Proposed Action was from April 5, 2021 to May 5, 2021 and announced via email, press release, and social media. Four comments were received (EA, pg. 43). A public meeting and site visit were held on August 4, 2021 in the project area. Three individuals from the public attended the meeting.

The public comment period for the EA was from August 9, 2021 to September 6, 2021 and was announced via email, press release, and social media. No requests for copies of the EA were received. The press release and other announcements for the public scoping and public comment periods provided the Internet address to access and review the Proposed Action and EA on the NPS Planning, Environment, and Public Comment website. Two sets of comments were received on the EA and are addressed in Appendix A of this document. There was no media interest in this project.

## **6. Agency Consultation**

The NPS notified the Confederated Tribes of Goshute, Duckwater Shoshone Tribe, and Ely Shoshone Tribe of the proposed actions associated with the Strawberry Creek Restoration Project on December 10, 2020. They were also included in email announcements for the initial public scoping period and public comment period for the EA. No Tribal concerns were raised.

The Bureau of Land Management, U.S. Forest Service, and Nevada Department of Wildlife were contacted during the initial public scoping and public comment period for the EA. A letter of support was received from the Nevada Department of Wildlife during the public comment period. The US Army Corps of Engineers (USACE) was contacted in March 2021 and a preliminary response was received in May stating that because the stream did not appear to flow to or connect with a downstream navigable waterway, the area would not fall under ASACE jurisdiction and no permit would be required. The Nevada Department of Environmental Protection (NDEP) was contacted in

March. The NDEP stated that a permit was not required for stream restoration treatments as outlined in the Selected Alternative.

The NPS notified the Nevada State Historic Preservation Office (SHPO) of proposed actions associated with the Strawberry Creek Restoration Project in May 2021. In June 2021, the SHPO concurred with the park's determination that implementing the Proposed Action (Selected Alternative) with avoidance mitigations would have No Adverse Effect on NRHP eligible cultural resources.

## **7. Finding of No Significant Impact**

As described in the EA, the Selected Alternative will have no significant adverse impacts on cultural or natural resources. However, the Selected Alternative could have adverse impacts on Bonneville cutthroat trout, native plants, invasive plants, wildlife (birds and bats), wetlands, geological processes (sediment transport), and water quantity and quality. Potential adverse impacts on these resources will not be significant and will require minimal or no mitigation by the NPS to reduce or avoid adverse effects.

There is potential for short-term, adverse effects to BCT from streambed disturbance and sedimentation associated with installation of PALS and LWD. Adverse effects would be short-term (hours) and limited to the treatment site and immediately downstream. With mitigation measures in place to avoid BCT redds, eggs or alevins, the incorporation of LWD and installation of PALS, revegetation treatments, and invasive plant control will have long-term, beneficial effects on BCT habitat, recruitment, and distribution (EA, pgs. 26-28).

There is potential for long-term, adverse effects on native plants from nonnative or invasive plant material being introduced with soil, seed, or planting stock used in revegetation treatments. To mitigate these impacts, woody material will be locally sourced or free of soil that could contain invasive species, and seed and planting material will be certified weed-free (EA, pgs. 31-32). There are no Threatened or Endangered plant species in Great Basin National Park, and the Selected Alternative will have long-term, beneficial effects on native plant communities. Revegetation treatments will increase the available seedbank of native upland species; treatment and control of invasive plant populations will decrease competition and reduce fire potential. Stream restoration treatments will restore connectivity between the stream and floodplain improving the condition of riparian vegetation and wetland habitat (EA, pg. 29).

Nonnative or invasive plant material from soil, seed, or other planting stock used in restoration treatments has the potential for long-term, adverse effects on invasive plant populations. To mitigate these impacts, any material brought from outside the project area would be free of soil that could contain invasive species. Seed and planting material used in revegetation treatments would undergo and pass a recent purity test and be certified weed-free. The revegetation and invasive plant treatments outlined in the Selected Alternative will have long-term, beneficial effects on populations of invasive plants by reducing or eliminating populations, promoting soil stabilization, reducing

competition for native plants, improving the current condition of wildlife habitat, reducing fire danger, and limiting the spread of invasive plants onto adjacent lands (EA pgs. 31-32).

