

National Park Service
U.S. Department of the Interior



Glacier National Park
Waterton-Glacier International Peace Park
Montana

Heavens Peak Fire Lookout Stabilization Project

Environmental Assessment

February 2011



Heavens Peak Fire Lookout
Photo by Gary Ludwig

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Environmental Assessment

Heavens Peak Fire Lookout Stabilization Project

Glacier National Park • Montana

SUMMARY

Heavens Peak Fire Lookout, located on Heavens Peak in Glacier National Park's backcountry zone in recommended wilderness, was built in 1945 by conscientious objectors in the Civilian Public Service (CPS) and was listed in the National Register of Historic Places in 1986. The lookout was in operation from its construction in 1945 through the 1953 fire season when it was abandoned in favor of aerial detection. Heavens Peak Lookout embodies the National Park Service rustic design philosophy of buildings that are harmonious with the landscape, is significant for its association with the CPS, contributes historical value to the Heavens Peak wilderness setting, and was present when the area was proposed as wilderness. The original historic fabric and structural integrity of the lookout is being lost through lack of maintenance and harsh weather conditions. The proposed project would structurally stabilize the lookout, thus preserving a historically and architecturally significant structure that represents a distinct period in Glacier's history. The work would be limited to those repairs necessary to keep the lookout standing and minimize further deterioration.

This Environmental Assessment (EA) evaluates two alternatives, including a no action alternative. Under Alternative A (no action), action would not be taken to prevent further deterioration. Alternative B, the action alternative, would structurally stabilize the Heavens Peak Fire Lookout. Work would be in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The building's roofing system would be repaired and new roofing installed, and the floor would be repaired. Window and door components would be repaired, plexi-glass would be placed in selected windows for viewing purposes, shutters would be repaired or replaced, exterior and some interior surfaces would be re-painted and minor re-pointing, masonry, and concrete repairs would be made where necessary. Up to twelve helicopter flights would be used to deliver tools and materials to the work site and remove debris.

A project team that included resource specialists evaluated the following impact topics: cultural resources, recommended wilderness, wildlife, threatened and endangered species and species of concern (including grizzly bears, Canada lynx, gray wolves, wolverines, and harlequin ducks), and natural soundscapes. This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) to analyze the environmental impacts and assist the National Park Service (NPS) in selecting the best alternative. It 1) analyzes a reasonable range of alternatives to meet the purpose and need of the proposal, 2) evaluates potential issues and impacts to resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. No major effects are anticipated as a result of this project. Public scoping was conducted from July 15, 2010 until August 16, 2010 to provide for early public participation and assist with identifying resource issues and concerns. Ninety five letters were received.

The no action alternative would have moderate adverse, long-term, and site-specific impacts to historic structures from further deterioration and eventual loss of the Heaven's Peak Fire Lookout. An important part of the park's heritage would be lost, and opportunities for visitors to fully appreciate the legacy of the CPS would be diminished. There would be no impacts to wildlife, threatened and endangered species and species of concern, or natural soundscapes. There would be negligible to minor beneficial, long-term and local impacts to the undeveloped appearance of recommended wilderness since the lookout would no longer be visible from a distance; minor long-term adverse and site-specific impacts to the immediate

wilderness setting with the accumulation of man-made trash from the lookout's deterioration; and long-term, site-specific to widespread, minor to moderate adverse impacts from the loss of a significant cultural resource that contributes historical value to the park's recommended wilderness.

The action alternative would structurally stabilize the Heavens Peak Fire Lookout and have a moderate beneficial, long-term, and site-specific impact to historic structures. There would be negligible, long-term, site-specific and local adverse impacts to the undeveloped appearance of the wilderness landscape from the continued presence of a structure; minor, beneficial, long-term and site-specific impacts to the immediate wilderness setting from the removal of man-made trash that has accumulated from the building's deterioration; and long-term, beneficial, minor to moderate, site-specific to widespread impacts from the preservation of a cultural resource that contributes historical value to the park's recommended wilderness. There would be short-term, site-specific and local, minor to moderate adverse impacts to recommended wilderness from temporary noise and construction activity during implementation; and long-term, negligible to moderate, site-specific and possibly local, adverse impacts from periodic maintenance of the structure.

Impacts to wildlife as a result of this stabilization project would be negligible to minor, adverse, short-term, site-specific and local due to disturbances from helicopter supply flights and human activity. Short-term, site-specific and possibly local adverse impacts could occur to grizzly bears, Canada lynx, gray wolves, and wolverines from disturbances caused by helicopters and construction activity. Impacts to grizzlies and lynx would be negligible to minor; impacts to wolves and wolverines would be negligible. Under Section 7 of the Endangered Species Act, the determination for grizzly bears and Canada lynx would be "may affect, not likely to adversely affect"; the determination for gray wolves would be "no effect". Harlequin ducks could be adversely impacted by helicopter staging operations along upper McDonald Creek. Impacts would be short-term, site-specific, local, and possibly long-term and regional from reduced reproductive success; they would be minor to moderate if the helispot is located at Logan Pit and moderate if the helispot is at Red Rock Point. Minor to moderate adverse, short-term, site-specific and local impacts to natural soundscapes would occur, primarily from helicopter noise.

How to Comment

Comments on this environmental assessment can be provided directly through the Park's planning website (<http://parkplanning.nps.gov/parkHome.cfm?parkId=61>) by selecting this project. Or write to: Superintendent, Glacier National Park, Attention: *Heavens Peak EA*, PO Box 128, West Glacier, Montana 59936. This environmental assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review and we try to accommodate such requests, we cannot guarantee that we will be able to do so. We will always make submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

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PURPOSE and NEED

Introduction

Glacier National Park (GNP or Glacier) is located in the northern Rockies along the Canadian border in northwestern Montana and contains the rugged mountains of the Continental Divide. Together with Canada's Waterton Lakes National Park, it forms the Waterton-Glacier International Peace Park, the world's first international peace park. The parks are listed together as a World Heritage Site and separately as International Biosphere Reserves. Outstanding natural and cultural resources are found in both parks.

Glacier National Park's primary mission is the preservation of natural and cultural resources, ensuring that current and future generations have the opportunity to experience, enjoy, and understand the legacy of Waterton-Glacier International Peace Park.

The purpose of Glacier National Park is to:

- preserve and protect natural and cultural resources unimpaired for future generations (1916 Organic Act);
- provide opportunities to experience, understand, appreciate, and enjoy Glacier National Park consistent with the preservation of resources in a state of nature (1910 legislation establishing Glacier National Park); and
- celebrate the on-going peace, friendship, and goodwill among nations, recognizing the need for cooperation in a world of shared resources (1932 International Peace Park legislation).

The significance of Glacier National Park is explained relative to its natural and cultural heritage:

- Glacier's scenery dramatically illustrates an exceptionally long geological history and the many geological processes associated with mountain building and glaciation;
- Glacier offers relatively accessible, spectacular scenery and an increasingly rare primitive wilderness experience;
- Glacier is at the core of the "Crown of the Continent" ecosystem, one of the most ecologically intact areas remaining in the temperate regions of the world;
- Glacier's cultural resources chronicle the history of human activities (prehistoric people, Native Americans, early explorers, railroad development, and modern use and visitation) and show that people have long placed high value on the area's natural features; and
- Waterton-Glacier is the world's first international peace park.

Heavens Peak Fire Lookout was constructed in 1945 by the Civilian Public Service and was listed in the National Register of Historic Places in 1986. Built on the rugged north shoulder of Heavens Peak, the lookout embodies the National Park Service rustic design philosophy of buildings that are harmonious with the landscape and is significant for its association with the Civilian Public Service. Among other lookouts, backcountry cabins, and cultural resources, the lookout was contained within park lands that comprised Glacier's original 1973 wilderness recommendations. The lookout is a cultural resource that imparts historical value to the park's recommended wilderness and contributes to the unique character of the Heavens Peak wilderness setting. The original historic fabric and structural integrity of the lookout is being lost through lack of maintenance and harsh weather conditions. The proposed undertaking would structurally stabilize the lookout, thus preserving a historically and architecturally important

structure that represents a distinct period in Glacier's history.

This environmental assessment was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR § 1508.9), and the National Park Service Director's Order (DO)-12 (*Conservation Planning, Environmental Impact Analysis, and Decision-Making*).

National Park Service's *Management Policies* 2006 require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute impairment, but an impact would be more likely to constitute impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; 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. An impairment analysis for the preferred alternative can be found in Appendix A.

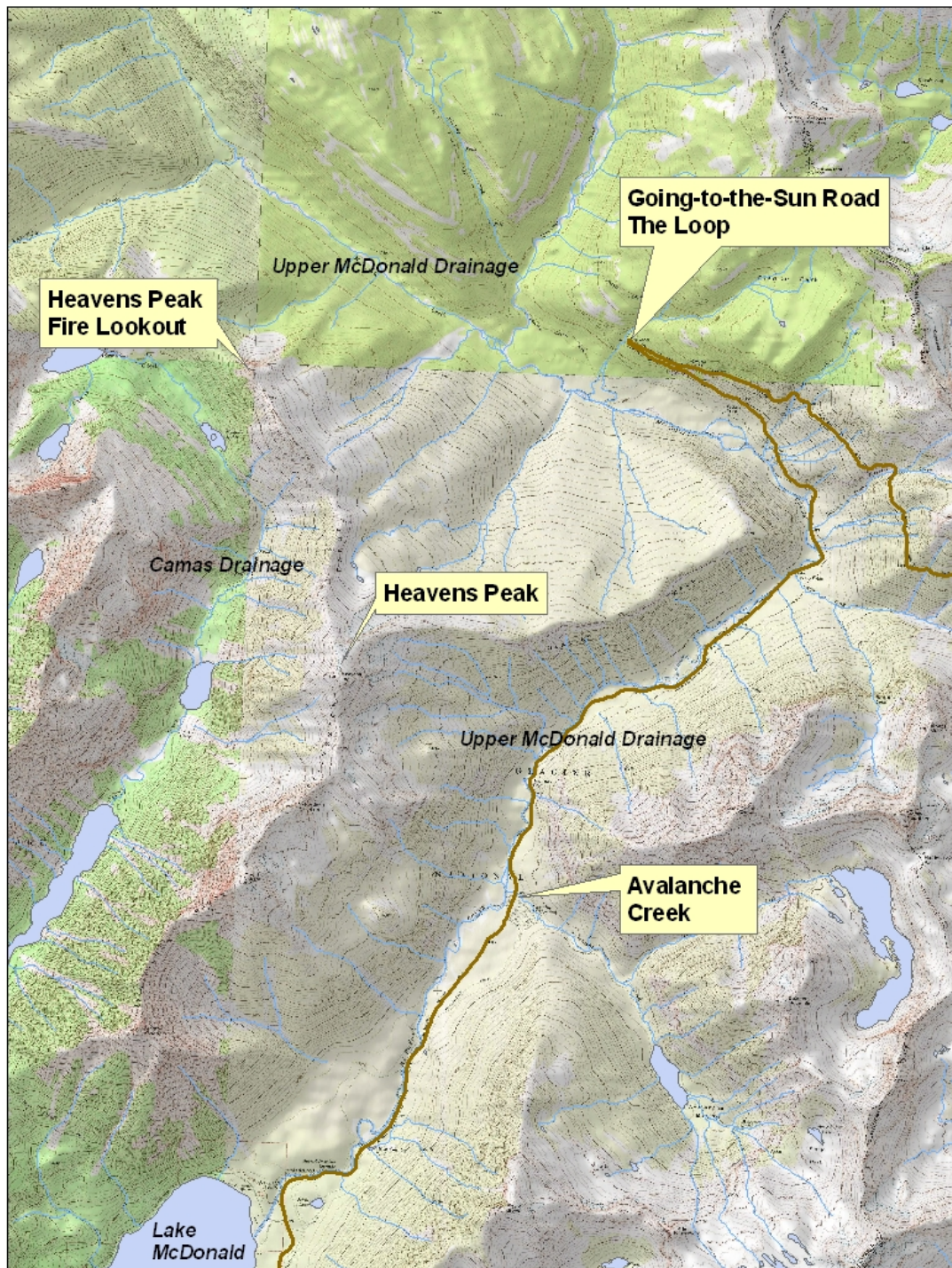


Figure 1: Location of Heavens Peak Fire Lookout

Background

Heavens Peak Fire Lookout is located within Glacier's backcountry zone in recommended wilderness on the precipitous north shoulder of Heavens Peak, which towers over the headwaters of the McDonald Valley on the west side of the Continental Divide (Figure 1). At 7200 ft. elevation in a remote and undeveloped area with difficult access, the lookout was constructed during World War II by conscientious objectors from the "historic peace churches"

