

National Park Service
U.S. Department of the Interior

Denali National Park and Preserve
Alaska



Finding of No Significant Impact

**For Construction of New Trails in the Savage River Area of
Denali National Park**

October 2009

Recommended:

[Signature]
AS

Superintendent, Denali National Park and Preserve

10/15/09
Date

Approved:

Aucy. Martin
Regional Director, Alaska

10/21/09
Date

FINDING OF NO SIGNIFICANT IMPACT

Construction of New Trails in the Savage River Area of Denali National Park Denali National Park and Preserve, Alaska October 2009

The National Park Service (NPS) prepared an environmental assessment (EA) to evaluate construction of numerous new trails in the area between the Savage River and the Savage River Campground and new Savage River Rest Stop between Mile 12.4 and Mile 14.7 of the Denali Park Road in Denali National Park (DENA), Alaska.

The NPS has selected Alternative 3, the preferred alternative, Construction of the Savage Area Trails and the Alpine Meadow Trail, with the mitigation measures. Under this alternative, the NPS would construct and maintain the following trails: the Savage Camp Interpretive Trail, the Savage Campground to Rest Stop Connector Trail, the Savage Rest Stop to Park Road Sidewalk, the Savage Roadside Path, and the Savage Rock Loop Trail. Gravel to build the trails will either be found onsite through cut and fill methods, will come from the Mile 27 Teklanika Pit, or will be purchased from outside the park sources. Most of the trails would be constructed to be accessible to ADA standards for width, slope, and compaction. Mitigation measures have been integrated into the proposal.

Responses to public comments are found in Appendix A.

ALTERNATIVES

Three alternatives were evaluated in the EA.

Alternative 1, No Action

Under Alternative 1, no Savage Alpine Trail would be constructed above the Phase II Trail planned to be constructed above Savage Rock, and the existing Savage Rock Trail would not be added to on the back side to form a loop trail. Visitors hiking above that point or over toward the Savage Campground would find their own path to ascend or descend. No roadside path would be built from the Savage Cabin to the new Rest Stop. Pedestrians would continue to walk along the road shoulder. No connector trail would be built between the Savage Campground and the new Rest Stop and no pedestrian path would be built alongside the Rest Stop entrance road.

Alternative 2, Construction of Savage Area Trails including a High Alpine Trail

In addition to the trails described in the section Actions Common to Both Action Alternatives, under this alternative the NPS would construct and maintain a Savage High Alpine Trail.

This 18-30 inch wide trail would be constructed to extend uphill from the approved Phase II Trail that extends above the Savage Rock Trail above the Savage East parking lot. Most of this trail would be built in designated wilderness. The Savage Rock Trail extends up to an elevation

of about 2,800 feet, and the Phase II Trail is slated to extend that trail to about 3,600 feet elevation.

The Savage High Alpine Trail would have 4 sections:

Section A would extend eastward from the 3,600 feet elevation to a high ridgeline at about 4,600 feet elevation. This section of the Alpine Trail would be about 5,000 feet long and would be fairly steady at a 20% grade. The tread would be benched into the slope and most of the material used to shape the tread would be from the cuts used to create the benched trail. The trail would be out-sloped up to 10% to shed water without the need for structures like water bars.

Section B would descend from the minor saddle at 4,600 feet back down to the 12.4 Mile creek bed at about the 3,500 foot elevation. This section of trail would be about 6,000 feet long and would traverse and turn down the open hillside to keep a steady 20% grade. The tread would be benched into the slope and most of the material used to shape the tread would be from the cuts used to create the benched trail.

Section C would extend for about 7,000 feet within the floodplain of 12.4 Mile Creek. This section would drop from about the 3,500 foot elevation to about the 2,950 foot elevation. This section would be constructed on the creek bed and marked with cairns in year 2010, but it would eventually be built on the creek bench where it would require heavier construction methods because of the soft soils.

Section D would extend for about 3,000 feet within the spruce-cottonwood forest on the west side of 12.4 Mile Creek from the 2,950 foot elevation to about the 2,800 foot elevation at the park road near the Savage Rest Stop. This section would be built up to 6 feet wide and would be built to ADA standards. About 1,000 feet of this trail section would be built in designated wilderness and would be built to minimum ADA standards for width, and about 2,000 feet of this trail would be built in a wilderness exclusion.

Alternative 3, Construction of Savage Area Trails including an Alpine Meadow Trail (NPS Preferred)

In addition to the trails described in the section Actions Common to Both Action Alternatives, under this alternative the NPS would construct and maintain a Savage Alpine Meadow Trail. Gravel to build the trails would either be produced onsite with cut and fill methods or would be purchased from outside the park.

The Savage Alpine Meadow Trail would have 4 sections:

Section A would traverse east and southeastward to climb from the 3,600 foot elevation to about 4,000 feet elevation into the open high bowl of the drainage that flows down to the park road at Mile 14. This meadow section of the Alpine Meadow Trail would be about 3,500 feet long and would be fairly steady at a 10-12% grade. The tread would be benched into the slope and most of the material used to shape the tread would be from the cuts used to create the benched trail. Additional larger rocks would be harvested locally to create a porous but stable downhill

shoulder to the trail. Smaller rocks would be selected from the cuts to comprise a porous trail tread in the wetter sections. The trail would be out-sloped up to 10% to shed water.