Removing standing, dead trees as material to use in PALS and LWD could have short-term, adverse effect on woodpeckers, cavity nesting birds, and certain bat species that use dead trees for roost sites. However, these impacts will be mitigated by conducting pre-treatment bird surveys, limiting work to outside the breeding bird season, and using dead and down trees rather than standing dead trees whenever possible (EA, pgs. 34-35). The Selected Alternative will have long-term beneficial effects on wildlife including elk, beaver, marmots, mule deer, raptors, and most bats and birds. There are no Threatened or Endangered wildlife species in the park.

No adverse effects on wetlands are expected under the Selected Alternative. This alternative will enhance the post-fire recovery of riparian vegetation and wetland habitat. PALS and LWD are temporary, non-construction, non-facility restoration treatments that will be installed by hand without heavy equipment. As an excepted restoration action under NPS Procedural Manual #77-1, Section 4.2.1.9 and with no potential for adverse effects, the NPS determined that a Wetland Statement of Findings was not required (EA, pg. 36).

The Selected Alternative will not have any adverse effects on geological processes (i.e., sediment transport). The Selected Alternative will aid in the recovery of the sediment transport processes that support a healthy stream corridor resulting in long-term, beneficial effects on the stream channel, aquatic habitat, and riparian vegetation (EA, pg. 38).

There is potential for the Selected Alternative to have adverse effects on water quality from increased sediment during and immediately after installation of PALS and LWD. These effects will be short-term (hours) and localized to the treatment site and immediately downstream. The Selected Alternative will have long-term, beneficial effects on water quantity by increasing the diversity of flow paths and allowing water to persist longer in the watershed and delivering more water downstream later in the summer. Potential changes in water quantity from increased evapotranspiration from reestablished riparian vegetation will be insignificant and not measurable (EA, pgs. 41-42).

There will be no significant impacts on cultural resources, public health and safety, soundscapes, water rights, or unique characteristics of the region. No controversial or highly uncertain impacts, unique or unknown risks, or elements of precedence were identified. Implementation of the Selected Alternative will not violate any federal, state, or local environmental protection law. Overall, the project will have a positive effect on long-term environmental trends.

## **8. Conclusion**

As described above, the Selected Alternative does not constitute an action meeting the criteria that requires preparation of an environmental impact statement (EIS). The Selected Alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Therefore, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

## Appendix A: Response to Substantive Public Comments

A substantive comment is defined by NPS Director's Order 12 (DO-12) as one that does one or more of the following:

- question, with reasonable basis, the accuracy of information in the environmental analysis
- question, with reasonable basis, the adequacy of the environmental analysis
- present reasonable alternatives other than those presented in the environmental analysis
- cause changes or revisions to the proposal

In other words, substantive comments raise, debate, or question a point of fact or analysis. Comments that merely support or oppose a proposal or agree or disagree with NPS policy are not considered substantive and do not require a formal response (NPS NEPA Handbook 2015).

During the public comment period of the EA, comments were received from a private individual and Baker Ranches, Inc. A letter of support from the Nevada Department of Wildlife (NDOW) was also received. Public comments resulted in minor changes to the EA. These changes are noted below and in Appendix B.

There were no substantial modifications required for Alternative 1, the Selected Alternative. The following are NPS responses to substantive and non-substantive comments received during the public comment period.

### Comments from private individual

1. On page 13 of the EA, the bottom photo is of a BDA created using posts and sagebrush.

**Response** – The bottom photo in Figure 3 (EA, pg. 13) was taken directly from a Low-tech Process-based Restoration Workshop presented by Joe Wheaton, Scott Shahverdian, and others (Low-tech Design: Designing Complexes – Field Design, slide 32, August 2020) where it was labelled by the presenter/author as an example of a channel-spanning post-assisted log structure or PALS.

