

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

**Rocky Mountain National Park
Colorado**



FINDING OF NO SIGNIFICANT IMPACT REROUTES AND REPAIRS TO FLOOD DAMAGED TRAILS LAWN LAKE, YPSILON LAKE, AND ALLUVIAL FAN TRAILS

BACKGROUND

In compliance with the National Environmental Policy Act of 1969 (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with the proposed reroutes and repairs of five trails that were heavily damaged or lost during the September 2013 flood: Lawn Lake, Ypsilon Lake, Alluvial Fan, Aspen Brook, and Twin Sisters. The project is needed to address damaged portions of these trails, while protecting natural and cultural resources and preserving wilderness character.

This finding of no significant impact (FONSI) and the EA constitute the record of the environmental impact analysis and decision-making process, as required by NEPA. This FONSI is being prepared for the Lawn Lake, Ypsilon Lake, and Alluvial Fan Trails only. Because of issues related to equestrian use, a decision on the Aspen Brook and Twin Sisters trails will be made sometime in the future.

The FONSI will be available on the NPS Planning, Environment and Public Comment (PEPC) website at <http://parkplanning.nps.gov/romo>.

SELECTED ACTION

Based on the analysis presented in the EA, NPS selected Alternative B, Establish and Maintain a Travel Route (the NPS preferred alternative) because it best meets the purpose and need for the project as well as the project objectives to:

- Allow for nonmotorized recreational uses of trails damaged by flooding.
- Protect and preserve natural, cultural, and scenic values along all rerouted or repaired trails.
- Preserve wilderness character for the trails located in designated wilderness, supporting visitor access, safety, and resource protection.
- Efficiently implement construction and repair work while minimizing impacts on visitors.
- Use trail design and construction methods that minimize impacts on park resources in accordance with NPS regulations and policies and consistent with park regulations and policies.

The park's selected action for each of the three trails is summarized below:

Lawn Lake Trail – A new trail will be constructed around the four trail sections damaged or washed out, and limited improvements will be made to an existing informal trail. Trail tread will be about 3 feet wide, with trail clearing limits 6 feet wide by 10 feet high. Pedestrian and equestrian use will be allowed.

Ypsilon Lake Trail – A new timber foot traffic bridge 30 feet in length will be constructed across the Roaring River. The footbridge will be a minimum of 12 inches wide and include a handrail if the walking surface is 3 feet or more above the river. New trail approaches on either side of the river will be constructed, with a trail tread about 3 feet wide, and trail clearing limits approximately 6 feet wide by 10 feet high. Pedestrian and equestrian use will be allowed on the trail, but equestrian use will not be allowed on the bridge (instead a horse stream crossing will be established).

Alluvial Fan Trail – A new accessible trail will be constructed between the existing east and west parking lots with a new bridge across the Roaring River. An accessible overlook trail to Horseshoe Falls will be constructed. A 150-foot portion of the accessible trail will extend into wilderness to reach the overlook. The trail tread will be about 5 to 6 feet wide, with trail clearing limits approximately 8 feet wide by 8 feet high. Only pedestrian and ABA accessible use will be allowed.

The following actions are common to the selected action for all of the trails (for additional detail about these elements, see pages 20-24 of the EA):

- New trails will be constructed following sustainability design concepts with the exception of Section 2 of the Lawn Lake Trail, where the approximately 220-foot and 175-foot informal trails that have developed will be improved in-place and sustainability design concepts will not be fully implemented.
- All new trails will be incorporated into the regular trail maintenance schedule.
- Temporary trail closures may be needed during construction for several weeks, particularly when the trail is being stabilized in place. Construction of trail reroutes may allow hiker passage along existing routes. The park will advertise in advance of any trail closures or detours.
- Native timber, rock, and soil from on-site locations within areas surveyed for biological and cultural resources will be used to the extent possible to minimize the transport of material on backcountry trails.
- Staging and stockpiling areas will be located within existing disturbed areas, where feasible or in sites devoid of vegetation, typically at the construction site and at the trailhead or nearby parking areas..
- Trail construction on Lawn Lake and Ypsilon Lake Trails will entail limited use of mechanized equipment and the use of pack stock and helicopter support. Griphoists and rock dollies will be used to move rocks greater than 10 pounds and gas or battery powered drills will be used to drive in lags.
- The 150-foot section of trail in the wilderness for the ABA accessible Alluvial Fan Spur Trail will include trail reconstruction with the use of mechanized equipment and without the use of pack stock or helicopter support. Griphoists and rock dollies will be used to move rock greater than 10 pounds and gas or battery powered drills will be used to drive in lags. Due

to the large amount of large boulders and other flood debris in the Alluvial Fan Spur trail corridor, crews will also use gas powered generators and electric drills to drill holes for quarrying and blasting of rock. Also, to finish the final tread layer of the ABA accessible Alluvial Fan Spur trail, the final tread layer will be compacted by using a motorized flat plate compactor.