during their residency at a Civilian Public Service camp hosted by Glacier National Park. In his book entitled, *Rather than War: The Story of Civilian Public Service Camp #55, Belton, Montana*, Dave Walter described the Civilian Public Service camp as a means for conscientious objectors to perform work of national significance and “contribute to the welfare of the nation without bearing arms against another human being.” The Glacier Civilian Public Service camp housed over 550 men during the four years of its operation. The list of the camp’s contributions to the park is long and includes firefighting, trail maintenance, and organizing and cataloging the park’s library/archives holdings. But the most enduring legacy of the Civilian Public Service in Glacier National Park is Heavens Peak Fire Lookout.

The lookout embodies the National Park Service rustic design philosophy of buildings that are “harmonious” with the landscape and, unlike other lookouts in the park, was built into the existing rock. Albert H. Good, editor of the National Park Service’s 1938 classic volume entitled *Park Structures and Facilities*, was the architect for the structure. Good’s design for Heavens Peak put into practice his suggestion to use native rock for lookouts on prominent points, “especially if, when located on a rocky summit, the structure is blended to it and made to appear to grow out of it.” Designed and constructed to merge with the rugged backcountry terrain, the lookout has become part of the Heavens Peak wilderness setting and contributes historical value to the overall wilderness character of the park.



Figure 2: Heavens Peak Fire Lookout (1982), NPS photo.

The lookout was in operation from its construction in 1945 through the 1953 fire season when, along with the Mount Reynolds and Bear Mountain lookouts, it was abandoned in favor of aerial detection. No longer in service, the lookout now stands as testimony to a trying period in the history of the park and the nation. While the trail to the lookout is no longer maintained and has largely disappeared, a few park visitors, including descendants of some of the original Civilian Public Service crew members, occasionally visit the site.

Extreme weather conditions and lack of maintenance have taken a toll on the lookout’s historic fabric. The deteriorating roof, floor, missing shutters, missing window glazing, and lack of paint threaten its long-term survival. The goal of the project is to prevent further deterioration of the lookout so it can remain as part of the park’s cultural and wilderness landscape. The proposed work would be limited to repairs necessary to keep the lookout standing and would include repairs to the roof and floor; reconstruction and repair of shutters, doors, and window units; limited repair of masonry; and the repainting of exterior and some interior wood surfaces.

The National Historic Preservation Act of 1966 (NHPA) supports and encourages the preservation of historic resources, including historic structures, for present and future generations. As the primary federal agency through which the NHPA is realized, the NPS is committed to the preservation of cultural history. The NPS has also been steward of several million acres of wilderness or recommended wilderness since 1974, when President Nixon forwarded NPS wilderness recommendations to Congress. Ninety-five percent of Glacier National Park is recommended wilderness, and it is NPS policy to manage recommended

wilderness as wilderness until the land is either formally designated or rejected by Congress. Park lands originally recommended for wilderness contained cultural resources, such as historic backcountry cabins and fire lookouts, and the Wilderness Act's definition of wilderness includes lands which may "contain ecological, geological, or other features of scientific, educational, scenic, or historical value [Section 2(c)(4)]. In accordance with Section 6.3.8 of NPS *Management Policies 2006*, the NPS remains responsible for the preservation of cultural resources within wilderness and recommended wilderness. Historic preservation laws, including the Antiquities Act, the Historic Sites Act, the National Historic Preservation Act, and the NPS Organic Act, are applicable within wilderness but "must generally be administered to preserve the area's wilderness character."

The Heavens Peak Lookout is in critical need of stabilization if it is to be preserved and remain as part of Glacier National Park's wilderness and cultural heritage. The Glacier National Park Fund would fund the stabilization as one of their legacy projects in honor of the park's Centennial, and the work would be accomplished with the assistance of volunteers and donated materials.

Purpose and Need

The long-term preservation of the Heavens Peak Fire Lookout is threatened by deterioration of some of the building's structural components, including the roof, flooring, and window and door units. The purpose of the project is to keep the lookout standing and minimize further deterioration.

The following objectives would be met by this project:

- Preserve a cultural resource that represents the Civilian Public Service's contribution to the park, is an example of NPS rustic architecture, and is listed in the National Register of Historic Places.
- Preserve a cultural resource that imparts historical value to the park's recommended wilderness, contributes to the unique character of the Heavens Peak wilderness setting, and was contained within park lands recommended for wilderness at the time of the wilderness hearings.
- Meet the intent of historic preservation legislation and the Wilderness Act through recognition of the NPS's statutory responsibilities to preserve both wilderness and cultural resources.
- Conduct work in such a way that impacts to recommended wilderness are minimized.

Relationship to Other Plans and Policies

Current plans and policies that pertain to this proposal include the *Glacier National Park General Management Plan* (GMP) (NPS 1999), which provides overall guidance and direction for the park, including backcountry areas; and the *Bear Management Plan* (NPS 2010), which provides guidelines for management of bears in the park.

Scoping and Public Involvement

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an EA. Glacier National Park conducted both internal scoping with park staff and external scoping with the public and interested and affected groups and agencies. The scoping process identified potential issues, alternatives, the effects of cumulative actions, and what resources would be affected.

Public scoping began on July 15, 2010 and the comment period closed on August 16, 2010. A press release was distributed to numerous media outlets and brochures were mailed to individuals and organizations on the park's EA mailing list, including members of Congress and various federal, state, and local agencies. Glacier National Park notified the U.S. Fish and

Wildlife Service (USFWS) of the proposed project in accordance with Section 7 of the Endangered Species Act, and the Montana State Historic Preservation Office (SHPO), the Confederated Salish and Kootenai Tribes, and the Blackfeet Tribal Business Council in keeping with 36 CFR800. In May 2010, GNP submitted a biological assessment (BA) for the project to the USFWS addressing the effects to grizzly bears (*Ursus arctos horribilis*) and Canada lynx (*Lynx canadensis*). Gray wolves have since been re-listed as endangered, but the project would have negligible impacts to the species and an amended BA is not required.

Ninety-five letters were received during the scoping period. Of these, 85 were from individuals and businesses and 10 were from agencies, organizations and special interest groups. Agencies, organizations, and groups included the Swan View Coalition, Montana Historical Society (State Historic Preservation Office), National Trust for Historic Preservation, Boy Scouts of America, National Smoke Jumpers Association, Forest Fire Lookout Association, Wilderness Watch, Friends of the Wild Swan, and the Montana Preservation Alliance. The majority of the comments were supportive: most favored stabilization and/or rehabilitation of the lookout and restoration of the trail. Stated reasons included the significance of the Civilian Public Service's work during this period of American history, the significance of lookouts as monuments to an era of fire management, the structure's design as a stone lookout (one of two in Glacier), and the public value of preserving Glacier National Park's cultural heritage. One commenter questioned Glacier's commitment to preserving historic resources in the park, since many have been lost over the years.

Use of helicopters to support the project was supported by a number of commenters. One commenter offered that the park's recent oversight on the use of helicopters for administrative purposes had improved the backcountry experience. A number of commenters offered to volunteer their services to work on the lookout and construct a trail and a few questioned the value in stabilizing the lookout without restoring the trail. Others thought it would be appropriate to stabilize the lookout and not restore the trail. One commenter suggested building a trail up the Camas drainage to access the lookout. Another commenter expressed concern about impacts to grizzly bears especially in the upper Camas drainage and felt that construction of a new trail would draw more people into bear habitat. A few commenters suggested that interpretive signs and artifacts be placed at the lookout to provide an educational opportunity. One commenter suggested renting the park's lookouts to the public. Another commenter suggested placing an interpretive exhibit about the lookout at both visitor centers instead of expending funds to stabilize the lookout.

A few commenters suggested a new alternative: remove and restore the site to its natural state because of its location in recommended wilderness. One commenter suggested another alternative for consideration: moving the structure to a closer location for visitors to easily access, such as adjacent to a visitor center. One commenter asked why an environmental assessment was necessary to consider restoring a trail that once existed and also asked that other trails that have been allowed to grow over in the park be restored.

One commenter wrote that the Wilderness Act does not apply to recommended wilderness, and others argued that the project would not be in compliance with the Wilderness Act. Some commenters claimed that the lookout serves no purpose for preserving wilderness and favored No Action primarily because the structure is within recommended wilderness, is no longer in use, and that preservation of the structure would require periodic maintenance that would disturb wilderness values. One commenter thought a trail would create another pathway for weeds into the backcountry and questioned the costs of protecting the lookout from forest fires. A couple of commenters wrote that this project should be a low priority as there are other more pressing issues that the park needs to address.

These ideas, concerns and suggested alternatives are addressed under *Purpose and Need*,

Alternatives and Suggestions Considered and Dismissed, and Affected Environment and Environmental Consequences.

On May 27, 2010 the USFWS concurred with GNP's determination that the project may affect but is not likely to adversely affect Canada lynx or grizzly bears.

On November 10, 2010 the Montana State Historic Preservation Office concurred with the park's finding of no adverse effect for the preferred alternative.

Impact Topics Retained for Further Analysis

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; 2006 *Management Policies*; input from the Montana State Historic Preservation Officer; and NPS knowledge of natural and cultural resources within the Camas and McDonald drainages. Issues and concerns affecting the proposed action were identified by the public, other federal and state agencies, and the National Park Service. Impact topics are identified by determining what resources could be affected by the alternatives. Impact topics that are carried forward for further analysis in this environmental assessment are listed below along with the reasons why the impact topic is further analyzed.

The NPS defines "measurable" impacts as moderate or greater effects. It equates "no measurable effects" as minor or less effects. "No measurable effect" is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or environmental impact statement (EIS). The use of "no measurable effects" in this EA pertains to whether the NPS dismisses an impact topic from further detailed evaluation in the EA. The reason the NPS uses "no measurable effects" to determine whether impact topics are dismissed from further evaluation is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail in accordance with CEQ regulations at 1500.1(b).

Historic Structures

The NPS maintains historic structures based on sound preservation practices to ensure their long-term protection. The Heavens Peak Fire Lookout was constructed in 1945 and listed in the National Register of Historic Places in 1986. The structure is significant because of its architectural style and for its association with the Civilian Public Service (CPS) during World War II. Both the no action and the preferred alternative would affect the historic lookout.