Section B would descend gradually from the top of a rock outcrop at 4,000 foot elevation back down to the 12.4 Mile creek bed at about 3,500 foot elevation. This section of trail would be about 4,500 feet long and would traverse eastward and northeastward along the open hillside. The first 2,500 feet would have a grade of approximately 5%, and the lower 2,000 feet would have a steady 20% grade. This lower 2,000 feet would run along the bottom edge of a cliff slope just above most of the alders on this hillside. The tread would be benched into the slope, and most of the material used to shape the tread would be from the cuts used to create the benched trail.

Section C would extend about 7,000 feet within the floodplain of 12.4 Mile Creek. This section would drop from about 3,500 feet in elevation to about the 2,950 foot elevation. This section would be constructed on the creek bed and marked with cairns in year 2010, but it would eventually be constructed on the creek bench where it would require typical construction methods used on softer soils.

Section D would extend for about 3,000 feet within the spruce-cottonwood forest on the west side of 12.4 Mile Creek from the 2,950 foot elevation to about 2,800 foot elevation at the park road near the Savage Rest Stop (currently under construction). This section would be built to 6 feet wide and would be built to ADA standards within the Wilderness exclusion area. The ADA segment will end at an area overlooking the 12.4 mile drainage. The remaining 1,000 feet of this trail segment is in designated wilderness and would be built to the 18 to 30 inch width standard.

Actions Common

Under both action alternatives the NPS would construct and maintain the following trails: the Savage Camp Interpretive Trail, the Savage Campground to Rest Stop Connector Trail, the Savage Rest Stop to Park Road Sidewalk, the Savage Roadside Path, and the Savage Rock Loop Trail. Gravel to build the trails would either be found onsite through cut and fill methods, would come from the Mile 27 Teklanika Pit, or would be purchased from outside the park sources. Most of the trails common to both action alternatives, including 0.4 miles of the Savage Alpine trail, would be constructed to be accessible to ADA standards for width, slope, and compaction.

Maintenance would be required to keep these new trails functional over time. Some trails could require episodic trail maintenance or reconstruction, as they pass through a dynamic landscape. Brushing vegetation would be a normal maintenance function on the trails passing through shrubs or forests. The accessible trails would need maintenance to assure compaction standards are being met.

The trail crews may set up a spike camp at the upper end of the forest on 12.4 Mile Creek, about 0.6 miles upstream. Use of the camp would shorten the vehicular and pedestrian commute time to work sites on the eastern part of the Alpine trail and would increase the amount of hours during the day available for trail construction.

PUBLIC INVOLVEMENT

The EA was issued for public review and comment from September 4, 2009 to October 4, 2009. The EA, or notices of the EA's availability, were sent by mail or email to over 200 government agencies, interest groups, and individuals. The EA was posted on the national NPS web page for public review NEPA documents – Planning, Environment, and Public Comment (PEPC) – and on the park's webpage. The park issued a press release about the availability of the EA and the open comment period on September 4, 2009. Five written comments were received. Three comments were generally in favor of the preferred alternative, one comment supported the No Action alternative, and one comment proposed a different approach to the design standards inherent for this section of the park.

The public comments received did not change the conclusions in the EA about the environmental effects of the action. The NPS responses to substantive public comments are found in the Appendix A.

DECISION

The NPS decision is to select Alternative 3, preferred alternative, Construction of the Savage Area Trails and the Alpine Meadow Trail, along with the mitigating measures.

Mitigating Measures

The following mitigation measures apply to the selected Alternative:

Vegetation. Vegetation mats removed from the trail alignments will be saved and moved to abandoned trail segments as needed. Periodic surveys will be conducted to determine the presence of exotic plants.

Wildlife and Habitat. The NPS will follow established guidelines in the park's bear-human conflict management plan. The plan requires staff and operators to use bear-proof containers for food and refuse and sets up guidelines for temporary closures. Vegetation clearing will be done outside of the May 1 to August 1 nesting season so as to not impact nesting or fledging birds.

Cultural Resources. Surveys for cultural resources have taken place in the entrance area over the past two decades. If previously unknown cultural resources are located during construction, the project will be halted in the discovery area until cultural resource staff could determine the significance of the finding. Mitigation standards will be established to limit any damage to the cultural information present at the sites.

Visitor Use and Recreation. Visitors will be advised in park announcements, programs, and publications of temporary inconveniences from construction work on the trails. Trail construction hours will be limited to 7am to 7pm.

Rationale for the Decision

The selected action (Alternative 3) will satisfy the purpose and need of the project better than other alternatives because this meadow version of the alpine trail will have less vertical gain and will be useable by a greater percentage of the general public than the high trail would. The meadow trail will be on a relatively flat bench, near the toe of a much steeper slope, and will not be readily visible from the road. The meadow trail alignment provides greater separation from a known raptor nest than the High Alpine (Alternative 2) alignment. The meadow trail will also take visitors into a plant community - which is not traversed by the High Alpine route - for their viewing and enjoyment,

Alternative 1 (No Action) would not accomplish the purpose and need of the project. It would fail to construct appropriate interpretive opportunities for the new Savage Rest Stop, would continue pedestrian use of the park road shoulder even as more visitor activity is being attracted to the Savage area, and would not provide an alpine hiking facility in the Savage area that can take advantage of the free Savage Shuttle bus to turn a trail into a loop experience.

Alternative 2 (Construction of Savage Area Trails including a High Alpine Trail) would satisfy the purpose and need of the project, including for all the trails it shares in common with Alternative 3, but the high alpine trail would require additional vertical gain that would make it less desirable for the general public than the alpine meadow trail would. This trail also approaches closer to a known raptor nest than Alternative 3, which is a disadvantage.