- All abandoned trail sections will be reclaimed and revegetated.

MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

The selected action incorporates the mitigation measures and best management practices (BMPs) listed in Appendix A of this document. The project will implement a number of BMPs to minimize the degree and/or severity of adverse effects on floodplains; water resources; wildlife and species of concern; vegetation; soils; wilderness; cultural resources; visitor use and experience; air quality and soundscapes; and public health, safety, and park operations. NPS can add additional mitigation measures and BMPs to this list in the future at its discretion as long as the additional measures do not in and of themselves cause environmental impacts.

Because most of the trails are located in designated wilderness, the park will implement trails work using the management actions that are the minimum necessary for wilderness administration according to the *Minimum Requirements Decision Guide* prepared by the park to evaluate alternative methods and tools for constructing and repairing trails in wilderness.

DECISION RATIONALE

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

Implementation of the selected action will result in some adverse impacts; however, the overall benefit of the project outweighs the negative effects. No significant resource effects were identified in the EA. A summary of impacts is provided below; for additional detail, see pages 55-81 of the EA.

New trail construction will generate soil and vegetation disturbance, but impacts will be partially offset by stabilization and revegetation of abandoned damaged trail sections and elimination of surface disturbance along social trails. For Lawn Lake Trail, about 0.24 acre of soils and vegetation will be disturbed for trail improvements and reroutes, with about 0.16 acre of existing disturbed trail revegetated and protected. For Ypsilon Lake Trail, about 0.08 acre of soil and vegetation will be disturbed for trail construction, with about 0.01 acre of abandoned trail revegetated. For Alluvial Fan Trail, about 0.42 acre of sediment and rock deposited by flooding will be impacted, but no adverse impacts on soils are anticipated. Vegetation disturbance within the same area will occur primarily to nonwoody vegetation and weeds that established on the recent flood deposition.

About 0.32 acres of vegetated wildlife habitat will be lost through trail clearing along Lawn Lake and Ypsilon Lake Trails. This impact, though adverse, is considered minor given that this type of wildlife habitat is common in the park. Furthermore, this habitat loss will occur along long narrow swaths of the reroutes, rather than in one, single site, thereby reducing the overall impact to wildlife habitat. Additionally, work on the Alluvial Fan Trail will result in loss of about 0.42 acre of soil and rock and some understory species such as nonnative cheatgrass and Canada thistle,

all of which provides limited wildlife habitat. Overall, habitat loss from trail clearing will be offset by restoration of abandoned trail sections of 0.17 acres.

A portion of the Alluvial Fan Trail reroute will occur near the West Alluvial Fan bighorn sheep protection closure area, but impacts on bighorn sheep will be negligible because only hand tools will be used for trails work between April 15 and July 15. Exceptions to this limitation will be as follows: 1) if monitoring of bighorn is conducted prior to work commencing and no ewes and/or young lambs are identified in the area, use of mechanized equipment can commence, 2) If monitoring of bighorn is conducted prior to work and ewes and/or lambs are observed, use of equipment may commence in coordination with bighorn observations to assess disturbance; if no adverse impacts are observed mechanized equipment use can continue independent of bighorn monitoring, and 3) once ewes with lambs are being observed at Sheep Lakes use of mechanized equipment can commence.

Elk, migratory birds, small mammals, and other wildlife will be temporarily displaced during trail construction work typically occurring from May to September over one to three years.

Trail and bridge work will be implemented in a manner to reduce the potential for fine sediment to be transferred into the Roaring River to a negligible level. Stabilizing and revegetating abandoned trail sections will further reduce the potential for impacts. Rerouting sections of the trail farther from the river will be beneficial for fish and will reduce the potential for future trail repairs, which could impact fish.