Recommended Wilderness

Ninety-five percent of the park is recommended wilderness. Wilderness in GNP is defined as lands that are essentially undeveloped or are natural in character and lie at least 200 feet from the centerline of paved roads, 50 feet from unpaved roads, and 300 feet from developed areas. NPS policy requires the management of proposed or recommended wilderness as designated wilderness until the land is either formally designated or rejected. The Heavens Peak Fire Lookout is located within recommended wilderness, and the proposed project would affect recommended wilderness in the vicinity of Heavens Peak. This topic is therefore included for analysis.

Wildlife

The NPS is charged with maintaining native wildlife as an integral component of natural ecosystems. The proposed action could temporarily affect wildlife species within the project area; impacts to wildlife are therefore analyzed.

Threatened, Endangered, and Candidate Species and Species of Concern

The NPS protects and attempts to recover all native species that are listed under the Endangered Species Act of 1973. Both the *Management Policies* (2006) and

Director's Order 77 *Natural Resources Management Guidelines* require the NPS to examine and minimize the impacts of projects on federal candidate species as well as federally listed threatened, endangered, and state listed rare, declining, and sensitive species. In accordance with Section 7 of the Endangered Species Act, Glacier National Park is required to consult with the U.S. Fish and Wildlife Service (USFWS).

Federally Listed Species

Grizzly Bear (*Ursus arctos horribilis*). Federally listed as Threatened. The project area is heavily used by grizzly bears and the proposed plan may temporarily affect grizzly bear behavior, habitat use, and travel patterns. Impacts to grizzly bears are therefore analyzed.

Canada Lynx (*Lynx canadensis*). Federally listed as Threatened. Lynx have been detected in the upper McDonald valley, and habitat modeling indicates some high value lynx habitat in the vicinity of Heavens Peak. The proposed action could temporarily affect how lynx use the area, and impacts to lynx are evaluated.

Gray Wolf (*Canis lupus*). Federally listed as Endangered. Gray wolves may pass through the project area as part of their wide-ranging nature and because their distribution is linked to their prey base. Wolves have been recorded in the McDonald and Camas drainages and the proposed actions could temporarily affect wolf behavior and use of the area. Impacts to gray wolves are therefore analyzed.

Wolverine (*Gulo Gulo*). Candidate Species. The USFWS defines a candidate species as “a species under consideration for official listing for which there is sufficient information to support listing” (USFWS 2011). We have no documentations of wolverine using the project area, but individuals may range near Heavens Peak and use associated ridgelines and alpine habitat for travel. The species is therefore analyzed.

Species of Concern

Harlequin Duck (*Histrionicus histrionicus*). Upper McDonald Creek is one of the most important harlequin duck breeding and brood-rearing streams in Montana. Helicopter staging operations for the project could cause short and long-term disturbances to harlequin ducks; the species is therefore analyzed.

Natural Soundscapes

Noise from helicopter supply flights and a small generator, small power tools, and battery operated hand tools could temporarily disrupt existing soundscapes. Natural soundscapes are therefore analyzed.

Impact Topics Dismissed from Further Analysis

This section provides a limited evaluation and explanation as to why the following impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation if:

- they do not exist in the analysis area, or
- they would not be affected by the proposal or the likelihood of impacts are not reasonably expected, or
- through the application of mitigation measures, there would be minor or less effects (i.e. no measurable effects) from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

Due to there being no effect or no measurable effects, there would either be no contribution

towards cumulative effects or the contribution would be low. For each issue or topic presented below, if the resource is found in the analysis area or the issue is applicable to the proposal, then a limited analysis of direct and indirect, cumulative effects is presented.

For purposes of this section, an impact of negligible intensity is one that is at the lowest levels of detection, barely perceptible, and not measureable. An impact of minor intensity is one that is measureable or perceptible, but is slight, localized, and would result in a limited alteration or a limited area. The rationale for dismissing the specific topics is stated for each resource.

Vegetation

The NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants (NPS 2006). The project area contains vegetation that is characteristic of forested and alpine habitat types. Some minor trampling could occur, but impacts to vegetation would be short-term with no measurable effect to vegetative diversity and abundance. Vegetation is therefore not analyzed.

Soils

The NPS preserves the soil resources of parks and protects those resources by preventing unnatural erosion, physical removal, or contamination (NPS 2006). Some negligible to minor soil compaction could occur, especially at the work camp. The work camp would be approximately one acre, with separation between the toilet, sleeping, and food storage/preparation areas. Soils would be temporarily disturbed to accommodate a low-rider toilet kit at the work camp; excavated soils would be replaced after the toilet is removed at the end of the project. Impacts to soils would be temporary with no measurable effects; this topic is therefore not analyzed.

Threatened and Endangered Species and Species of Concern

While present in Flathead County, there are no known locations of the threatened Spalding's catchfly (*Silene spaldingii*) or the threatened water howellia (*Howellia aquatilis*) within GNP; consequently, there would be no effect to Spalding's catchfly or water howellia from the proposed project. However, if locations of listed plant species become known within the vicinity of the project area, the plants would be avoided.

Bull Trout (*Salvelinus confluentus*). Bull trout are listed as threatened under the Endangered Species Act and are also a state listed Species of Special Concern. Portions of Camas Creek below Camas Lake and approximately 1.6 miles of upper McDonald Creek above Lake McDonald have been designated as Final Critical Habitat (USFWS 2010). The proposed lookout stabilization project would not require excavation or any other activity that would cause sedimentation of waterways, and there would be no impacts to bull trout. Therefore, bull trout are not analyzed.

Species of Concern. State listed bird species of concern, including golden eagles (*Aquila chrysaetos*), gray-crowned rosy finches (*Leucosticte tephrocotis*), and Clark's nutcrackers (*Nucifraga columbiana*), could occur within the project area but are not expected to be measurably impacted by either alternative.

Stabilization of the lookout would occur after the critical nesting period for most species, only a small geographic area would be affected, and extensive undisturbed habitat would remain available. Except for helicopter supply flights, the proposed action would be localized to the Heavens Peak Lookout and the work camp site at the saddle north of the lookout. Helicopter flights could temporarily displace raptors and other birds from areas along Glacier Wall, and

species inhabiting forested and riparian areas along upper McDonald Creek at Logan Pit or Red Rock Point could be disturbed during helicopter staging operations. But disturbances would be short-term, and any impacts would be minor or less. The helicopter staging area and flight path are well away from any known golden eagle nest sites, and flights would occur outside the early chick rearing period. If golden eagle nests are discovered within 800 meters of the staging area or flight path, measures to mitigate disturbance to golden eagles from administrative flights, as identified in GNP's *Environmental Assessment to Conduct Additional Administrative Helicopter and Fixed-Wing Flights in 2003*, would be implemented. There are no known bald eagle (*Haliaeetus leucocephalus*) nesting territories near the project area, the helicopter staging area, or the proposed flight path, and there would be no impacts to bald eagles. Bird species of concern except for harlequin ducks are therefore not analyzed.

State listed mammalian species of concern that occur in GNP include the Townsend's big-eared bat (*Corynorhinus tonsendii*), hoary bat (*Lasiurus cinereus*), Preble's shrew (*Sorex preblei*), northern bog lemming (*Synaptomys borealis*), fisher (*Martes pennanti*), and swift fox (*Vulpes velox*). There is no evidence that bats have inhabited the lookout, and the structure is an unlikely site for a roost or maternity den since most of the windows have been blown out, leaving the building's interior highly exposed. The high alpine habitat is also not typical for bats. The project area does not contain suitable habitat for the Preble's shrew, northern bog lemming, fisher, or swift fox.

There would be no impacts to fish species of concern, including the westslope cutthroat trout, as there would be no excavation or other activity that would cause sedimentation of waterways. No herpetological species of concern have been documented within the project area; impacts to amphibians and reptiles are therefore unlikely. While distribution and abundance of invertebrate species of concern within the park are not well known, impacts are expected to be non-existent to negligible. Fish, herpetological, and invertebrate species of concern are not further analyzed.

Vascular Plants. There has been little rare plant exploration in high elevation areas west of the Continental Divide due to lack of accessibility. Sensitive vascular plants have not been documented at the lookout or work camp site, but surveys specific to rare plants have not been conducted. Some sensitive alpine species tend to be associated with snowmelt, the edges of permanent snowfields, and alpine seeps. Two small snowfields are present near the project area, but none exist where the work and foot traffic from work crews would be occurring. Three state listed sensitive plants that have been documented in talus and rock deposits near Logan Pass and which could exist near the Heavens Peak Lookout include northern fescue (*Festuca vivipara*), five-leaf cinquefoil (*Potentilla quinquefolia*), and one-flowered cinquefoil (*Potentilla uniflora*). Surveys for these species would be conducted prior to the start of the project and any documented specimens would be avoided. Rare vascular plants are therefore not expected to be impacted and are dismissed from further analysis.

Additionally, species not listed by the state but identified by GNP as sensitive, including Rocky Mountain bighorn sheep (*Ovis canadensis*), mountain goat (*Oreamnos americanus*), and pika (*Ochotona princeps*), probably use alpine habitat within and adjacent to the project area. But impacts to these species are expected to be negligible to minor since the work would be localized to a small geographic area and ample undisturbed area would remain available, especially

to highly mobile and far ranging species such as bighorn sheep, mountain goats, and raptors. Species with more constrained ranges, such as small mammals, would not likely be measurably impacted since the proposed project would cause few, if any, habitat alterations and disturbances would be short-term and of low intensity. Disturbances to mountain goats from helicopter flights have been observed, but the nature of such disturbance appears to be very temporary. Also, the number of flights for the project (12 or less) would be included in the park-wide annual quota of 50 flights, which the NPS has determined does not have a measurable effect (NPS 2003). Park identified species of concern are therefore dismissed from further analysis.

Visual Resources

Under the No Action alternative, the Heavens Peak Lookout would deteriorate and eventually disappear from the landscape, resulting in a slightly detectable change to the viewshed in a small area. Impacts to visual resources would be minor, however, and this topic is not analyzed.

Visitor Use and Experience

Visitor experience is addressed in the impacts analysis for natural soundscapes, since the temporary disruption of soundscapes during helicopter flights could impact visitors. Other impacts to visitor use and experience would not be measurable; therefore, visitor use and experience is not further addressed as a stand-alone topic in this document. Stabilization of the lookout may enhance the visitor experience directly for the few visitors who visit the site, and indirectly for those who do not visit but nonetheless value the lookout for its historical significance. Following stabilization, a few more visitors may be attracted to the lookout out of curiosity or renewed interest, possibly causing a slight increase in visitation. But the remoteness of the location would continue to be the primary factor influencing visits to the site, and measurable changes in how visitors use and experience the lookout are not anticipated. During helicopter staging operations, five to ten minute traffic delays could occur at the helispot, which would be either at Logan Pit or Red Rock Point along the Going-to-the-Sun Road. If traffic control was required, delays would be short term, they would occur in the morning when traffic volumes are low, and impacts to visitor use and experience would be negligible.