Significance Criteria

The preferred alternative (Alternative 3) will not have a significant effect on the human environment. This conclusion is based on the following examination the significance criteria defined in 40 CFR Section 1508.27.

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

The EA evaluated the effects of Alternative 3 on vegetation, soils and wetlands, wildlife habitat, aquatic resources and water quality, wilderness resource values, cultural resources, visitor use and experience, and park management. As documented in the EA the effects of the proposed action will range from minor to moderate depending on the resource. There will be no significant restriction of subsistence uses.

(2) The degree to which the proposed action affects public health or safety.

The selected alternative will have a long-term moderate beneficial impact on visitor safety by providing pedestrian connections between the facilities in the Campground area without pedestrians having to use the shoulder of the park road.

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

The trail construction will be located in a national park. The EA evaluated the effects of the trail work and concluded that the impacts will be moderately beneficial to moderately adverse.

(4) The degree to which effects on the quality of the human environment are likely to be highly controversial.

The effects on the quality of the human environment will not be controversial. The NPS sent the EA to over 200 agencies, organizations, and individuals for public review. Only 5 comment letters were received. The environmental analysis concluded that the proposed trail construction will have from moderately beneficial to moderately adverse impacts on park resources. The commenters did not question these findings.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The environmental effects of the selected alternative (Alternative 3) do not involve unique or unknown risks.

(6) The degree to which the action may establish a precedent of future actions with significant effects or represents a decision in principle about a future consideration.

The trail construction represents a site specific evaluation of trails proposed in the 1997 DCP/EIS and trails that complement the construction of the new Savage Rest Stop east of the Savage Campground and the anticipated visitor use of the Rest Stop.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

The EA for the New Construction of Trails in the Savage River Area project evaluated trails in a limited area near the park road. Additional trail projects are planned for the Entrance Area, Eielson area, and Wonder Lake/Kantishna area – which are 10, 50 and 70 miles away respectively from this project area - as funding permits. The conceptual outline for this work was evaluated in the 1997 DCP/EIS, where the work was rated as less than a significant impact.

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

The selected alternative will not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. The park road has been

determined eligible for the National Register and this project was evaluated as having no adverse impact on historic properties there or on areas adjacent to the road.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

The selected alternative will not adversely affect an endangered or threatened species or its habitat.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The selected alternative (Alternative 3) will not violate any Federal, State, or local law.

FINDINGS

The levels of adverse impacts to park resources anticipated from the selected alternative will not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or that are key to the natural or cultural integrity of the park.

The selected alternative complies with the Endangered Species Act, the National Historic Preservation Act, and Executive Orders 11988 and 11990. There will be no restriction of subsistence activities as documented by the Alaska National Interest Lands Conservation Act, Title VIII, Section 810(a) Summary Evaluation and Findings.

The National Park Service has determined that the selected alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), an environmental impact statement is not needed and will not be prepared for this project.

ATTACHMENT A

NPS RESPONSES TO PUBLIC COMMENTS AND ERRATA for the Environmental Assessment on Construction of New Trails in the Savage River Area of Denali National Park Denali National Park and Preserve, Alaska

In response to the environmental assessment, the NPS received four comment letters. Described below are the substantive comments and the NPS responses.

1. Comment #1. Individual: This project erodes wilderness values.

NPS Response #1: Trails by themselves do not erode wilderness values. Most if not all of the wilderness areas in the lower 48 had trails when the units were designated and continue to have trails today. Trails can be a way to preserve wilderness areas from the impacts of overuse on fragile soils and facilitate visitor enjoyment.

2. Comment #2. National Parks Conservation Association (NPCA): The MRDG failed to evaluate minimum tool use. Checked off for use in the MRDG is “mechanical transport” and “motorized equipment”. However there is no information on what specific tools are planned, or why.

NPS Response #2: The work on the Alpine Trail will require helicopter support to haul bags of trail tread material from the Savage River parking areas to those sections of the trail that need additional tread material because the necessary supplies of that material are lacking nearby or to avoid large pits in wilderness to supply the needed material. The helicopter use would be limited to times when visitor use is low, such as early or late season, or would be arranged so that all the work can be accomplished in one day. Helicopter use would be the only mechanical transport or motorized equipment authorized in wilderness under this finding.

3. Comment #3. NPCA: We support the mitigation measures of the MRDG suggesting limiting trail width to 18 inches, and confining the six foot wide ADA accessible trail to the area outside of the Wilderness boundary.

NPS Response #3: We concur. The EA said that the 2,000 feet of trail alongside 12.4 Mile Creek in the wilderness exclusion would be built up to six feet in width. The next 1,000 feet of trail in wilderness would be routed to maintain the minimum ADA standards for grade, but would be constructed to the 18 inch standard.

4. Comment #4. Denali Citizens Council (DCC): Mitigation of social trail formation is not adequate justification for building either one of the Savage alpine trails. NPS already has a system in place for managing social trail formation. What other strategies short of constructing a long trail that will itself be an impact will ameliorate the problem?