2. Beaver need to be added to your introduction in the section where you list the species found in the Strawberry Creek watershed.

**Response** – Beaver (*Castor canadensis*) are included in the text in Section 3.3.4 Wildlife and Wildlife Habitat (EA, pg. 33). They are also included in Table 3 (EA, pg. 33) as a wildlife species of management concern that occurs or could occur in the project area.

3. Beaver dam analogs (BDAs) need to be added to the toolbox of stream structures.

**Response** – The installation of PALS and incorporation of LWD in the NPS Selected Alternative were chosen in collaboration with subject matter experts from the NPS and Utah

State University, including a coauthor of the Low-tech Process-based Restoration of Riverscapes Design Manual (Wheaton et. al. 2019), to best meet project objectives. The NPS understands and supports the use of beaver dam analogs for other applications. However, objectives for this project are not focused on ponding water, expansion or increase in the extent (area) of wetlands, or creating habitat for a future release of beaver.

4. You currently list the area for restoration as “The riverine wetland between the tops of the banks of the creek, within the natural channel.” This would be better described as ‘the natural valley bottom’ to allow connectivity to historic floodplain levels and increased sinuosity of the recovering creek...Defining the stream restoration boundaries to include the entire valley bottom will help achieve the best results.

**Response** – The NPS Selected Alternative does not propose to install post-assisted log structures that span the valley bottom. The area defined on page 13 of the EA accurately describes where the incorporation of LWD and installation of PALS will take place. Some restoration outcomes from these treatments (e.g. overbank flows, raising the water table) will occur outside of the natural channel and subsequently satisfy project objectives to maintain the extent of riparian vegetation and achieve floodplain connectivity.

5. Beaver should be introduced in the late summer of 2022. This will give adequate time for more riparian vegetation recovery, building of a couple of starter lodges, and for the BDAs to form ponds. There is not time this year to do the necessary work and waiting to 2023 will require possible maintenance of the BDAs and starter lodges before release. Doing this next year would give time for NDOW to acquire 4-5 beavers to populate the BDAs in that area where we made the second stop.

**Response** – As described in the EA (pg. 22), introducing beaver into the project area is outside the scope of this project. Further, the NPS does not believe that current habitat conditions are suitable for a successful introduction and persistence of released beaver in the watershed. Although the NPS agrees that beaver are a beneficial part of the natural ecosystem and would work to support them if they were to naturally disperse onto NPS lands, project objectives can be met using the strategies outlined in the Selected Alternative.

6. Seed mixes need to be adjusted for the location where they will be used and recognized that they are not for the benefit of livestock, but for the benefit of wildlife. More forbs and shrubs need to be added to the mix, and some native trees should be added to the plantings.

**Response** – The NPS agrees seed mixes should be tailored to site conditions, including native species appropriate for the vegetation and soil types of the targeted restoration site. This is outlined in Section 2.1.2 and was further clarified in the EA. See Errata (Appendix B).

Appropriate (native and local) forb species for revegetation and seeding treatments are often in short supply. The NPS will use species best suited to local conditions that are readily available.

Revegetation will focus on upland species (EA, pg. 15), not riparian species (e.g. aspen, willow, and water birch) that have started to regenerate naturally post-fire.

7. Due to the low numbers and the need for habitat improvement, the restriction on work between June 1 and August 31 would be a hindrance in providing the improvements to the habitat. This is prime field work time, and installation of PALS in the riffle areas would have a very minor adverse effect on the fish while the positive benefits are great...The currently low numbers of BCT in the riffle areas should not exclude construction of structures during the prime summer timeframes.

**Response** – The NPS does not believe that a three-month restriction on field work from June 1 through August 31 will have any lasting effect on project implementation or success. The NPS believes the best time for stream restoration treatments will be in the late summer and fall when stream flows are lower and potential impacts to BCT and breeding birds can be avoided.