Human Health and Safety

The NPS *Management Policies* (2006) states the safety and health of all people are core Service values. Public health is addressed in Director's Order 83 *Public Health and Vector-borne and Zoonotic Disease* and employee health is addressed in Director's Order 50 B *Occupational Health and Safety Program*. These policies call for risk recognition and early prevention for a safe work and recreational environment, and the NPS is committed to eliminating and reducing health and safety risks when they are identified. Stabilization would improve the structural soundness of the lookout and minimize hazards that might be encountered by visitors to the site. There would be negligible to minor benefits to human safety, and the topic is dismissed from further analysis.

Air Quality

The Clean Air Act provides for special protection of air quality and air resources in all National Park Service units. Section 118 of the Clean Air Act requires parks to meet all federal, state, and local air pollution standards. Glacier is classified as a mandatory Class I area under the Clean Air Act, where emissions of particulate matter and sulfur dioxide are to be restricted. Air quality is considered good in

Glacier National Park. There are no metropolitan areas within 125 miles of the park, and no regional smog typical of highly populated areas with a high amount of vehicle traffic. Air quality would not be measurably affected by either of the alternatives. Impacts to air quality are therefore not analyzed.

Water Resources

NPS policies require protection of water quality in accordance with the Clean Water Act. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The US Army Corps of Engineers (COE) has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The US Environmental Protection Agency (EPA) also has responsibility for oversight and review of permits and actions which affect waters of the United States. No excavation or other activity that would result in sedimentation of waterways would occur under the proposed project. Therefore, effects on water resources are not analyzed.

Floodplains

Executive Order 11988 Floodplain Management requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The NPS is guided by the 2006 *Management Policies* and Director’s Order 77-2 *Floodplain Management* which provides guidance on how to implement Executive Order 11988. The Service will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director’s Order 77-2, the impacts of proposed actions within the 100-year floodplain must be addressed in a separate Statement of Findings (SOF). There would be no impacts to floodplains in the project area; therefore a SOF was not prepared and this impact topic is dismissed.

Wetlands

The definition of wetlands under the Clean Water Act is “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” Executive Order 11990 Protection of Wetlands requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, Section 404 of the Clean Water Act authorizes the United States Army Corps of Engineers to prohibit or regulate the discharge of dredged material, fill material, or excavation within US waters. NPS policies for wetlands as stated in 2006 *Management Policies* and Director’s Orders 77-1 *Wetlands Protection* strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1, the potential adverse impacts of proposed actions must be addressed in a separate SOF. There are no wetlands in the project area; therefore this impact topic was eliminated from further study.

Socioeconomic Resources

There would be no change to socioeconomic resources under the proposed project. Visitor numbers would not change, and park concession operations and local businesses would not be impacted. The topic is therefore dismissed from further analysis.

Cultural Landscapes

As described by the NPS Cultural Resource Management Guidelines (Director's Order – 28), a cultural landscape is: "...a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, building, walls, and vegetation, and by use reflecting cultural values and traditions." The Heavens Peak Fire Lookout is an isolated building without associated characteristics that help define a cultural landscape. Therefore, the topic of Cultural Landscapes has been dismissed.

Archeological Resources

The proposed action is not expected to impact archeological resources. The area was burned in the Trapper Fire of 2003. The campsite area was surveyed by a park para-archeologist in 2009 and no resources were identified. Prior to establishing the project campsite, it will again be surveyed by a professional archeologist. If pre-historic or historic properties are identified during the survey, the campsite will be relocated to avoid such properties. If archeological resources are identified, consultation with the State Historic Preservation Office and Tribal Historic Preservation Offices would occur in accordance with federal legislation and regulations and National Park Service policy. Archeological resources are therefore dismissed.

Ethnographic Resources

Ethnographic resources are defined by the NPS as "the cultural and natural features of a park that are of traditional significance to traditionally associated peoples" (NPS 2006). The proposed actions are not expected to impact ethnographic resources. Neither the Blackfoot Tribe nor the Confederated Salish and Kootenai Tribes raised concerns about the proposed action during scoping for the project, and ethnographic resources have been dismissed from further study. However, Glacier National Park recognizes that the tribes hold a body of knowledge that may result in the identification of ethnographic resources in the area in the future.

Museum Collections

According to the NPS *Management Policies* (2006) Director's Order 24 *Museum Collections*, the NPS requires consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript materials). NPS policy defines museum collections management including policy, guidance, standards, and requirements for preservation, protection, documentation, access, and use. Museum collections would not be affected by this project.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agriculture uses. There are no prime and unique farmlands located within Glacier National Park (NPS 1999).

Environmental Justice

Executive Order 12898 – General Actions to Address Environmental Justice in Minority Populations and Low-income Populations requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations

and communities. Disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the *Environmental Protection Agency's Environmental Justice Guidance* (1998) would not occur from actions proposed in the preferred alternative. Therefore, environmental justice was dismissed from further analysis.

Climate Change

The Intergovernmental Panel on Climate Change (IPCC) predicts “impacts of climate change will vary regionally but, aggregated and discounted to the present, they are very likely to impose net annual costs which will increase over time as global temperatures increase” (IPCC 2007). The proposed project is of a small scale, would not change visitor use patterns, is not likely to result in increased or reduced greenhouse gas emissions, and therefore is not expected to measurably impact the global climate. Climate change has therefore been dismissed from further analysis.

ALTERNATIVES CONSIDERED

An interdisciplinary team of GNP staff originally identified two action alternatives and a no action alternative. Public scoping identified additional alternatives. After further consideration, only one action alternative and the no action alternative were retained for further evaluation. The other alternatives are discussed under *Alternatives, Suggestions, and Issues Considered and Dismissed*.

Alternative A: No Action Alternative

The no action alternative describes the conditions that would continue to exist at Heavens Peak Lookout if no plan was implemented. The no action alternative provides a baseline for evaluating the changes and related environmental impacts that would occur under the action alternative.

Under the no action alternative, there would be no change to current conditions at Heavens Peak Fire Lookout, and no action would be taken to prevent further deterioration and eventual loss of the building.

Alternative B: Preferred Alternative

Under Alternative B, the Heavens Peak Fire Lookout would be structurally stabilized. Work would be in conformance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. The building’s roofing system would be repaired and new roofing installed. The flooring would be repaired and/or replaced, window and door components would be repaired, plexi-glass would be placed in selected windows to enable outside views from within the building, and shutters would be repaired or replaced. Shutters at viewing windows would not be fixed closed, but could be opened as needed for viewing purposes. Exposed exterior and some interior wood surfaces would be repaired, painted or stained, and minor re-pointing, masonry, and concrete repairs would be made where necessary to prevent further deterioration. Additionally, measures would be taken to prevent rodent infestation, the lightning arrest system would be upgraded, and trash and debris that has accumulated from the building’s deterioration would be removed.

Several components, including shutters and flooring materials, would be pre-fabricated off-site at park headquarters in West Glacier. On-site stabilization work would occur from late July until early September and would be conducted in partnership with volunteers. A small gas-powered Honda 2000 generator, small power tools, and battery operated hand tools would be used onsite during the project.

Work crews would camp at the original work campsite at the saddle (6000 ft. elevation) north of the lookout between Heavens Peak and Longfellow Peak (Figure 3). Two NPS special projects crew leaders would oversee two alternating volunteer work crews; crew size would be between two and six volunteers, depending on the stage of the project. Work crews would hike to the project area, starting from Packer's Roost. The route would follow the Flattop Mountain Trail and the McDonald Creek Trail before crossing McDonald Creek and following approximately the same route to the lookout as the original trail.

Up to twelve helicopter flights would be used to deliver project equipment and materials to the work site and to remove debris. Both small and medium sized helicopters would be used. Flights would occur on at least four and possibly five days over the duration of the project. There would be one flight on day 1, five flights on day 7, one and possibly two flights from days 22 to 26, and four flights on day 39. Flight times are not anticipated to exceed 15 minutes round trip; most round trip flights would likely take from 10 to 12 minutes.

The helicopter would fly 2,000 feet above ground level (AGL) from West Glacier to the staging area along upper McDonald Creek and Going-to-the-Sun Road (GTSR). Equipment and material sling load flights would originate at the staging area and fly northeast along the upper McDonald drainage before turning west to the work site. The helicopter would fly between 500 feet and 2,000 feet AGL during long line operations, except when landing or taking off. No landings at the lookout or campsite are planned or would be required, except in the event of an emergency.

Logan Pit along upper McDonald Creek and the GTSR would be the preferred location for helicopter staging operations. If Logan Pit is not available due to GTSR rehabilitation activity, the helicopters would stage from Red Rock Point.

A large, bear-proof, lockable food storage container would be flown to the campsite. A low-rider toilet kit would also be flown to the campsite and removed at the end of the project. Emergency helispots would be selected and marked near the lookout and the campsite in case an emergency evacuation is necessary. The onsite portion of the project is expected to take approximately 39 days. The project would take place within the backcountry zone and recommended wilderness, and would be accessed by traveling through the visitor service zone associated with the Going-to-the-Sun Road and the rustic zone associated with Packer's Roost.

Mitigation Measures

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects and would be implemented as needed during the project:

Archeological Resources

- An archeological survey would be conducted at the work camp location to ensure prehistoric and/or historic artifacts are not disturbed.



Figure 3: Heavens Peak Lookout stabilization project area.

Historic Structures

- The stabilization work would be in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Recommended Wilderness

- A low-rider toilet kit would be flown to the work campsite and removed at the end of the project.
- Several building components, including shutters and flooring materials, would be prefabricated off site to reduce onsite noise impacts, limit onsite personnel, and minimize project time.
- Non-electric hand tools would be used as much as possible to reduce artificial noise.
- The generator would be kept inside the propane storage annex during use to reduce noise impacts.
- Construction debris and equipment and garbage would be flown out on back-hauls of incoming flights and after project completion.
- Flights would be coordinated with other area work projects in order to minimize administrative flights over recommended wilderness. Hauling needs for other projects would be combined with the Heavens Peak Lookout project as possible.

Wildlife, Threatened and Endangered Species, and Species of Concern

- A bear-proof, lockable food storage container would be flown to the campsite.
- Perishable food items would be carried by volunteers.
- A low voltage, solar powered electric fence would be placed around the camp perimeter.
- Volunteers would be trained on appropriate behavior in the presence of wildlife and on proper storage of food, garbage and other attractants.
- The helicopter flight path would skirt the west flank of upper McDonald Creek whenever possible, thus minimizing time spent directly above the creek where harlequin ducks could be resting or foraging.
- Helicopter flights would maintain a distance of 2.0 km (1.2 miles) from mountain goats, if possible.
- Helicopters would follow suggested flight paths away from sensitive areas.
- The helicopters would fly at a minimum of 500 feet AGL except when landing or taking off or when delivering supplies on a long-line.
- Flight paths would be designated so as to avoid open alpine meadows where grizzly bears that are present would not have access to cover. If a low level flight or landing is needed in an alpine area and a bear is seen, the flight may be postponed depending on the judgment of the flight manager.
- Helicopters in the vicinity of an active golden eagle nest would follow a flight path that allows the aircraft to be visible to nesting eagles, if possible.
- Flights would occur between one hour after sunrise and one hour before sunset to mitigate disturbance to nesting golden eagles.
- During helicopter flights, natural resources staff would monitor wildlife, including harlequin ducks and nesting golden eagles, for observable signs of disturbance.
- Surveys for rare plants would be conducted at the start of the project; if rare plants are discovered within the project area, they would be avoided.