The selected action may affect, but is not likely to adversely affect, the following species listed as threatened and endangered under the Endangered Species Act: greenback cutthroat trout (*Oncorhynchus clarki stomias*), Mexican spotted owl (*Strix occidentalis lucida*), and Canada lynx (*Lynx canadensis*). The selected action will not occur in critical habitat for any of these species. (For further information on these federally listed species, see below under the heading, "Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.")

New trails will adversely impact wilderness characteristics during construction and impact wilderness from new ground disturbance and human manipulation. However, trail improvements will result in a beneficial effect on wilderness character from protecting and restoring the natural quality of the wilderness area. Trail repairs and reroutes will have a beneficial effect on visitor use and experience with improved safety and access. Adverse impacts on trail use and access are possible during trail construction and restoration work.

Degree of effect on public health or safety

BMPs will be implemented during trail repairs and reroutes work to provide for visitor and worker safety during construction activities. Improved trail conditions will have a beneficial effect on public health and safety.

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

Throughout the environmental process, the proposal to repair and reroute the three trails was not highly controversial and the effects are not expected to generate future controversy. None of the identified environmental effects from implementation of the project were highly controversial and there is no indication of controversy over the nature of the effects. Given the substance of public comments, there is no evidence that the effects on the quality of the human environment are highly controversial.

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

Trails work meets project objectives through implementation of structural improvements that repair and correct damaged conditions; address public safety; provide for visitor enjoyment; and protect park natural and cultural resources, and wilderness values. The anticipated effects on the human environment, as analyzed in the EA, are not highly uncertain or unique and do not involve unknown risks. Resource conditions in the project area are well known and the anticipated impacts from implementing commonplace trail repair and reroutes are understood based on NPS experience with similar projects.

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

Trail repairs and reroutes of the three trails will not result in significant adverse effects on the natural environment, cultural resources, or visitor experience, and will not set a precedent for future actions that could have significant effects because the selected action will primarily be replacing and repairing trails that previously existed.

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

The EA concluded that past, present, and future activities, when coupled with the impacts of the selected action for trail repairs and construction, will have both adverse and beneficial cumulative effects. No significant adverse cumulative effects were identified.

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

Several cultural resource surveys have been conducted in the park and within the project area (Brunswick 2005; Butler 2005, ERO 2015b) and a multiple property documentation for the trail system was completed in 2006 (Standish 2006a, 2006b). Based on the results of this work, it was determined that trail improvements and reroutes would avoid or otherwise not impact these resources and, thus, the topics of archeological and historic resources were dismissed from further analysis in the EA. In accordance with section 106 of the National Historic Preservation Act (NHPA), the NPS provided the Colorado State Historic Preservation Officer (SHPO), an opportunity to comment on the effects of this project with regard to historic properties. The NPS submitted the results of cultural survey of the project area to the SHPO on March 26, 2015. In a letter dated April 17, 2015, the SHPO concurred with the park's determination on the eligibility status for several resources discovered in the project area. The SHPO also concurred that the proposed undertaking would have no adverse effects on historic properties with implementation of management recommendations.

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

Trail projects will occur in, or near, habitat for the following species listed as threatened and endangered under the Endangered Species Act: greenback cutthroat trout (*Oncorhynchus clarki stomias*), Mexican spotted owl (*Strix occidentalis lucida*), and Canada lynx (*Lynx canadensis*).

The existing trails already experience substantial visitor use, which will not change if the trails are rerouted. Noise associated with construction activities along the Lawn Lake and Ypsilon Trails, such as use of chainsaws and other machinery, has the potential to affect the Canada lynx in that it is possible a Canada lynx could pass through the areas during construction and be displaced by increased noise and human activity. If this were to occur, the effects on lynx will be minimal and temporary because of the presence of similar habitat in the surrounding area. Reconstructing or rerouting the Lawn Lake and Ypsilon Trails will not create a movement barrier for lynx, but will result in a loss of 0.24 acre and 0.08 acre of habitat, respectively. The Alluvial Fan Trail project area does not provide quality habitat typically used by Canada lynx, although Canada lynx could move through the area occasionally, using the riparian area as a movement corridor. In the unlikely event a Canada lynx were to move through the area during construction of the Alluvial Fan trail reroutes and repairs, effects will be the same as described for the Lawn Lake and Ypsilon Trails.