### **Comments from Baker Ranches, Inc.**

1. Nevada law follows the prior appropriation doctrine and prohibits the use of water from a water source, including tributary water, without obtaining a permit from to the Nevada State Engineer that is subject to existing rights. NRS 533.020; NRS 533.325. This means NPS may not use water already appropriated by Baker Ranches to establish riparian vegetation or otherwise interfere or conflict with Baker Ranches' rights. The bank stabilization work proposed in the EA should not widen the riparian area or slow the stream flow in a manner that results in seepage or evaporative losses. Baker Ranches requests that NPS consult with Baker Ranches regarding the design, location, installation and effectiveness of specific treatments prior to and following their installation to ensure there is no impairment of Baker Ranches' water rights.

**Response** – As described on page 24 of the EA, the NPS neither plans to appropriate waters nor anticipates the need to secure additional water rights for this project. The NPS is proposing to maintain or restore stream conditions that existed prior to the 2016 Strawberry Fire. All actions in the Selected Alternative seek to restore those natural conditions, including the extent and condition of riparian areas. Although safety precautions will likely preclude public access during treatment installation, the public, including Baker Ranches, is welcome to view the treatments as they are completed and submit feedback to the park.

2. Baker Ranches agrees that NPS must collect and maintain stream flow measurements above and below treatment areas. Any indication of diminished flows that impair Baker Ranches' existing water rights should be immediately addressed.

**Response** – The NPS is proposing to maintain or restore stream conditions that existed prior to the 2016 Strawberry Fire. All actions in the Selected Alternative seek to restore those natural conditions, including stream flow. Stream flows are by nature subject to natural fluctuations on a daily, seasonally, and annual basis and are dependent on local precipitation patterns. The monitoring strategies outlined in the Selected Alternative will help determine

the long-term success of the project and monitoring stream flows pre- and post-treatment to determine any effects is a key component.

**Letter of Support from Nevada Department of Wildlife**

1. The Nevada Department of Wildlife is pleased to support the Strawberry Creek Restoration Project...We feel this project will expand upon existing management tools, and we are pleased to be a partner in this joint effort. We look forward to providing support through technical advising, feedback and review, and development of a framework.

**Response** – The NPS appreciates the support and collaboration offered by NDOW.

## Appendix B: Errata Including Text Changes to EA

This Errata contains corrections and minor revisions to the *Strawberry Creek Restoration Project Environmental Assessment*. Page number, section, and sentence locations referenced below pertain to the EA. The edits and corrections in this Errata do not result in any substantial modification to the Selected Alternative, and it has been determined that these revisions do not require additional environmental analysis.

When combined with the EA, the Errata comprise the only amendments deemed necessary for the purpose of completing compliance and documentation for the project.

### Text Changes

**Correction.** Page 9, Section 1.3, paragraph 2, third bullet, replaced “improve” with “restore” to clarify that the NPS does not seek to create new riparian areas, only to maintain and restore pre-fire conditions, which will be an improvement of current conditions.

**Addition.** Page 15, Section 2.1.2, paragraph 1, sentence 4, added “Riparian habitat would not be targeted with upland seed mixes” to clarify seed mixes and locations.

**Addition.** Page 15, Section 2.1.2, Table 1 description, sentence 2, added “to match soil and vegetation types” to clarify that seed mixes will be appropriate to natural conditions.

**Correction.** Page 16, Section 2.1.2, paragraph 1, sentence 1, changed from “Aerial seeding would be completed by a contract helicopter” to “Aerial seeding would be completed through a contract” so that either helicopter or fixed wing aircraft may be used.

**Addition.** Page 34, Section 3.3.4, paragraph 3, sentence 3, added “standing” to clarify that impacts to birds will be limited to standing trees and not to dead and down trees.

**Addition.** Page 34, Section 3.3.4, paragraph 3, sentence 4, added “and using dead and down trees rather than standing dead trees whenever possible” to clarify that using dead and down trees is a wildlife mitigation standard.

**Deletion.** Page 37, Section 3.3.6, paragraph 2, sentence 3, deleted “passive” as revegetation has been both a natural process and one affected by prior NPS seeding efforts.