Visitor Use and Experience

- Helicopter flights would take place in the morning, if possible, to minimize disruption to peak-hour visitor traffic along the GTSR. Traffic control crews would be at the helispot, and traffic stops would be as brief as possible (5-10 minute stops are anticipated, subject to changing conditions). One lane of traffic would likely be kept open during the

operation, with the possible exception of the fueling stop.

Vegetation

- Glacier National Park's Best Management Practices would be implemented to minimize the extent of impacts.
 - Disturbance to vegetation would be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Vegetated material removed to accommodate the temporary low-rider toilet at the work camp would be stored in a shaded, protected site and watered periodically. Once the toilet is removed, the vegetation would be replaced and the edges of the disturbance would be seeded with ripe native seed collected onsite.
- A vegetation inventory would be completed at the start of the project. If restoration is necessary following project completion, native species from the site would be utilized for revegetation seeding and planting efforts. Plant species density, abundance, and diversity would be restored as nearly as possible to prior conditions for non-woody species.
- If non-native invasive plants invade an area, an integrated weed management process would be implemented to control the particular species.

Soils

- Glacier National Park's Best Management Practices would be implemented to minimize the extent of impacts.
 - Disturbance to the ground would be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Soils excavated to accommodate the temporary low-rider toilet at the work camp would be set aside and replaced when the toilet is removed. Salvaged soils would be protected from trampling, and topsoil would be stored separately from subexcavated materials. Once the toilet is dismantled, the hole would be backfilled with the salvaged soil; subexcavated materials would be replaced first, topsoil would be replaced last, and the hole would be overfilled slightly to ensure that it does not settle and form a depression. Vegetation would be replaced and the edges of the disturbance would be seeded with native seed collected onsite.
- Erosion control measures that provide for soil stability and prevent movement of soils into waterways would be implemented.
- Bare soils would be replanted with native vegetation to prevent erosion.

Natural Soundscape

- Several structural components, including shutters and flooring materials, would be pre-cut and assembled off site to minimize noise from onsite cutting and sawing.
- Non-electric hand tools would be used as much as possible to reduce artificial noise.
- The generator would be kept inside the propane storage annex during use to reduce noise impacts.
- Administrative flights would be coordinated with other projects to minimize cumulative helicopter noise. Whenever possible, hauling needs for other projects would be combined with flights for the Heavens Peak lookout project.

Alternatives, Suggestions, and Issues Considered and Dismissed

This section discusses one previously identified alternative, a dismissed location for an alternate helispot, a dismissed alternative means of transporting equipment, and alternatives and suggestions from public scoping that were considered but dismissed. Comments and concerns received during scoping stating that the project would not be in compliance with the Wilderness Act or that the Wilderness Act does not apply are addressed.

Remove the Heavens Peak Fire Lookout. This alternative was considered and dismissed because the Heavens Peak Lookout is a historically significant cultural resource that contributes to the park's wilderness landscape and character, and because the NPS remains responsible for the preservation of cultural resources within either recommended or designated wilderness. Section 4(a)(3) of the Wilderness Act holds that "the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this chapter shall in no manner lower the standards evolved for the use and preservation of such park. . .". Section 6.3.8 of NPS Management Policies 2006 states that "Cultural resources that have been included within wilderness will be protected and maintained according to the pertinent laws and policies governing cultural resources using management methods that are consistent with the preservation of wilderness character and values."

Rehabilitate the Heavens Peak Fire Lookout and reconstruct the original trail.

Rehabilitation, in historic preservation terms, means to return a building to a usable state while preserving the elements that contribute to its listing as a historic structure. Rehabilitation of the Heavens Peak Lookout was considered but dismissed because the lookout is not regularly used for fire management purposes. The park is currently funded for the staffing of four lookouts, and only those that provide the most expansive views and can be supported logistically are in use. The nearby Swiftcurrent and Huckleberry Fire Lookouts provide greater overall coverage of the surrounding viewshed and meet most of the highest priority fire management needs for the area.

Reconstructing the original trail from McDonald Creek or building a new trail from the Camas drainage was considered but dismissed because both drainages are used extensively by grizzly bears, providing travel corridors and valuable habitat for resident and non-resident bears. Anecdotal information and DNA analysis of grizzly bear hair samples collected in the area suggests that the Camas drainage receives especially high use (K. Kendall, personal communication).

Secure habitat is critical for the protection of grizzly bear populations, and solitude from people is well recognized as an essential element of effective grizzly bear habitat (USFWS 1993). Human activities, including recreation, compete with grizzlies for space and habitat and can displace bears from travel routes, cover, and forage and resting areas. Bears with limited exposure to people are less susceptible to human habituation and food conditioning.

The remote, expansive, and trail-less backcountry within both the Camas and upper McDonald drainages provides bears with seclusion from human activity. Rebuilding the original trail or opening a new trail to the lookout would increase human access to these important secluded backcountry areas, putting a significant portion of the grizzly bear population at increased long-term risk of disturbance and displacement from valuable forage sites and travel corridors. Increased human access would also increase the potential for a high number of bears to become food conditioned or unacceptably habituated to people. Therefore, constructing a trail to the Heavens Peak Lookout would have major, long-term and potentially permanent adverse affects to the threatened grizzly bear. Constructing a trail would also increase the risk of non-native invasive plants becoming established in a sensitive backcountry area. This alternative has therefore been dismissed.

Consider an alternative location for a helicopter staging area at Logan Creek Pullout. The pullout at the Logan Creek comfort station was considered as a site for helicopter staging in order to avoid noise impacts to high-value harlequin duck habitat at Red Rock Point. The location was dismissed due to aerial hazards, limited space for operational support, and because it did not meet safety circle specifications. Helispot requirements for Type II and Type III helicopters include a 90 foot safety circle and 300 foot approach and departure paths. The approach and departure paths at the Logan Creek comfort station pullout would require a low-

level flight upstream for nearly one-quarter mile before the load could be maneuvered around large trees. The loads would be exposed directly over the creek, and there are a substantial number of trees that pose an aerial hazard.

Use livestock or human transport as an alternative means of ferrying equipment and materials. Livestock and/or human transport of materials and equipment to the project area was considered but dismissed. Livestock or human transport would require multiple trips within a trail-less backcountry area and would cause impacts to resources, including vegetation, soils, wildlife, and recommended wilderness. A temporary trail would be required in order for work crews and livestock to safely access the project area, and would adversely affect grizzly bears as described above. Visitor use and experience would also be impacted by work crews staging at Packer's Roost, hiking the Flattop Mtn. and McDonald Creek trails, and travelling through the backcountry. Many supplies necessary for the project, including safety equipment, cannot be carried by livestock or humans due to size, weight, and packaging, and stock animals would not be able to access the lookout site. Helicopters would enable large building components to be prefabricated off-site and flown in rather than constructed onsite. Prefabricated building components would be too big for transport to the lookout via livestock or work crews, and their construction onsite would result in more noise and disturbance and a prolonged period of human presence in a wilderness setting.

Use hand tools exclusively to complete the stabilization project. Exclusive use of hand tools to complete the stabilization project was considered but dismissed because it would considerably increase the amount of time required to complete the project, increasing the amount of time that crews are onsite and at the work camp in an undesignated camping area, thus increasing overall impacts to wilderness.

Comment: *Remove the lookout and restore the site to its natural state because of its location in recommended wilderness.* **Response:** Removing the lookout has been addressed; see above.

Comment: *Dismantle and remove the lookout and reconstruct it in a more accessible location, such as near a visitor center.* **Response:** This suggested alternative was considered and dismissed because the lookout's location is integral to its listing in the National Register of Historic Places. Buildings that are moved from their original locations are generally delisted from the National Register. Also, removing and reconstructing the lookout would not be feasible due to the structure's stone and masonry construction materials.

Comment: *Consider building a trail to the lookout from Camas Lake.* **Response:** As stated above, this alternative was considered and dismissed because the Camas drainage contains high value bear habitat and is heavily used by grizzly bears. A trail through the upper Camas drainage would have major, long-term and potentially permanent adverse affects to the threatened grizzly bear, and would open a sensitive backcountry area to the introduction of non-native invasive plants.

Comment: *An established, well-maintained trail would have less environmental impact than bushwhacking up various routes; bushwhacking can lead to more vegetation damage from social trails and more confrontations with bears.* **Response:** It is true that trails generally cause less environmental impact than bushwhacking when there are large numbers of people using an area. However, the Heavens Peak Lookout is not intended to be a high-use destination, a trail is not being considered for the reasons explained above, and the current low level of bushwhacking is not expected to cause impacts to vegetation that would be of concern. Bushwhacking to the lookout is limited by the remoteness of the location and the difficulty of the terrain and occurs along several different routes, thereby dispersing the impacts. An established trail would result in a substantial increase in human access and activity. At current use levels, bushwhacking would cause less impact than construction and maintenance of an established trail. While it is also true that bushwhacking is not recommended in bear country, bears use trails and the presence of a trail may not necessarily reduce the potential for

encounters with bears.

Comment: *If the trail is not restored and people cannot hike to the lookout, then the lookout should be left to deteriorate.* **Response:** The NPS is responsible for the preservation of cultural resources. As a building listed in the National Register of Historic Places, the Heavens Peak Lookout possesses value as a historically and architecturally significant representation of a distinct period in the history of the park. The lookout also has value for its association with the Civilian Public Service and as an embodiment of NPS rustic design philosophy.

Comment: *Restore other trails that are no longer in use, specifically the Park Ridge Trail between Kintla and Bowman Lakes and the trail from Red Eagle Lake to Red Eagle Pass.* **Response:** This is outside the scope of this project, but the suggestion has been forwarded to the Wilderness Manager for the park.

Comment: *Do not restore the trail, but clear it of downed logs and improve the flagging; the trail as it is now would be a hazard to work crews.* **Response:** Temporary flagging would be used to guide work crews along the route to the work camp, but flagging would be removed at the end of the project. All workers would be required to hike as a group, and hard hats would be required for the ascent to the lookout from the camp. Downed logs would not be removed, but the flagged route may go around them.

Comment: *Make the lookout available as a rental or visitor facility, or use it for emergency fire management purposes.* **Response:** The Heavens Peak Lookout is located within recommended wilderness, and renting it would be prohibited under the Wilderness Act. The interior of the lookout is currently open and accessible to visitors, and would continue to be so under the preferred alternative. The lookout is not regularly occupied for fire detection purposes, since the Swiftcurrent Lookout provides coverage for most of the area. However, the Heavens Peak Lookout has been and could be used by fire management personnel as an additional vantage point for monitoring a fire in the area.

Comment: *Restore the Divide Peak Lookout.* **Response:** This was dismissed because the lookout on Divide Peak is outside the park boundary.

Comment: *Provide interpretive exhibits onsite or place exhibits on the Heavens Peak Lookout at other locations, such as visitor centers or the Loop.* **Response:** This was considered but dismissed because the remoteness of the site and lack of access precludes placing a formal interpretive exhibit onsite. Development of interpretive material for visitor centers and or the Loop would be considered, but not as part of this stabilization effort. This has been forwarded to the Visitor Education and Interpretation Division.

Comment: *Enlist volunteer retired smokejumpers from the National Smokejumpers Association to restore the lookout.* **Response:** The park has received several offers from volunteers who would like to work on the project. Two crews of two to six members each would be needed, depending on the stage of the project. Many volunteers have already offered their assistance and, while the park appreciates all offers, additional volunteers are not necessary at this time. However, names received during the public comment period have been forwarded to the project leader.