NPS Response #4: Social trails are inevitable in any backcountry that surrounds a popular campground, a vehicle turnaround site, and a (soon to be) popular rest stop. The braided trails that extend up both sides of 12.4 Mile Creek and that extend uphill from the upper end of the Phase II trail alignment above the Savage River indicate that the popularity of the areas for hiking will only increase as visitation to the area increases. It is likely that much of the increase in visitor use will occur on the downhill trails existing or proposed in this plan, such as along the Savage River and at the new Rest Stop. The Alpine Trail was identified as an exception from the General Management Plan decision to continue without designated routes or constructed trails in the backcountry of Denali in the 1997 DCP/EIS to specifically construct a trail from the Savage River area to the top of the ridge and connect from there to the Savage River Campground.

5. Comment #5. DCC: From the General Management Plan: *"The park intends to maintain primarily a 'no formal trails' policy for the designated wilderness area."* The "Savage River extended loop trail" (the ancestor of this proposal) is mandated in the 1997 EIS and depicted on page 53 of that plan, although the route is significantly different. This proposal will be a "Hiker subzone." The definition of Hiker subzone in the 1997 EIS is as follows: *"This subzone provides a sense of being immersed in a natural landscape, although most comforts and conveniences are within 5 miles away. Visitors must commit some time and physical exertion and the only facilities present are unpaved trails or marked routes."* In our view, this alpine trail can remain a route, not a built trail, through most of its extent and retain its consistency with the 1997 plan.

NPS Response #5: See response to #4 above. The concept of an alpine trail connecting the Savage River parking area with the Savage River Campground comes from the 1997 DCP/EIS, which amends the 1986 park GMP. The route shown on the maps in 1997 has been modified by site investigations, including those evaluating the feasibility of construction and maintenance, evaluating the potential for keeping reasonable grades, and the mandate to stay away from raptor nests. The route for the Alpine Trail is not significantly different from that shown on the 1997 maps, although the route shown - that could be built in a different project - from the ridge down to the Savage River Trail footbridge will need to be changed. An 18 inch wide trail can be just as consistent with the Hiker subzone definition as a route marked with cairns, and a trail could be more sustainable in the long run.

6. Comment #6. DCC: Are 50,000 visitors really expected to use this Savage Alpine High Trail system? That would be 500 people a day in a 100 day season. It certainly should NOT be built if 500 people per day will use it.

NPS Response #6: The figure of 50,000 visitors referred generally to expected use at the new Savage Rest Stop. It is likely that, when built, up to 20 families per day would use the Alpine Trail above the section alongside 12.4 Mile Creek.

7. Comment #7. DCC: The alpine trails will require significant maintenance because much of their extent is on 20% or steeper grades, or through brushy areas, or in wet soils.

NPS Response #7: The Park has an experienced trail crew, which learned appropriate techniques while building the steep sections of the Eielson Alpine Trail, Triple Lakes Trail, and

wet sections of the Savage River Trail. These techniques will be used to construct the Savage Alpine Trail.

8. Comment #8. DCC: Raptor nesting could be affected by increased human use along parts of the high trails. How will NPS monitor for wildlife impacts?

NPS Response #8: Both the Savage High Alpine and Savage Alpine Meadow Trail alignments were modified to stay at least 500 meters away from a known raptor nest, thus minimizing that issue.

9. Comment #9. DCC: If one or the other of the Alpine Trails is built, please consider the following suggestions: **a.** Limit group size to 12 or fewer individuals. **b.** Close the trail in spring until the ground is dry. **c.** Keep the trail width 18 inches. **d.** Avoid the Alpine Meadow route. It requires more extensive construction to shore it up in wet areas and has a greater impact on the view shed of the park road than the High Alpine route. **e.** Do not construct the 1000 feet of ADA trail at the eastern terminus of either Alpine Trail. Use of motorized equipment to build and maintain and the 6 foot width of this trail are inappropriate in Wilderness. **f.** Consider building the Savage Alpine High Trail, Section A only. This would provide additional opportunities for views and social trail amelioration. Then, pay attention to social trail formation and trail use over some years.

NPS Response #9: **(a)** We agree, as decided in the Backcountry Plan; **(b)** We will monitor trail conditions and will close it if resources or visitors are at significant risk; **(c)** We generally agree, except for the ADA section. Some non-ADA sections may have to be 24 inches wide if there is a steep back-slope to the trail, to minimize the sense of being on the edge; **(d)** We do not agree that the Meadow route would be more visible from the park road because much of the route closest to the road is relatively flat and on top of a natural bench so the trail itself would not be seen. We have eliminated the option to use boardwalk mentioned in the Alternatives summary in the EA, as we feel that traditional native tread material will work. **(e)** see NPS Response #3; **(f)** We anticipate demand for this type of experience will increase next year with the opening of the Savage Rest Stop. We favor loop trails where possible – especially those associated with the road and bus system as part of the loop connection – instead of “dead end” trails, which would often result in social trail networks from the dead end.

ERRATA

This errata section provides clarifications, modifications or additional information to the EA and to the selected alternative, Alternative 3. This modification does not significantly change the analysis of the EA and, therefore a new or revised EA is not needed and will not be produced.