**Correction.** Page 39, Section 3.3.7, paragraph 3, sentence 1, changed from “2016 fire” to “2016 Strawberry Fire” to be more accurate.

## Appendix C: Selected Alternative Mitigation Measures

Mitigation measures from Sections 3.1 and 3.3 of the Strawberry Creek Restoration Project EA to eliminate or minimize effects on cultural and natural resources are listed below. For reference, applicable page numbers from the EA are included in the table.

Section Page #	Resource Issue	Mitigation Measures
Section 3.1 pg. 25	Cultural Resources	<p>If buried and/or previously unidentified cultural resources are discovered, or if any unanticipated effects to NRHP eligible properties as a result of this action are observed, the park archeologist will be notified immediately and all necessary steps in accordance with 36 CFR 800.13(b) will be adhered to.</p> <p>Cultural resources within the APE that have been determined eligible for listing in the NRHP will be avoided by project actions that could adversely affect NRHP eligibility status. Eligible sites would have a 20-meter buffer placed around their site boundaries, and proposed actions that could adversely affect NRHP eligibility status would not be allowed within the 20-meter buffers or the site boundaries.</p>
Section 3.3.1 pg. 28	Bonneville Cutthroat Trout	<p>Population surveys will be conducted annually to determine the distribution of BCT within the project area.</p> <p>Installation of post-assisted log structures would be prohibited between June 1 and August 31 in stream reaches occupied by BCT to protect any eggs or alevins present. Other restoration treatments, including large woody debris incorporation, would not be subject to these seasonal restrictions.</p> <p>The hydraulic lines that run from the power-pack to the hydraulic post pounder will be filled with the most environmentally friendly, nontoxic fluid possible.</p> <p>The power-pack for the hydraulic post pounder will be placed on a tarp to contain any potential fuel or oil leaks and spills. A spill kit containing absorbent pads will be located on site to clean up a spill should one occur.</p>

		Refueling will take place on the road whenever possible.
Section 3.3.3 pg. 32	Invasive Plants	Material used for restoration treatments and brought from outside the project area (e.g., untreated wooden posts) would be free of soil that could contain invasive species.  All seed and planting material would undergo and pass recent purity tests and/or be certified weed-free.
Section 3.3.4 pg. 35	Wildlife – Birds	Between April 1 and July 31, pretreatment bird surveys will be completed annually before cutting or felling trees.

## Appendix D: Determination of Non-Impairment

While Congress has given the National Park Service (NPS) management discretion to allow impacts within parks, that discretion is limited by the statutory requirement, generally enforceable by the federal courts, that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This cornerstone of the Organic Act establishes the primary responsibility of the NPS: to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities to enjoy them. The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the NPS from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities Act 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 or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

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

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values, and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

The NPS Management Policies (2006) requires analysis of potential effects to determine whether actions would impair park resources. 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; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Great Basin National Park was established by Congress in 1986 to “preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values.” The 2006 NPS Management Policies state that the NPS should restore resources (1.4.7.2, pg. 12) and natural ecosystem functions that have been disrupted by past or ongoing human activities (4.1, pg. 37).

The following topics from the EA were considered for analysis:

- Bonneville Cutthroat Trout (BCT)
- Native Plants
- Invasive Plants
- Wildlife and Wildlife Habitat
- Wetlands
- Geologic Processes
- Water Quantity and Quality

Implementing the Strawberry Creek Restoration Project will not result in impairment of these or other park resources.

Bonneville Cutthroat Trout (BCT) – There is potential for short-term, adverse effects to BCT from streambed disturbance and sedimentation associated with installation of PALS and LWD. Adverse effects would be short-term (hours) and limited to the treatment site and immediately downstream.

With mitigation measures in place to avoid BCT redds, eggs or alevins, the incorporation of LWD and installation of PALS, revegetation treatments, and invasive plant control will have long-term, beneficial effects on BCT habitat, recruitment, and distribution (EA, pgs. 26-28). There will be no impairment of BCT from implementing the project.