Comment: *Select materials for the lookout's stabilization that will last.* **Response:** Materials would be selected on the basis of their environmental durability and conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Comment: *Schedule helicopter flights so that noise is minimized; limit the number of helicopter flights during peak visitor season and restrict flight paths to road corridors.* **Response:** The helicopters would fly in the morning, if possible, to minimize disturbance during peak visitor hours. If golden eagles are nesting nearby, the flights may also be scheduled to reduce noise impacts to the birds. There would be no more flights than necessary to implement the project, and a portion of the flight path would follow the Going-to-the-Sun Road corridor.

Comment: *Clean up trash and debris prior to the helicopter flights and fly it out on return trips.*

Response: Debris removal during return flights would be part of the project plan and would be incorporated into the schedule.

Comment: *Eradicate weeds to the 1945 level.* **Response:** This is beyond the scope of this project. However, Glacier National Park is committed to weed control throughout the park and will continue efforts toward controlling weeds wherever possible.

Comment: *A recommendation was made that GNP should not become a designated wilderness area if this designation would preclude the park from preserving historic structures and maintaining hiking trails.* **Response:** Whether or not the park's recommended wilderness becomes designated wilderness is outside the scope of this project. However, neither trail maintenance nor the preservation of historic structures is prohibited in either recommended or designated wilderness, provided such actions do not exceed minimum requirements for administrative uses.

Comment: *A few commenters suggested that this project could not be considered because they believe that the Wilderness Act prohibits preserving historic structures within recommended wilderness or that historic structures do not belong in wilderness unless they are "necessary" for the administration of wilderness.* **Response:** This was dismissed because it is incorrect. The Wilderness Act clearly acknowledges the presence and value of cultural resources within wilderness. The Act's definition of wilderness includes not only wild landscapes in their natural state, but also lands which may "contain ecological, geological, or other features of scientific, educational, scenic, or historical value" [Section 2(c)(4)]. The Wilderness Act does not call for the removal of historic structures, nor does it prohibit maintenance for their preservation; the prohibition on structures in wilderness pertains to modern structures (NPS 2002 and 2006). According to Section 6.3.8 of *NPS Management Policies 2006* "cultural resources that have been included within wilderness will be protected and maintained according to the pertinent laws and policies governing cultural resources using management methods that are consistent with the preservation of wilderness character and values." The Policy goes on to say "...the laws pertaining to historic preservation also remain applicable within wilderness but must generally be administered to preserve the area's wilderness character." The Park Service's responsibilities toward the preservation of historic structures under numerous laws, including the Antiquities Act; the Historic Sites Act; the National Historic Preservation Act; and the NPS Organic Act; remain applicable within wilderness.

Section 4(a) of the Wilderness Act states the following: "The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and wildlife refuge systems are established and administered". In specific reference to wilderness within the national park system, Section 4 (a) (3) of the Act holds that a wilderness designation of lands within a national park "shall in no manner lower the standards evolved for the use and preservation of such park". Therefore, the proposal to stabilize the Heavens Peak Lookout is in compliance with the Wilderness Act. Section 6.3.10 of *NPS Management Policies 2006* states "Maintenance or the removal of historic structures will also comply with cultural resource protection and preservation policies and directives, and with the concept of minimum requirement management techniques for wilderness". The *Minimum Requirement Decision Guide* (MRDG) describes a process used by federal land management agencies to analyze proposed actions and their potential effect on wilderness, to determine if any administrative action is necessary in wilderness, and if so, what the minimum activity is to accomplish the action. Glacier National Park has completed the MRDG process for the Heavens Peak Lookout stabilization project (Appendix B); the park has determined that the project is necessary, has assessed the effects of stabilization on recommended wilderness, and has identified the least intrusive method of accomplishing the proposed work.

In conclusion, the proposed project is in compliance with the Wilderness Act since the

Wilderness Act does not prohibit the preservation of historic structures, the park service's responsibilities toward preservation of historic structures are applicable within wilderness, and stabilization of the Heavens Peak Lookout would not exceed the minimum requirements for administrative uses within wilderness. However, impacts on wilderness have been analyzed in the Environmental Consequences section of this EA.

Comment: *One commenter stated that since Glacier National Park only has recommended wilderness, the Wilderness Act does not apply.* **Response:** This has been dismissed because it is incorrect and the Wilderness Act does apply to park lands. Glacier National Park completed a study and environmental impact statement in 1973 to comply with the 1964 Wilderness Act. That document was subject to public review and resulted in the recommendation that over 90 percent of the park should be designated as wilderness. President Nixon forwarded that recommendation to Congress on June 13, 1974. A bill was subsequently introduced to formally designate the land as wilderness. That bill was never enacted but since that time it has been reaffirmed by every president. As a result of case law challenging management of proposed wilderness, it is NPS policy to manage proposed wilderness as wilderness until such time as the land is either formally designated or formally rejected by Congress.

Alternative Summaries

Table 1 summarizes the major components of Alternatives A and B and compares the ability of these alternatives to meet the project objectives (as identified in the *Purpose and Need*). As shown, the no action alternative achieves one of the project objectives while the preferred alternative achieves all of the project objectives.

Table 1: Summary comparison between Alternatives A (No Action) and B (Preferred).

Objectives	Alternative A – No Action	Alternative B – Preferred
Preserve a cultural resource that represents the Civilian Public Service's contribution to the park, is an example of NPS rustic architecture, and is listed in the National Register of Historic Places.	No. The Heavens Peak Fire Lookout would continue to deteriorate and would eventually be lost.	Yes. A structure that best signifies the Civilian Public Service's contribution to the park, embodies NPS rustic architecture, and is listed in the National Register of Historic Places would be structurally stabilized and preserved.
Preserve a cultural resource that imparts historical value to the park's recommended wilderness, contributes to the unique character of the Heavens Peak wilderness setting, and was contained within park lands recommended for wilderness at the time of the wilderness hearings.	No. A historically significant lookout would eventually disappear from the Heavens Peak wilderness landscape.	Yes. A cultural resource that imparts historical value to the Heavens Peak wilderness setting would be preserved.
Meet the intent of historic preservation legislation and the Wilderness Act through recognition of the NPS's statutory responsibilities to preserve both wilderness and cultural resources.	No. The NPS's statutory responsibilities toward both historic and wilderness preservation would not be fully recognized because a historically significant cultural resource that contributes to the wilderness setting would be lost.	Yes. Because a historically significant resource that imparts unique value to recommended wilderness would be preserved, the NPS's statutory responsibilities toward historic preservation and the Wilderness Act would be fully recognized.
Conduct work in such a way that impacts to natural resources, including recommended wilderness, are minimized.	Yes. No work would occur under this alternative, so there would be no impacts to recommended wilderness.	Yes. Long term adverse impacts to wilderness from stock animals would be avoided in a trail-less area by using helicopters to ferry equipment and supplies. No helicopter landings would occur (except in case of an emergency) because materials would be transported as sling-loads.

Table 2 summarizes the anticipated environmental impacts for Alternatives A and B. Only those impact topics that have been carried forward for further analysis are included. The Affected Environment/Environmental Consequences section provides a more detailed explanation of these impacts.

Table 2: Environmental Impact Summary by Alternative.

Impact Topic	Alternative A – No Action	Alternative B – Preferred
Historic Structures	Alternative A would result in the deterioration and eventual loss of the Heavens Peak Fire Lookout; impacts to historic structures would be adverse, moderate, long-term, and site-specific.	The project would preserve this important historic structure. Stabilization work would be in conformance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. Impacts to the historic structure would be beneficial, moderate, long-term, and site-specific.
Recommended Wilderness	Negligible to minor beneficial, long-term and local impacts to the undeveloped appearance of the wilderness landscape could occur because, eventually, the lookout would no longer be visible from a distance. Minor long-term adverse and site-specific impacts to the immediate wilderness setting would continue with the accumulation of man-made trash from the lookout’s deterioration. Long-term, site-specific to widespread, and minor to moderate adverse impacts would occur from the loss of a significant cultural resource that contributes historical value to the park’s recommended wilderness.	Negligible long-term, site-specific and local adverse impacts to the undeveloped appearance of the wilderness landscape would occur from the continued presence of a structure. Minor beneficial, long-term and site-specific impacts would occur to the immediate wilderness setting from the removal of man-made trash that has accumulated from the building’s deterioration. Long-term beneficial, minor to moderate, site-specific to widespread impacts would occur from the preservation of a cultural resource that contributes historical value to the park’s recommended wilderness. Short-term, site-specific and local, minor to moderate adverse impacts would occur from temporary noise and construction activity; long-term, negligible to moderate adverse impacts that are site-specific and possibly local would occur from periodic structural maintenance.
Wildlife	No effect.	Negligible to minor adverse, short-term, site-specific and local impacts to wildlife could occur due to temporary disturbances from helicopter flights and human activity.
Threatened, Endangered, and Candidate Species and Species of Concern		
Grizzly Bear	No effect. Under Section 7, “no effect”.	Negligible to minor, adverse, short-term, site-specific and possibly local impacts to grizzly bears could occur due to temporary displacement from human activity and helicopters. Under Section 7, the determination would be “may affect, not likely to adversely affect”.
Canada Lynx	No effect. Under Section 7, “no effect”.	Negligible to minor, adverse, short-term, site-specific, and possibly local impacts to lynx could occur from temporary disturbances from helicopter flights or human activity. Under Section 7, the determination would be “may affect, not likely to adversely affect”.
Gray Wolf	No effect. Under Section 7, “no effect”.	Negligible, adverse, short-term, and site-specific and possibly local impacts to wolves could occur from temporary

		disturbances from helicopter flights. Under Section 7, the determination would be “no effect”.
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Table 2: Environmental Impact Summary by Alternative, continued.

Impact Topic	Alternative A – No Action	Alternative B – Preferred
Wolverine	No effect.	Negligible, adverse, short-term, and site-specific and possibly local impacts to wolverines could occur from temporary disturbances from helicopter flights.
Harlequin Duck	No effect.	Adverse, short-term, site-specific, local, and possibly long-term and regional impacts to harlequin ducks would occur from disturbances or displacement from stream habitat near the helispot. Impacts would be minor to moderate if the helispot is at Logan Pit and moderate if it is at Red Rock Point.
Natural Soundscapes	No effect.	Adverse, minor to moderate, short-term, site-specific and local impacts to natural soundscapes would occur from temporary noise produced by helicopters, a generator, power tools, battery operated hand tools, and some non-electric tools.

Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s §101.” Section 101 of the National Environmental Policy Act states that “... it is the continuing responsibility of the Federal Government to ...

- 1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- 3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- 4) preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- 5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- 6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

Alternative A, no action, would not fulfill criteria 1- 5 because the historic and structural integrity of the Heavens Peak Fire Lookout would be lost, a building listed in the National Register of Historic Places would not be preserved for future generations, and the range of beneficial use of resources would be limited by the exclusion of cultural resource values. Criterion 6 is not applicable.

Alternative B is the environmentally preferred alternative because it best addresses five of the six criteria. Alternative B would best address criteria 1-5; criterion 6 is not applicable to this project. Alternative B best meets the NPS trustee role as a steward of Glacier National Park's cultural resources and recommended wilderness, and would preserve an important aspect of our national heritage for future generations by maintaining the historical and architectural integrity of a building that contributes to the park's wilderness setting, was contained within park lands originally recommended for wilderness, and is listed in the National Register of Historic Places. Because Alternative B meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative B is recommended as the preferred alternative.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This section examines all potential impacts by considering the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Actions are analyzed for their direct and indirect effects. Direct effects are impacts that are caused by the alternatives at the same time and in the same place as the action. Indirect effects are impacts caused by the alternatives that occur later in time or are farther in distance from the action. Potential impacts are described in terms of context, duration, and intensity (Table 3).