Neither the Lawn Lake Trail nor the Ypsilon Trail will affect the Mexican spotted owl, because no habitat is present in these areas. The proposed trail reroutes and repairs to the Alluvial Fan Trail will not alter forest stands suitable for Mexican spotted owl and, thus, there will be no effect on the Mexican spotted owl.

For project elements that occur along the Roaring River, with greenback cutthroat trout, project activities will avoid work in the river bed and no uncured concrete will be in contact with water in the river.

The selected action will not occur in critical habitat for any of federally listed threatened or endangered species.

Given this analysis, the selected action may affect, but is not likely to adversely affect, these species. In accordance with the Endangered Species Act, the NPS sent a letter to the U.S. Fish and Wildlife Service (USFWS), on September 8, 2015, seeking concurrence on this determination of effects. The USFWS responded in a letter dated October 9, 2015, concurring with the park's findings. The USFWS also concurred that the selected action will not occur in critical habitat for any of these species.

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

No historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas will be affected.

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

The selected action does not violate any federal, state, or local environmental protection laws.

SUMMARY OF ANALYSIS

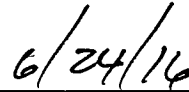
As described above, the selected action does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The selected action will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Based on the foregoing, the NPS has determined that an EIS is not required for this project and thus will not be prepared.

Approved:



Sue E. Masica
Director, Intermountain Region, National Park Service



Date

APPENDIX A – MITIGATION MEASURES

To minimize impacts related to the action alternatives, the NPS would implement Best Management Practices (BMPs) and resource protection measures.

BMPs are primarily focused on hand construction because most of the trail work would occur in wilderness areas with limited use of mechanized equipment. However, construction of the Alluvial Fan Trail, except for a short spur, is located outside of wilderness, where mechanized equipment would be used to facilitate trail work. Thus, some of the BMPs are directed at minimizing impacts associated with construction equipment.

General Measures

- The construction area limits would be clearly defined, fenced, flagged, and delineated to keep ground disturbance to a minimum. No disturbance would occur beyond these limits other than protection measures for erosion/sediment control.
- All contractor employees and subcontractors shall attend an orientation session(s) regarding park regulations focused on minimizing impacts on resources, human health and safety, and appropriate housekeeping.
- All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project area upon project completion. Construction debris would be hauled from the park to an appropriate disposal location.
- The park has developed a comprehensive list titled, "Construction Stipulations for Native Plant Conservation and Restoration," to help minimize impacts on natural resources. These measures cover all aspects of trail construction, including implementation, construction limits, equipment, clearing and grubbing, excavation, topsoil salvage, vegetation salvage, rough grading, finish grading, imported aggregate and soil, placement of topsoil, erosion control, seeding, and mulching and would be incorporated into contract documents. The park will also apply the 2006 Vegetation Restoration Management Plan (NPS 2006) to guide revegetation activities.

Floodplains

- Staging, materials and equipment would be located outside of the floodplain to the extent possible.
- Sustainable design principles, such as the use of stepping stones in streams or bogs or the use of foot logs to span small streams to minimize impacts on the natural environment, would also be used.

Water Resources

- During earthwork, standard erosion-control measures such as silt fencing would be used, following the direction of the 2006 Rocky Mountain National Park Vegetation Restoration Management Plan.
- BMPs would be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.
- All vehicle and equipment fueling would occur more than 100 feet from any surface water in a location where a fuel spill would not be able to enter the water.

- A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, would be prepared.

Wildlife and Species of Concern

- Construction personnel would be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Field surveys for migratory bird nests and cavities would be conducted prior to ground-disturbing activities and vegetation removal during the breeding and nesting season. Where active nests are present, vegetation removal would not occur until after the young have fledged, and ground-disturbing activities would not occur within 100 feet until the young have fledged.
- From April 15 to July 15 only hand tools will be used on the Alluvial Fan Trail to minimize impacts on bighorn sheep lambing. Exceptions to this limitation will be as follows: 1) if monitoring of bighorn is conducted prior to work commencing and no ewes and/or young lambs are identified in the area, use of mechanized equipment can commence, 2) If monitoring of bighorn is conducted prior to work and ewes and/or lambs are observed, use of equipment may commence in coordination with bighorn observations to assess disturbance; if no adverse impacts are observed mechanized equipment use can continue independent of bighorn monitoring, and 3) once ewes with lambs are being observed at Sheep Lakes use of mechanized equipment can commence.
- Construction activity in montane meadow habitat with elk rutting activity would be avoided from September 15 to October 31. If rutting elk are not observed near the project work area, work may proceed.
- Potential impacts on boreal toads and other amphibians, such as boreal chorus frogs and tiger salamanders, would be avoided by constructing the bridge crossing outside of the breeding season and spanning the drainage with a bridge. Also prior to starting work in the Aspen Brook drainage, biologists would conduct searches for boreal toad tadpoles upstream and downstream in the project area for the bridge crossing.