Native Plants – There is potential for long-term, adverse effects on both native and invasive plants from nonnative or invasive plant material being introduced with soil, seed, or planting stock used in revegetation treatments. To mitigate these impacts, woody material will be locally sourced or free of soil that could contain invasive species, and seed and planting material will be certified weed-free (EA, pgs. 31-32). There are no Threatened or Endangered plant species in Great Basin National Park, and the Selected Alternative will have long-term, beneficial effects on native plant communities. Revegetation treatments will increase the available seedbank of native upland species; treatment and control of invasive plant populations will decrease competition and reduce fire potential. Stream restoration treatments will restore connectivity between the stream and floodplain improving the condition of riparian vegetation and wetland habitat (EA, pg. 29). There will be no impairment of native plants from implementing the project.

Invasive Plants – Nonnative or invasive plant material from soil, seed, or other planting stock used in restoration treatments has the potential for long-term, adverse effects on invasive plant populations. To mitigate these impacts, any material brought from outside the project area would be free of soil that could contain invasive species. Seed and planting material used in revegetation treatments would undergo and pass a recent purity test and be certified weed-free. The revegetation and invasive plant treatments outlined in the Selected Alternative will have long-term, beneficial effects on populations of invasive plants by reducing or eliminating populations, promoting soil stabilization, reducing competition for native plants, improving the current condition of wildlife habitat, reducing fire danger, and limiting the spread of invasive plants onto adjacent lands (EA pgs.31-32). There will be no impairment from invasive plants when implementing the project.

Wildlife and Wildlife Habitat – Removing standing, dead trees as material to use in PALS and LWD could have short-term, adverse effect on woodpeckers, cavity nesting birds, and certain bat species that use dead trees for roost sites. However, these impacts will be mitigated by conducting pre-treatment bird surveys, limiting work outside the breeding bird season, and using dead and down trees rather than standing dead trees whenever possible (EA, pgs. 34-35). The Selected Alternative will have long-term, beneficial effects on wildlife including elk, beaver, marmots, mule deer, raptors, and most bats and birds. There are no Threatened or Endangered wildlife species in the park. There will be no impairment of wildlife or wildlife habitat from implementing the project.

Wetlands – No adverse effects on wetlands are expected under the Selected Alternative. This alternative will enhance the post-fire recovery of riparian vegetation and wetland habitat. PALS and LWD are temporary, non-construction, non-facility restoration treatments that will be installed by hand without heavy equipment. As an excepted restoration action under NPS Procedural Manual #77-1, Section 4.2.1.9 and with no potential for adverse effects, the NPS determined that a Wetland Statement of Findings was not required (EA, pg. 36). There will be no impairment of wetlands from implementing the project.

Geologic Processes – The Selected Alternative will not have any adverse effects on geological processes (i.e., sediment transport). The Selected Alternative will aid in the recovery of the sediment transport processes that support a healthy stream corridor resulting in long-term, beneficial effects on the stream channel, aquatic habitat, and riparian vegetation (EA, pg. 38). There will be no impairment of geologic processes from implementing the project.

Water Quality and Quantity – There is potential for the Selected Alternative to have adverse effects on water quality from increased sediment during and immediately after installation of PALS and LWD. These effects will be short-term (hours) and localized to the treatment site and immediately downstream. The Selected Alternative will have long-term, beneficial effects on water quantity by increasing the diversity of flow paths and allowing water to persist longer in the watershed and delivering more water downstream later in the summer. Potential changes in water quantity from increased evapotranspiration from reestablished riparian vegetation will be insignificant and not measurable (EA, pgs. 41-42). There will be no impairment of water quality or quantity from implementing the project.

There will be no significant impacts or impairment of cultural resources, public health and safety, soundscapes, water rights, or unique characteristics of the region. No controversial or highly uncertain impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the Selected Alternative will not violate any federal, state, or local environmental protection law.

## SUMMARY

As described above, adverse effects and environmental impacts anticipated as a result of implementing the Selected Alternative on 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 significant in the park's general management plan or other relevant NPS planning documents, will not rise to levels that would constitute impairment of park values and resources.