- **Type:** impacts are either *beneficial* or *adverse*. A resource may be affected both beneficially and adversely (e.g., one wildlife species may benefit while another is harmed), however an overall impact for the resource as a whole is determined.
- **Spatial Context:** impacts are 1) *site-specific* at the location of the action, 2) *local* on a drainage or district-wide level, 3) *widespread* throughout the park, or 4) *regional* outside of the park.
- **Duration:** impacts are short-term or long-term. The definitions for these periods depend upon the impact topic and are described in Table 3.
- **Intensity:** the impacts are *negligible*, *minor*, *moderate*, or *major*. Definitions of intensity vary by impact topic and are provided in Table 3.

The NPS equates "major" effects as "significant" effects. The identification of "major" effects in the preferred alternative or proposed action would trigger the need for an EIS. Where the intensity of an impact could be described quantitatively, the numerical data is presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

Effects to historic properties listed in or eligible for listing in the *National Register of Historic Places* also have been described in accordance with *Section 106* of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, *36 CFR 800*.

Cumulative Impact Scenario

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require assessment of cumulative impacts in the decision making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the alternative with other past, ongoing, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects in the vicinity of Heavens Peak and, if applicable, the surrounding area. The following are past, present and reasonably foreseeable actions that have occurred and could occur in the vicinity of the project area:

Past Actions

- *Helicopter and fixed-wing flights west of the Continental Divide.* Over the years, the NPS has used helicopter and fixed-wing flights to deliver supplies and materials to the backcountry, perform maintenance on radio towers, monitor wildlife, and respond to medical and fire emergencies. Commercial scenic air tours of the park, which the park has no authority over, have also been occurring for a number of years.

On-going Actions

- *Administrative helicopter flights to Granite Park.* Untreated human waste is removed annually from the biological mediation system unit (toilet) that services the Granite Park Chalet. Waste is transferred to 55 gallon barrels approved for slinging under helicopters, flown to a helispot, and transported by vehicle to the park's sewage treatment facilities in West Glacier. Logan Pit has typically been the preferred helispot but has been unavailable because of staging needs for the GTSR rehabilitation project. Recently, therefore, the helispot for waste removal flights has been at Red Rock Point. Waste removal occurs in mid to late September and, depending on the amount of waste, requires approximately six round trip flights over a period of a few hours.
- *Radio tower repair and maintenance flights to Porcupine Lookout.* Communications among park personnel is considered a life safety issue; therefore radio tower repairs must be completed immediately. Helicopters are used to drop off and pick up equipment and in rare instances, personnel. Repair work is infrequent but has required one or two flights in a given year, depending on the type of repair needed. Administrative helicopter flights to Porcupine Lookout have only been needed for one project, as the lookout is accessible by foot, but other flights have occurred on an emergency basis to perform unexpected repairs to radio equipment. Flights have typically originated from West Glacier and headed north, flying west of Longfellow Peak and well away from the project area. However, the flight path is dependent on weather conditions and pilot judgment and may approach Heavens Peak as circumstances warrant.
- *Commercial scenic air tours.* A number of commercial operators currently provide scenic air tours over the park. In the *Final General Management Plan* (1999), the park predicted that the number of commercial scenic over flights would increase, although a use ceiling was instituted in 2001 with the passage of the Air Tour Management Act. The NPS and the Federal Aviation Administration (FAA) recommend that commercial air tour operators fly at least 2000 feet above ground level (AGL) over parks and wilderness areas. The NPS does not have jurisdiction over commercial air tours originating outside the park.

Future Actions

- *Additional administrative helicopter flights west of the Continental Divide.* Helicopters are used administratively as necessary, and only after rigorous review, to deliver equipment and supplies necessary for periodic maintenance and rehabilitation to backcountry structures, trails, lookouts, campsites and other backcountry projects each year. Flights are generally not permitted if materials can be transported to the work sites by other methods. Additional helicopter flights west of the Continental Divide for the summer of 2011 are anticipated to deliver supplies and materials to project sites in the backcountry, and to remove waste from Sperry and Granite Park Chalets. The park closely manages the use of administrative flights and has determined that approximately fifty flights per

year will not result in measurable effects to park resources (NPS 2003). GNP conducts an aviation meeting each year with park staff to review and approve or deny flight requests for park projects. Information from this meeting is used to combine flights to reduce the total number of administrative flights. If more than approximately 50 flights are required in a given year, an environmental assessment or impact statement would be prepared.

- *Emergency response helicopter flights.* Helicopter flights could be required during medical and fire emergencies in both the backcountry and the visitor services zone.

Table 3: Definitions for intensity levels and duration.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Historic Structures	Treatment is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the finding of effect would be no historic properties affected or no adverse effect.	<p>Adverse: Treatment would affect a character defining feature(s) of a structure that is listed or eligible for listing in the National Register of Historic Places. Treatment is not in accordance with the Secretary of the Interior’s Standards, but does not impact the structure to the point that its National Register listing is threatened. For purposes of Section 106, the finding of effect would be no adverse effect.</p> <p>Beneficial: Treatment is generally limited to actions to maintain, protect, and repair a structure that is listed or eligible for listing in the National Register of Historic Places, in accordance with the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties</i>. For purposes of Section 106, the finding of effect would be no adverse effect.</p>	<p>Adverse: Treatment would alter a character defining feature(s), diminishing the integrity of the structure to the extent that its National Register eligibility or listing is threatened or removed. For purposes of Section 106, the finding of effect would be adverse effect.</p> <p>Beneficial: Treatment would stabilize, rehabilitate, or restore a structure that is listed or eligible for listing in the National Register of Historic Places, in accordance with the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties</i>. For purposes of Section 106, the finding of effect would be no adverse effect.</p>	<p>Adverse: Treatment would alter a character defining feature(s) of a National Historic Landmark, diminishing the integrity of the resource to the extent that its designation is threatened or removed. For purposes of Section 106, the finding of effect would be adverse effect.</p> <p>Beneficial: Treatment would stabilize, rehabilitate, or restore a National Historic Landmark in accordance with the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties</i>. For purposes of Section 106, the finding of effect would be no adverse effect.</p>	<p>Short-term: Effects extend only through the period of construction</p> <p>Long-term: Effects extend beyond the period of construction</p>

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Recommended Wilderness	The effect on recommended wilderness would not be detectable.	The effect would be detectable, but would not appreciably affect the defining attributes of wilderness as described by the Wilderness Act.	The effect would be readily apparent and/or would appreciably affect the defining attributes of wilderness as described by the Wilderness Act.	The effects would be highly apparent and would significantly affect the defining attributes of wilderness as described by the Wilderness Act.	<p>Short-term: Occurs for one year or less.</p> <p>Long-term: Occurs for more than one year or is permanent.</p>
Wildlife	Effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to wildlife species' populations.	Effects on wildlife species would be detectable, although the effects would be localized and would be small and of little consequence to the species' population.	Effects on wildlife species would be readily detectable and widespread, with consequences at the population level.	Effects on wildlife would be obvious and would have substantial consequences to species' populations in the region.	<p>Short-term: After implementation, would recover in less than 1 year.</p> <p>Long-term: After implementation, would take more than 1 year to recover or effects would be permanent.</p>

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Threatened, Endangered, and Species of Concern	The alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a “no effect” determination in U.S. Fish and Wildlife Service terms.	An individual(s) of a listed species or its critical habitat would be affected, but the change would be small. Minor effect would equate with a “may affect, not likely to adversely affect” determination for the species in U.S. Fish and Wildlife Service terms and would require informal consultation.	An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect could have some long-term consequence to individuals, populations, or habitat. Moderate effect would equate with a “may affect” determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of “likely...” or “not likely to adversely affect” the species and would require either informal or formal consultation.	An individual or population of a listed species, or its critical habitat, would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a “may affect, likely to adversely affect” or “not likely to adversely affect” determination in U.S. Fish and Wildlife Service terms and would require formal consultation.	Short-term: After implementation, would recover in less than 1 year. Long-term: After implementation, would take more than 1 year to recover or effects would be permanent.

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Natural Soundscapes	Noise from the action would very rarely be audible or would be below the level of detection and would not result in any perceptible consequences.	The action would be less than 1 month or noise from the action would rarely be audible or would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within a short distance (<100m for backcountry and rustic zones; <200m for day use and visitor service zones) from the source.	The action would be 1 to 3 months or noise from the action would occasionally be audible or would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within an intermediate distance (100m - 500m for backcountry and rustic zones; 200m - 600m for day use and visitor service zones) from the source.	The action would be more than 3 months and noise from the action would be regularly audible and would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within a large (>500m for backcountry and rustic zones; >600m day use and visitor service zones) distance from the source.	Short-term: Would be temporary during implementation. Long-term: Would be permanent or continual.

Cultural Resources and Historic Structures

AFFECTED ENVIRONMENT

Glacier National Park is steward of a wide array of significant cultural resources. The National Historic Preservation Act (NHPA) defines five historic property types: districts, sites, buildings, structures, and objects. The National Environmental Protection Act uses the term cultural resources and defines them as archeological resources, cultural landscapes, structures, ethnographic resources, and museum objects. As of 2010, 356 archeological sites, 371 historic buildings and structures, and one cultural landscape have been documented within the park. Most of the buildings and structures are listed in the National Register of Historic Places. Six buildings and the one documented cultural landscape, the Going-to-the-Sun Road, also are designated National Historic Landmarks. The park has prepared an ethnographic overview documenting the importance of many landscapes and features to the Blackfeet, Salish, and Kootenai tribes (Reeves and Peacock 2001).

The National Historic Preservation Act of 1966, as amended (NHPA), and its implementing regulations (36 CFR § 800) require federal agencies, such as the NPS, to identify potentially significant historic properties (cultural resources) within the area of potential effect (APE) of an agency's proposed undertaking and to consider the effects of the undertaking on cultural resources before taking any action. The APE includes the geographic area within which an undertaking might directly or indirectly cause alterations in the character or use of a cultural resource.

The NHPA and its implementing regulations require that the NPS consult with the State Historic Preservation Office (SHPO), Tribal Historic Preservation Offices (THPO), and other interested parties to identify cultural resources within the APE, assess the undertaking's effects, and seek ways to avoid, minimize, or mitigate any adverse effects on cultural resources.

The Heavens Peak Lookout was listed in the National Register of Historic Places in 1986. The lookout embodies the National Park Service rustic design philosophy of buildings that are "harmonious" with the landscape. Research since the nomination has identified the architect as Albert H. Good, who was editor of the National Park Service's 1938 classic volume entitled *Park Structures and Facilities* (1935). Good's design for Heavens Peak put into practice his suggestion to use native rock for lookouts on prominent points, "especially if, when located on a rocky summit, the structure is blended to it and made to appear to grow out of it."