1. **Modification. Change the language on page 23 from:** “Section D...would be built to ADA standards. About 1,000 feet of this trail section would be built in designated wilderness and would be built to minimum ADA standards for width, and about 2,000 feet of this trail would be built in a wilderness exclusion.” to: *Section D...would be built to ADA standards for the majority of its length. About 2,000 feet of this trail would be built in a wilderness exclusion and would meet ADA standards for width, grade and compaction. The next 1,000 feet of trail located in wilderness could be routed to either side of the creek to take advantage of durable ground, views, and other factors, but would not be constructed to ADA standards.*
2. **Modification. Change the language on page 26 from:** “3,000 feet would be ADA and from 36 to 72 inches wide.” to: *“2,000 feet would be ADA and from 36 to 72 inches wide.”*
3. **Modification. Change the language on page 26 from:** “Potentially 3,500 feet of rock-filled tread or boardwalk needed for crossing plastic soils of meadow.” to: *Potentially 3,500 feet of rock-filled tread needed for crossing plastic soils of meadow.*
4. **Modification. Change the language on page 45 from:** “The terrain would prevent most of the Savage Alpine Meadow Trail from being built to accessible standards. The other trails proposed in this alternative and the lower 0.7 miles of the Savage Alpine Meadow Trail would, however, be made to ADA standards and would make a significant expansion in the park’s accessible trail network.” to: *The terrain would prevent most of the Savage Alpine Meadow Trail from being built to accessible standards. The other trails proposed in this alternative and the lower 0.4 miles of the Savage Alpine Meadow Trail would, however, be made to ADA standards and would make a significant expansion in the park’s accessible trail network.*

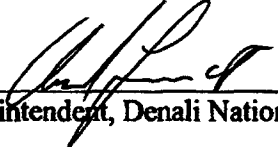
Appendix C – Wetlands Statement of Findings

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11990 PROTECTION OF WETLANDS

New Trails in the Savage River Area

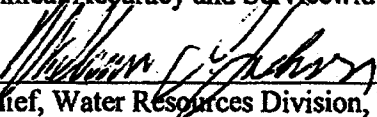
Denali National Park and Preserve, Alaska

September 2009

Recommended: 
Superintendent, Denali National Park and Preserve

10/19/09
Date

Certified for Technical Accuracy and Servicewide Consistency:


Chief, Water Resources Division, Washington Office

10-19-2009
Date

Approved: 
Regional Director, Alaska Region

10/21/09
Date

Appendix C – Wetlands Statement of Findings

STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11990 *PROTECTION OF WETLANDS*

New Trails in the Savage River Area

Denali National Park and Preserve, Alaska

September 2009

Recommended: _____
Superintendent, Denali National Park and Preserve Date

Certified for Technical Accuracy and Servicewide Consistency:

Chief, Water Resources Division, Washington Office Date

Approved: _____
Regional Director, Alaska Region Date

PURPOSE AND NEED FOR ACTION

The National Park Service (NPS) has prepared and made available for public review an environmental assessment (EA) to evaluate the impacts of constructing new trails in the Savage River area of Denali National Park and Preserve.

The Savage Alpine Trail was identified in the 1997 Entrance Area and Road Corridor Development Concept Plan/Environmental Impact Statement (DCP/EIS) as a new trail for increased recreational opportunities. The Savage Alpine Trail would extend the existing trail starting at Savage Rock, would follow the route of the Upper Savage Trail approved in 2006 and continue along a high contour over to the drainage (12.4 Mile Creek) that flows southward east of the Savage Campground and would then connect to the Campground and new Rest Area. The trail would be 18-30 inches wide and would be up to 2.7 miles in length. Due to the challenging terrain, only 0.7 miles of the southern end of the Savage Alpine Trail would be constructed to be wheelchair accessible and would be built to Americans with Disabilities Act accessible standards. The project would begin during the summer of 2010.

The Savage Camp Interpretive Trail would leave from the short paved trail being constructed as part of the new Savage Rest Stop and would connect to the internal road system of the former concessioner-operated Savage Camp. Other short trails would connect the historic Savage Cabin, Savage Campground, Campground bus stop and the new Rest Stop. The trails would range from 36-72 inches wide and would total 1.5 miles in length. All of these trails would be constructed to be wheelchair accessible and would be built to Americans with Disabilities Act accessible standards. The trail to the top of Savage Rock would be extended by finishing a loop on the north side of the rock back down to the Savage River Trail. The projects would begin during the summer of 2010.

Executive Order 11990, *Protection of Wetlands*, requires the NPS, and other federal agencies, to evaluate the likely impacts of actions in wetlands. The executive order requires that short and long-term adverse impacts associated with occupancy, modification or destruction of wetlands be avoided whenever possible. Indirect support of development and new construction in such areas should also be avoided wherever there is a practicable alternative.

To comply with these orders, the NPS has developed a set of agency policies and procedures which can be found in Director's Order 77-1, *Wetland Protection*, and Procedural Manual 77-1, *Wetland Protection*. The policies and procedures related to wetlands emphasize: exploring all practical alternatives to building on, or otherwise affecting, wetlands; reducing impacts to wetlands whenever possible; and providing direct compensation for any unavoidable wetland impact by restoring degraded or destroyed wetlands on other NPS properties.

The purpose of this Statement of Findings (SOF) is to present the NPS rationale for its proposed plan to construct portions of the Savage area trails project in the wetland area. This SOF also documents the anticipated effects on these resources.

WETLANDS WITHIN THE PROJECT AREA

Wetland boundaries were identified and mapped in the field by NPS personnel (Carwile) in May 2007. Of the 3.1 acres that would be newly disturbed by the proposed action, 1.1 acres (Figure A-1) were classified as wetlands under the “Classification of Wetlands and Deepwater Habitats of the United States,” the Cowardin Classification System (Cowardin et al. 1979), and are therefore subject to NPS wetlands compliance procedures. Of the 3.1 acres that would be newly disturbed, 2.0 acres are upland, as evidenced by the white spruce associations or alpine environments and steep slopes, the lack of hydrologic indicators, and the presence of well-draining soils.