Vegetation

- Disturbance to vegetation would be avoided as much as possible and contained to as small a trail corridor as possible.
- All equipment entering the park would be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.
- All disturbed areas would be revegetated with native species. Revegetation plantings, if necessary, would use native species from genetic stocks originating in the park. Revegetation efforts would focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas would be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.
- In an effort to avoid introduction of exotic plant species, no hay bales would be used. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any

erosion control that may be necessary: rice straw, straws determined by the NPS to be weed-free (e.g., Coors barley straw or Arizona winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.

- Nonnative invasive plant infestations near disturbed areas would be treated on a yearly basis for a minimum of three years following project completion.

Soils

- Disturbance to soils would be contained to as small a footprint as possible while meeting project objectives.
- Erosion-control measures that provide for soil stability and prevent movement of soils into waterways would be implemented.
- Topsoil would be salvaged, stored in approved areas, and used to restore temporarily disturbed areas following construction or to restore abandoned trail alignments.
- To minimize the amount of ground disturbance, staging and stockpiling areas would be placed on previously disturbed land where feasible.

Wilderness

- For trail improvement activities in wilderness where motorized equipment or mechanical transport are approved, the activities would be timed to minimize impacts on park users and resources. Time of day, day of week, and season would be considered.

Cultural Resources

- Known historic sites and isolated occurrences would be avoided during construction.
- Should construction unearth previously undiscovered cultural resources, work would be stopped in the area of any discovery and the NPS archeologist would consult with the Colorado State Historic Preservation Office and the Advisory Council on Historic Preservation, as necessary, according to 36 CFR 800.13, *Post Review Discoveries*. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.
- The park would ensure that all personnel who work on the trail are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel would also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic would be minimized in the area of the site. Equipment and materials staging areas would also avoid known archeological resources.

Visitor Use and Experience

- Signs, press releases, and other communication methods would be used to inform visitors about construction, trail access, and any trail closures or detours during construction.
- Barriers or signs would be used to deter visitor travel on abandoned trail segments to allow restoration of these areas.

Air Quality and Soundscapes

- Fugitive dust generated by construction would be controlled as necessary by spraying water on the construction site.
- Any blasting would conform to NPS-65, Explosives Use and Blasting Program (1991), specifications. All blasting charges would use the minimum amount necessary to accomplish the task. All blasting would be used to shatter, not distribute, any material.
- All construction motor vehicles and equipment would have mufflers conforming to original manufacturer specifications that are in good working order to prevent excessive or unusual noise, fumes, or smoke.
- To reduce noise and emissions, construction equipment would not be permitted to idle for longer than two minutes when not in use.

Public Health, Safety, and Park Operations

- Appropriate barriers and barricades would be used to clearly delineate work areas and provide for safe visitor travel near construction areas.
- Construction workers would wear appropriate attire such as hard hats, gloves, and goggles to protect themselves from natural hazards. Visitors would not be allowed into construction zones.
- Trucks hauling debris and other loose materials would be covered to maintain adequate freeboard to prevent spillage to paved surfaces.
- Emergency response protocols would be developed for implementation during construction. Construction activities would be conducted in accordance with established safety protocols.
- Employees and construction crews would be required to park their vehicles in designated locations.
- Construction workers and supervisors would be informed about the special sensitivity of park values, regulations, and appropriate housekeeping.

APPENDIX B – NON-IMPAIRMENT FINDING

The NPS Management Policies 2006 require analysis of potential effects to determine whether actions will 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, adverse impacts on park resources and values.

However, the laws do give the NPS 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 NPS the management discretion to allow certain impacts within the park, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, will 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, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect 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
- 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; and
- 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's threshold for considering whether there could be an impairment is based on whether an action will have significant effects.