The 0.4 acres of forested and scrub shrub wetlands under the proposed campground area trails are characterized by marginally hydric soils over river alluvium, with poor drainage in the flattest areas near the park road, covered by either punky or gnarled white spruce or dwarf birch, a moderate feather moss cover, and patches of blueberry and other ericaceous shrubs. Vegetation in the forested wetlands is typically dominated by white spruce stunted by the nutrient conditions related to the cold soils (Viereck et al. 1992). The understory shrub layer consists of dwarf birch (*Betula nana*), both low and tall shrubs of willow (*Salix* spp.), Labrador tea (*Ledum* spp.), and bog blueberry (*Vaccinium uliginosum*). Common ground cover includes feather and sphagnum mosses (*Sphagnum* spp.), leaf lichens, lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*) and a variety of forbs. The scrub shrub areas have similar vegetation, but without the spruce and with more birch. The soils and alluvium have built up on the outwash of 12.4 Mile Creek and this soil generally has a high-enough clay content to retard oxygen circulation and, when combined with the thick moss cover, keeps the root layer cold late into the growing season.

The 0.7 acres of scrub shrub wetlands located upstream of the forest along the terraces above 12.4 mile creek, where the proposed Savage Alpine Trail will eventually be moved to get it out of the floodplain, are characterized by hydric soils over mountain slope colluvium, with poor drainage, covered by dwarf birch and ericaceous shrubs, a thick feather moss cover, and patches of sphagnum mosses. The soils and colluvium have built up on the piedmont that 12.4 Mile Creek cuts through and this soil generally has a high-enough clay content to retard oxygen circulation and, when combined with the thick moss cover, keeps the root layer cold late into the growing season.

The wetlands located within the proposed project area are 0.3 acres of palustrine forested, needle-leaved evergreen, saturated wetlands – PF04B, and 0.8 acres of palustrine scrub-shrub broad-leaved deciduous saturated wetlands – PSS1B. These wetlands provide habitat for small mammals, such as red squirrels, snowshoe hares, and porcupine; bird species, including gray jays, robins, thrushes, sparrows, and warblers. Moose frequent the area for forage, and it is considered potential moose calving area. No threatened or endangered animal or plant species are found in the area and no research or reference sites have been developed in the project area.

These wetlands function to attenuate snow melt surface flow during break-up and discharge during heavy rain events, which helps reduce sediment input and to keep high values for surface

water quality. A ground water well that supplies water for the Savage Campground is located immediately south of the park road west of the campground entrance and across from the proposed Roadside Path. The wetland section of the Roadside Path, however, ends about 850 feet west of the well. No floods are known from the site, as forests and open wetlands cover most of the adjacent land and gravelly layers which absorb the rainfall are below the surface soils.

The wetland types described above is common throughout the eastern areas of Denali National Park and Preserve. The park has determined that the potential wetlands located at the project site are a relatively minor part of large acreages of wetlands, are locally common, and that removing the wetlands would have a minor impact on surface water quality, including sediment control and water purification, and animal habitat.

THE PROPOSAL IN RELATION TO WETLANDS

The proposal and alternatives are described in detail in the project EA.

The components of the proposal that would affect wetland areas include the construction of new trails, including a creekside section of the Savage Alpine Trail, part of the western end of the Roadside Path connecting the Savage Cabin parking lot with the new Rest Stop and Alpine Trail, and part of the proposed Interpretive Trail that will take people from the new Rest Stop to the Savage River and former Savage Camp. The construction of these new trails would impact a maximum of 1.1 acres of wetlands.

Wetland areas would be used for trail routing because in the case of the Alpine Trail and the Roadside Path there are no feasible upland alternatives within the area of the need for the trails. In the case of the Interpretive Trail, wetland areas would be used because other alignments would put significant amounts of Rest Stop pedestrian traffic either on a long (upland) route to an otherwise close visitor destination or into close quarters with campers in the Campground.

The wetland soils include up to three feet of colluvium over gravelly river alluvium. The construction of the trails would be accomplished by removing the organic layer, adding sheet fabric where necessary, and replacing the organics with clean fill on top of the soils to the depth necessary to construct either a trail that meets ADA specification for the campground area trails or a backcountry trail in the case of the Alpine Trail.

Discharge of dredged or fill material into jurisdictional wetlands is regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. According to a recent determination by Corps personnel, the Campground area trails would not affect wetlands under the jurisdiction of the Corps (Don Rice, pers. comm.). The wetlands segment of the Alpine Trail, when constructed, would need a Section 404 permit.

MITIGATION PROPOSED

Federal and NPS policy is to avoid siting projects in wetlands whenever possible. If circumstances make it impracticable to avoid wetlands, then mitigation of unavoidable impacts must be planned. An NPS wetlands no-net-loss policy requires that wetland losses be

compensated for by restoration of wetlands, preferably of comparable wetland type and function and in the same watershed if possible.

Of the 3.1 acres affected by the proposed action, 1.1 acres are classified as wetlands. This SOF commits to 2:1 compensation for the 1.1 acres of disturbed wetlands.

On-Site Rehabilitation

As much as possible, disturbance of wetlands in and around the project area would be avoided. Silt fences would be set up to define construction impact limits. Any areas disturbed by construction activities would be restored to as near natural conditions as possible. Prior to the start of construction activities, the NPS would salvage as much topsoil, organic matter and vegetation as necessary for later use in site revegetation or for use in revegetating other local sites. Salvaged material would be stockpiled separately and would be placed in the disturbed areas following construction.

It is not clear that any wetlands could be replaced on site.

Off-Site Compensation (Wetland Restoration)

Compensation, by restoration of previously disturbed degraded wetlands, is required under the NPS no-net-loss policy for projects involving disturbance or loss of wetlands. Compensation will occur for the loss of 1.1 acres of palustrine forested and scrub shrub wetlands. Two-for-one compensation will be completed within the park, rather than one-for-one, because the wetland type being lost is different from the type being restored. By restoring a riverine and palustrine wetland in the Kantishna Hills region at a two-for-one compensation rate, it is anticipated that the wetland functions of wildlife habitat and surface water flow attenuation and purification at the project site will be balanced by the functions of flood control and aquatic habitat restoration regained at a restored former placer mine site. The project site and the compensation site are separated by about 65 miles but are both within Denali National Park. They have different wetland values and functions. The wetlands impacted by the project are described above as PSS1B and PF04B types. The wetlands to be restored at the compensation site are described below as a PSS1Bs/x:R3US1/5 type.

An ONPS-funded project to restore former placer mined areas in Kantishna is scheduled for 2010-2011. A 2.2 acre portion within the park's Slate Creek floodplain has been selected for restoration (Figure C-1) within the scope of this mitigation, for compensation for this Savage Area Trails project. This disturbed site is going to be restored to wetlands classified as riverine upper perennial vegetated unconsolidated shore – R3US5, and palustrine scrub shrub broad-leaved deciduous that is seasonally flooded/well-drained – PSS1D.

Preliminary work has included water and soil sampling and an engineering survey of the existing stream channel, floodplain and upland topography. Discharge measurements will continue to be collected to aid in stream channel design. Soil sampling will assess the geo-chemistry of the upper watershed, and determine the soil's potential for revegetation efforts. Surveys, both cross-

sectional and topographical, have been conducted to supplement site data on the NPS topographic maps. This information will be used to locate and estimate material amounts for use in re-contouring the site and reconstructing the stream channel and floodplain.

The cost estimate for this compensation project is approximately \$25,000 per acre, based on the \$17,000 per acre figure calculated in an unpublished report, "Cost Estimation for Reclamation, National Park Service, Alaska Regional Office, January 1994." This report reviewed three separate mining reclamation projects that were conducted on abandoned claims in Denali National Park and Preserve.

Stream channel and floodplain restoration will be based on the techniques of the 1988 lower Glen Creek restoration project at Denali. Restoration plans at the upper Slate Creek site include improving aquatic, riparian and upslope habitat conditions in this area of the Slate Creek watershed by reducing bank erosion, stabilizing channel conditions, and restoring a functional floodplain. Project design requirements will include a channel capacity for a 1.5-year (bank full) discharge and a floodplain capacity for up to a 100-year discharge. Tailings from mining (alluvial and slope gravels) will be discharged into the existing channel. Approximately 2,000 cubic yards will be discharged into these areas to close old channels, create a new functional floodplain, and force flow into the new reclaimed channels. Three hundred cubic yards of selected fill, including topsoil and gravel 1" to 3" will be used in fabric encapsulated soil lifts, to be constructed along each bank of the new channel. The mining bypass channel at upper North Fork will be filled with mine tailings. Riparian areas will be revegetated with willow cuttings and other appropriate vegetation. Depending on the results from the soils nutrient analysis, fertilizer will be used to ensure a quick start for new vegetation.

Monitoring of the stream channel and riparian areas will occur to determine the success of the reclamation efforts. Vegetation plots and permanently mounted cross-sections will be surveyed and measured again after the first year. Additional seeding and revegetation will occur on areas not vegetated during the first year. It is anticipated that the site will be a functional wetland within 3-5 years after treatment, and will be fully-functioning within 15 years.

ALTERNATIVES CONSIDERED

Alternative 1 describes the existing conditions, No Action, in the Savage area. No additional trails would be constructed in the Savage area but existing trails would be maintained and an already approved trail would be constructed.

Actions Common to Action Alternatives - Under both action alternatives the NPS would construct and maintain the following trails: the Savage Camp Interpretive Trail, the Savage Campground to Rest Stop Connector Trail, the Savage Rest Stop to Park Road Sidewalk, and the Savage Roadside Path. Gravel to build the trails will either be found onsite through cut and fill methods, will come from the Mile 27 Teklanika Pit, or will be purchased from outside the park sources. Most of the trails common to both action alternatives would be constructed to be accessible to ADA standards for width, slope, and compaction.

Alternative 2 - In addition to the trails described in the Actions Common section, under this alternative the NPS would construct and maintain a Savage High Alpine Trail. This 18-30 inch wide trail would be constructed to extend uphill from the approved Phase II Trail that extends above the Savage Rock Trail above the Savage East parking lot. Most of this trail would be built in designated wilderness. The Phase II Trail is slated to extend the Savage Rock Trail to about 3,600 feet elevation, and the Savage High Alpine Trail would follow under a high ridgeline and reach 4,600 feet elevation. Approximately 0.7 miles of the Savage High Alpine Trail would be constructed to ADA standards for accessibility with appropriate widths, slopes, and compaction. This alternative would impact 1.1 acres of wetlands.