Impairment findings relate directly to park resources and values; the Organic Act does not consider visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations to be park resources or values so they can be dismissed from impairment review. Those topics remaining to be evaluated for impairment include soils and vegetation; wildlife, including special status species; and wilderness.

Soils and Vegetation

The selected action will require localized earthwork and vegetation clearing to reestablish the tread and install water bars, drainage features, and erosion-control measures. The work will be conducted with a combination of hand tools and mechanized equipment. Most of the improvement work will be conducted within the footprint of the trail, although some earthwork will be necessary for trail segments that will be rerouted, and for the Alluvial Fan Trail where it crosses the alluvium deposited by the 2013 flood. Because of the limited area of new disturbance and implementation of drainage and erosion-control measures, adverse impacts on soils and vegetation will be minor, with a beneficial effect from improved trail stability over the life of the trail.

Trail rerouting will disturb new areas of soil and vegetation. New trail design will incorporate drainage and erosion-control measures. Because this work will be conducted mostly by hand, the area of soil and vegetation disturbance will be contained to the narrow trail corridor. New trails will have a localized adverse impact on soil and vegetation productivity over the life of the trail. Revegetation and stabilization of abandoned sections of damaged trail and social trails will have a beneficial effect on soils and vegetation. Specific soil and vegetation disturbances are summarized below.

Lawn Lake Trail. About 0.24 acre of soils and vegetation will be disturbed for trail improvements and reroutes, with about 0.16 acre of existing disturbed trail revegetated and protected.

Ypsilon Lake Trail. About 0.08 acre of soil and vegetation will be disturbed for trail construction, with about 0.01 acre of abandoned trail revegetated.

Alluvial Fan Trail. About 0.42 acre of sediment and rock deposited by flooding will be impacted, but no adverse impacts on soils are anticipated. Vegetation disturbance within the same area will occur primarily to nonwoody vegetation and weeds that established on the recent flood deposition.

The selected action will not result in an impairment of soils and vegetation because much of the area of impact is in areas of previous disturbance and because abandoned trails and social trails will be revegetated to reduce erosion and soil loss.

Wildlife, Including Special Status Species

Trail projects will occur in, or near, habitat for the following species listed as threatened and endangered under the Endangered Species Act: greenback cutthroat trout (*oncorhynchus*

clarki stomias), Mexican spotted owl (*Strix occidentalis lucida*), and Canada lynx (*Lynx canadensis*).

However, trail repairs and reroutes will occur along existing trails or close to existing trails and will result in a net loss or disturbance of habitat ranging from about 0.08 to 0.42 acre depending on the trail. For trails along streams with greenback cutthroat trout, project activities will avoid work in the streambed and no uncured concrete will be in contact with water in the streams. The NPS determined, and the US Fish and Wildlife Service concurred, on October 9, 2015 that the proposed project may affect, but is not likely to adversely affect, the greenback cutthroat trout, Mexican spotted owl, and Canada lynx. The selected action will not occur in critical habitat for any of these species. There will be no effect on other federally listed species. Thus, the selected action will not result in an impairment to the Canada lynx, greenback cutthroat trout, or Mexican spotted owl.

Wilderness

The selected action involves various levels of trail repairs, reconstruction, and rerouting in wilderness for all but the Alluvial Fan Trail, which only extends 150 feet into wilderness. Trail improvements and rerouting will impact the untrammeled natural character of wilderness along with opportunities for solitude or primitive and unconfined recreation.

Trail construction on Lawn Lake and Ypsilon Lake Trails will be done with the use of limited mechanized equipment and the use of pack stock and helicopter support. Unnatural sounds during construction from the use of chainsaws, a rock drill, a generator, possible rock blasting, and use of helicopters for material delivery will generally be low and disturbance will mostly be contained to the narrow trail corridor. The 150-foot section of trail in the wilderness for the ABA accessible Alluvial Fan Spur Trail will include trail reconstruction with the use of mechanized equipment. Pack stock or helicopter support will not be used. Elevated noise levels from these activities will result in adverse impacts on the wilderness soundscape and qualities of natural and outstanding opportunities for solitude; however, the effects will be localized and will occur for four to five months in the summer for one to three years depending on the trail.

For those trail segments undergoing limited improvements, adverse impacts on wilderness character will be minor, with a beneficial effect from active or natural revegetation and restoration of social trails. Trail rerouting will cause human disturbance of new areas within the wilderness; however, old trail sections will be restored. New trails will have a localized adverse impact on undeveloped and natural wilderness qualities over the life of the trail. Native materials will be used for reconstructed trail sections to protect the natural qualities of the wilderness character, wherever possible.

The selected action will have adverse effects on wilderness qualities during the four- to five-month annual construction period occurring over one to three years and will have a beneficial effect on primitive recreation over the life of the trail. Thus, the selected action will not impair designated wilderness.

Conclusion

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 park resources and values from implementation of the selected action.

APPENDIX C – ERRATA

Responses to Comments

The EA was made available for public review and comment during a 30-day period originally ending April 25, 2016. However, the park extended the comment period until April 29, 2016 to allow additional time for public input. A public meeting was held in Estes Park on April 13, 2016 to present results of the EA and answer questions.

During the public comment period, 11 comments were received by the NPS through the PEPC system and one letter from the Comanche Nation. Several commenters provided support for the proposed action for all five trails. The majority of comments were about equestrian use on the Twin Sisters and Aspen Brook trails. These comments are being addressed separately, and a decision on the Aspen Brook and Twin Sisters trails will be made sometime in the future.

According to NPS policy, substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

Substantive comments on the *Reroutes and Repairs to Flood Damaged Trails Environmental Assessment* (EA) for Lawn Lake, Ypsilon Lake, and Alluvial Fan Trails focused primarily on the Alluvial Fan Trail and potential impacts to bighorn sheep. These comments did not result in changes to the text of the EA. Responses to these comments follow.

Comment 1: A commenter expressed concern about the location of the proposed overlook for the falls on the accessible Alluvial Fan Trail inside the wilderness boundary. The commenter thought the proposed location would continue leading to visitors leaving the trail and scrambling over boulders to view the falls.

Response: The park chose to extend the overlook trail into the wilderness because historically many visitors would hike beyond the existing overlook to get a better view of Horseshow Falls. By constructing a formalized trail to this location, resource damage caused by visitors hiking off-trail will be minimized. Construction of an accessible trail to the Falls will also allow more visitors to enjoy views from this vantage point. The park will use signs to discourage visitors from off-trail use.

Comment 2: A suggestion was made to end the spur trail to the overlook at the current location rather than extending it to the falls to avoid disturbing bighorn sheep that use the area.

Response: The park will use signs to discourage visitors from off-trail use. See the response below for additional information about protection of bighorn sheep.

Comment 3: A commenter had concerns about people approaching bighorn sheep and thought the new trail alignment west of the Roaring River would allow easier off-trail access for visitors to approach and disturb bighorn sheep. This commenter suggested locating as much of the trail as possible on the east side of the river, which would require a bridge crossing farther downstream than the proposed location.

Response: The park's preferred trail location for the Alluvial Fan Trail was identified based on the most suitable terrain and slopes for constructing an accessible trail, as well as the

best location for constructing a bridge and allowing ABA access to the base of the falls at the new proposed overlook. The proposed trail alignment crosses the Roaring River downstream of the previous location with a little to no change in the proportion of trail on the east and west sides of the Roaring River. Additionally, the majority of the new trail alignment on the west side of the Roaring River is further downslope than the previous trail alignment which should allow for greater buffer from the trail to bighorn use areas. The bighorn sheep cross above the falls well above the proposed trail terminus and with the entire Horseshoe Falls as a buffer between visitors and the bighorn crossing. The buffer should be adequate to mitigate disturbance of bighorn sheep while traversing the Roaring River. While visitor disturbance of bighorn sheep is a concern, historically visitors have wandered off-trail seeking better views or photographs of bighorn sheep. This is likely to continue regardless of trail location.

From April 15 to July 15 only hand tools will be used on the Alluvial Fan Trail to minimize impacts on bighorn sheep lambing. Exceptions to this limitation will be as follows: 1) if monitoring of bighorn is conducted prior to work commencing and no ewes and/or young lambs are identified in the area, use of mechanized equipment can commence, 2) If monitoring of bighorn is conducted prior to work and ewes and/or lambs are observed, use of equipment may commence in coordination with bighorn observations to assess disturbance; if no adverse impacts are observed mechanized equipment use can continue independent of bighorn monitoring, and 3) once ewes with lambs are being observed at Sheep Lakes use of mechanized equipment can commence.