Alternative 3 describes the NPS preferred alternative. In addition to the trails described in the Actions Common section, under this alternative the NPS would construct and maintain a Savage Alpine Meadow Trail. This 18-30 inch wide trail would be constructed to extend uphill from the approved Phase II Trail that extends above the Savage Rock Trail above the Savage East parking lot. The Meadow Trail would traverse east and southeastward to climb from the 3,600 feet elevation to about 4,000 feet elevation within the open high bowl of the drainage that crosses the park road at Mile 14. This meadow section of the Alpine Meadow Trail would be about 3,500 feet long and would be fairly steady at a 10-12% grade. The tread would be benched into the slope and most of the material used to shape the tread would be from the cuts used to create the benched trail. Additional larger rocks would be harvested locally to create a porous but stable downhill shoulder to the trail. The trail would be outsloped up to 10% to shed water. Most of this trail would be built in designated wilderness. Approximately 0.7 miles of the Savage Alpine Meadow Trail would be constructed to ADA accessibility standards for width, slope, and compaction. This alternative would impact 1.1 acres of wetlands.

The NPS preferred alternative is **Alternative 3**, which impacts the same wetland acreage as the other action alternative. This alternative better accomplishes the purposes of the project with no additional wetland disturbance. The most important purpose is to provide a variety of expanded recreational and interpretive opportunities for visitors in the entrance area and along the road corridor of the park over the next 15-20 years, while mitigating resource damage and reducing safety concerns from pedestrian use of the road shoulder. None of the impacted wetlands are high value, with either standing water or aquatic resources.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES ASSOCIATED WITH THE PROPOSED ACTION

The potential environmental consequences of the proposed action and alternatives are fully described in the EA.

CONCLUSION

The NPS concludes that there are no practicable alternatives to disturbing 1.1 acres of wetlands for the purposes of constructing new trails in the Savage River Area that will provide additional recreational and interpretive opportunities, provide connections between heavily used activity areas within the Savage Campground area, mitigate resource damage from past and present hiker

use in the area, and lessen safety concerns from pedestrian use of the park road shoulder. These trails are needed because of the increased visitation to Denali. Wetlands would be avoided to the maximum extent practicable. The wetland impacts that could not be avoided would be minimized. The NPS acknowledges that some natural localized wetlands processes would be lost during implementation of the Savage Area Trails project. Impacts on the 1.1 acres of wetlands would be compensated for, on a minimum 2-for-1 acreage basis, by restoring riverine and palustrine wetland habitat and associated riparian habitat in a former placer-mined stream valley in the Kantishna Hills region of the park. The NPS finds that this project is consistent with the Procedural Manual #77-1, *Wetland Protection*, and with NPS Director's Order #77-1, *Wetland Protection*. The NPS finds that this project is in compliance with Executive Order 11990, *Protection of Wetlands*.

EARTHWORK PLAN

- NEW CHANNEL
- TEMP BYPASS CHANNEL
- APPROXIMATE LIMITS
- MAJOR EARTHWORK-EXCAVATION AND/OR FILL ACTIVITY
- MINOR EARTHWORK-SCARIFICATION FOR REVEGETATION
- Compensation Area

Figure C-1

BLOCK A
APPROXIMATELY 2,000 CUBIC YARDS OF MAIN TAILING PILES WILL BE EXCAVATED FROM THE HILLSIDE AND SLATE CREEK FLOODPLAIN, AND PLACED BACK INTO THE MAIN PIT. ADDITIONAL AREAS WILL BE SCARIFIED TO ASSIST WITH REVEGETATION EFFORTS. EXTENSIVE EROSION CONTROL METHODS WILL BE USED ON ALL SLOPES. SEE SHEETS 22 AND 23.

BLOCK B
MAIN PIT AREA. OPTION 1-THE 4 STIBNITE ORE FACES WILL BE SEALED WITH AN IMPERMEABLE POLYURETHANE WATERPROOF CAP. MATERIAL FROM THE TAILING PILE WILL BE PLACED ON THE PIT WALLS TO PROTECT THE CAP AND REDUCE THE WALL SLOPES TO 1.5H:1V OR LESS.

BLOCK C
LOWER PIT AREA. THE EXISTING CHANNEL WILL BE RE-ROUTED AWAY FROM THE MAIN PIT THROUGH EXTENSIVE RECONTOURING OF THE PIT AREA. BIO-ENGINEERED AND TRADITIONAL HARD TECHNIQUES FOR BANK EROSION PROTECTION WILL BE USED TO MAINTAIN NEW CHANNEL INTEGRITY. A TEMPORARY BYPASS CHANNEL WILL BE USED TO CARRY NORTH FORK DISCHARGE DURING EARTHWORK AND CHANNEL CONSTRUCTION. DEBRIS PILES WILL BE REMOVED. EXTENSIVE REVEGETATION METHODS, INCLUDING WILLOW CUTTINGS AND ANNUAL RYEGRASS, WILL BE PLANTED FOLLOWING EARTHWORK AND SCARIFICATION.

CONTOUR LINES EVERY 2 FEET



Project Layout		DATE	1
SLATE CREEK RECLAMATION PROJECT		DATE	1
DESIGNED BY	STATE OF ARIZONA	DATE	1
DRAWN BY	NPS-019C	DATE	1
CHECKED BY	STATE OF ARIZONA	DATE	1
DATE	FEB 2009	DATE	1