Besides the architect, the building's association with the Civilian Public Service (CPS) was another area of significance for the lookout overlooked in the 1986 nomination. During World War II, Glacier National Park hosted a CPS camp where conscientious objectors from the "historic peace churches" could, according to Dave Walter in his book entitled *Rather than War: The Story of Civilian Public Service Camp #55, Belton, Montana*, perform work of national significance and "contribute to the welfare of the nation without bearing arms against another human being." During the four years of the Glacier CPS camp's operation, it housed over 550 men. The list of CPS contributions to the park is long, including fire fighting, trail maintenance, and organizing and cataloging the park's library/archives holdings. But the most enduring legacy of the CPS in Glacier National Park is the Heavens Peak Lookout, which the men constructed in 1945.

IMPACT ANALYSIS

METHODOLOGY

In this environmental assessment (EA), impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on

Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are not intended, however, to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA). After reviewing public scoping comments, the park proposed to the Montana State Historic Preservation Office a finding of “no adverse” effect for the Heavens Peak project. The finding of effect was made in accordance with the Advisory Council on Historic Preservation’s regulations. Effects to historic properties were identified and evaluated by (1) determining the area of potential effect(s); (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize or mitigate adverse effects. The Montana State Historic Preservation Office concurred with the finding on November 10, 2010.

Under the Advisory Council’s regulations, a determination of either adverse effect or no adverse effect must also be made for affected National Register eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g. diminishing the integrity of the resource’s location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and the National Park Service’s Conservation Planning, Environmental Impact Analysis and Decision-making (Director’s Order 12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

Impact intensity levels for this analysis are defined as:

Negligible: Treatment is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the finding of effect would be no historic properties affected or no adverse effect.

Minor: **Adverse:** Treatment would affect a character defining feature(s) of a structure that is listed or eligible for listing in the National Register of Historic Places. Treatment is not in accordance with the Secretary of the Interior’s Standards, but does not impact the structure to the point that its National Register listing is threatened. For purposes of Section 106, the finding of effect would be no adverse effect. **Beneficial:** Treatment is generally limited to actions to maintain, protect, and repair a structure that is listed or eligible for listing in the National Register of Historic Places, in accordance with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties*. For purposes of Section 106, the finding of effect would be no adverse effect.

Moderate: **Adverse:** Treatment would alter a character defining feature(s), diminishing the integrity of the structure to the extent that its National Register eligibility or

listing is threatened or removed. For purposes of Section 106, the finding of effect would be adverse effect. **Beneficial:** Treatment would stabilize, rehabilitate, or restore a structure that is listed or eligible for listing in the National Register of Historic Places, in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the finding of effect would be no adverse effect.

Major: **Adverse:** Treatment would alter a character defining feature(s) of a National Historic Landmark, diminishing the integrity of the resource to the extent that its designation is threatened or removed. For purposes of Section 106, the finding of effect would be adverse effect. **Beneficial:** Treatment would stabilize, rehabilitate, or restore a National Historic Landmark in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the finding of effect would be no adverse effect.

Short-term: Effects extended only through the period of construction.

Long-term: Effects extended beyond the period of construction.

IMPACTS OF ALTERNATIVE A – NO ACTION

The no action alternative would result in the deterioration and eventual loss of the Heavens Peak Fire Lookout. An important example of NPS rustic architecture listed in the National Register of Historic Places would be lost, and opportunities for visitors to fully appreciate the legacy of the CPS would be diminished. Therefore, impacts to historic structures would be moderate, long-term, site-specific, and adverse.

Section 106 Summary. After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative A would have an adverse effect on the historic Heavens Peak Lookout. Should Alternative A become the selected approach for managing the building, the National Park Service would develop a Memorandum of Agreement with the Montana State Historic Preservation Officer to address this adverse effect, with appropriate mitigation measures.

Cumulative Impacts of the No Action Alternative

Of the projects identified for consideration of cumulative impacts, none have had, or would have, detectable impacts on historic structures. There would be no cumulative impacts.

Conclusion

Alternative A would have a moderate, long-term, site-specific adverse impact to historic structures from the loss of a building listed in the National Register of Historic Places. This translates to a determination of "adverse effect" as defined by Section 106 of NHPA and would require development of a Memorandum of Agreement with the Montana State Historic Preservation Officer. There would be no cumulative impacts.

IMPACT ANALYSIS OF ALTERNATIVE B - PREFERRED

Under Alternative B, the proposed project would stabilize the Heavens Peak Fire Lookout, a building listed in the National Register of Historic Places. The project would preserve an architecturally and historically important structure, and in so doing would preserve the legacy of the CPS and a valuable part of the park's cultural heritage. Stabilization work would be in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. Impacts to the historic structure would be beneficial, moderate, long-term, and site-specific.

Section 106: The National Park Service has proposed, and the Montana SHPO has concurred in, a finding of “no adverse effect” for Alternative B.

Cumulative Impacts of Alternative B – Preferred

Of the projects identified for consideration of cumulative impacts, none have had, or would have, detectable impacts on historic structures. There would be no cumulative impacts.

Conclusion

Alternative B would have a moderate, long-term, site-specific beneficial impact to historic structures. This translates to a determination of “no adverse effect” as defined by Section 106 of the NHPA. There would be no cumulative impacts.

Recommended Wilderness

AFFECTED ENVIRONMENT

In 1964, Congress passed the Wilderness Act to “assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition” [Section 2(a)]. The National Wilderness Preservation System was thus established, preserving millions of acres of undeveloped wild country across a diversity of landscapes in the nation’s wildlife refuges, forests, and national parks. In 1974, Glacier National Park completed a study and environmental impact statement to comply with the Wilderness Act. That document resulted in the recommendation by the Secretary of the Interior that over 90% of the park be designated as wilderness. Amendments to the wilderness recommendation in 1984 and 1994 increased the amount of proposed wilderness in the park to 95%.

Glacier National Park manages recommended wilderness as designated wilderness in accordance with NPS management policies. Wilderness management guidelines promote natural processes and allow humans only as temporary visitors. Park visitors are encouraged to comply with “leave no trace” practices that minimize human impacts, and motorized travel or tools are not permitted “except as necessary to meet minimum requirements for the administration of the area” for the purpose of the Wilderness Act [Section 4(c)]. NPS *Management Policies 2006*, Section 6.3.5, describe the minimum requirement concept as “a documented process used to determine if administrative actions, projects or programs undertaken by the Service or its agents and affecting wilderness character, resources, or the visitor experience are necessary, and if so how to minimize impacts”.

West of the Continental Divide in the heart of the park, the recommended wilderness surrounding Heavens Peak is characterized by rugged, remote, and wild country, few trails, spectacular scenery, and a diverse assemblage of native plants and animals. The area’s wilderness setting also includes cultural resources, such as the Heavens Peak Fire Lookout, which represent the inextricable, historic link between wilderness and human endeavor, when people of earlier times encountered the park’s wilder and more primitive landscapes in much the same way we do today.

Recommended wilderness in Glacier National Park begins 200 feet from the centerline of paved roads, 50 feet from unpaved roads, and 300 feet from developed areas (NPS 2004). The park’s recommended wilderness remains “untrammeled” and relatively unmanipulated. Human developments consist of trails (and associated constructions such as bridges and turnpikes), backcountry campsites, historic lookouts, and historic backcountry cabins. There are no permanently occupied structures, most of the park’s recommended wilderness is trail-less, and

motorized use and access is prohibited except in the case of emergency or administrative purposes necessary for the management of wilderness. Administrative activity is generally limited to trail and campsite maintenance, preservation of historic structures, non-native invasive plant control, and wildlife management and research.

Glacier National Park's recommended wilderness landscapes have retained their intrinsically wild character and persist in their essentially natural condition, without degradation from human interference. The native ecological systems within the park's recommended wilderness provide valuable habitat for an abundance of plant and animal species, including the park's iconic grizzly bear. The presence of other top predators such as wolves, Canada lynx, mountain lions, wolverines, and their prey make Glacier National Park's recommended wilderness one of the most intact and functional ecosystems in the lower forty-eight states. The enduring natural state of Glacier's recommended wilderness supports the park's biodiversity; maintains air, water, and soil quality; and influences local and widespread fire regimes.

Glacier National Park's recommended wilderness provides outstanding opportunities for solitude and primitive recreation, such as hiking, backcountry camping, canoeing/kayaking, and mountaineering. Roads and visitor facilities are absent, and human access is limited by the primitive and oftentimes demanding nature of the landscape. Remote, rugged, and vast, the park's recommended wilderness offers a refuge from the modern world, where visitors are free to enjoy and experience the quietude, peace, and unrestricted environs of wild country.

The Wilderness Act's definition of wilderness includes lands which may "contain ecological, geological, or other features of scientific, educational, scenic, or historical value [Section 2(c)(4)]. Much of Glacier National Park's recommended wilderness is characterized by features and attributes that possess these values, some of which are unique to the park. Areas of recommended wilderness serve as outdoor laboratories for students of all ages, and considerable knowledge has been gained from scientific research on natural resources within recommended wilderness. Glacier National Park's backcountry is renowned for its scenery, and much of the park's unique history is represented in the historic lookouts, backcountry cabins, and other cultural resources contained within recommended wilderness.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to analyze the potential impacts to recommended wilderness is an analysis of expected effects from the different alternatives on recommended wilderness and the defining attributes of wilderness as described by the Wilderness Act and NPS Management Policies, Section 6.3.4.3. These attributes are contained within the Wilderness Act's definition of wilderness [Section 2(c)] and include: "untrammeled"; "undeveloped Federal land retaining its primeval character and influence"; "without permanent improvements or human habitation"; "protected and managed so as to preserve its natural conditions"; "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable"; "has outstanding opportunities for solitude or a primitive and unconfined type of recreation"; "has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition"; and "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value".

A minimum requirement-minimum tool analysis was also conducted. Required of federal land managers before implementing projects within wilderness, the minimum requirement-minimum tool analysis enables managers to determine if a proposed project or activity in wilderness is appropriate and ensures that the minimum, least intrusive methods/tools are used during implementation. The Minimum Requirement Decision Guide (MRDG) used for the minimum

requirement analysis for this project is included in Appendix B.

Impact intensity levels for this analysis are defined as:

- Negligible:* The effect on recommended wilderness would not be detectable.
- Minor:* The effect would be detectable, but would not appreciably affect the defining attributes of wilderness as described by the Wilderness Act.
- Moderate:* The effect would be readily apparent and/or would appreciably affect the defining attributes of wilderness as described by the Wilderness Act.
- Major:* The effects would be highly apparent and would significantly affect the defining attributes of wilderness as described by the Wilderness Act.
- Short-term:* Occurs for one year or less.
- Long-term:* Occurs for more than one year or is permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

Under the no action alternative, there would be no new disturbances to those attributes which contribute to the essentially natural state of recommended wilderness surrounding Heavens Peak. The undeveloped appearance of the landscape could be somewhat enhanced, since the lookout would deteriorate with no action and would no longer be visible from a distance. But the lookout is a small, single, uninhabited building that is built into the rock and therefore blends with the terrain, and benefits to the wilderness setting would be slight. Also, while the lookout may no longer be visible from a distance, trash and debris that is accumulating from its deterioration would remain onsite, within recommended wilderness, for the long term. This material would not be removed, and ongoing adverse impacts to the natural condition of the immediate area from the accumulation of man-made trash would continue.

No action would adversely impact a unique wilderness attribute of historical value. The Heavens Peak Fire Lookout has been part of the wilderness landscape of Heavens Peak since before enactment of the Wilderness Act, and contributes to the area's wilderness setting. Deterioration of the lookout under the no action alternative would result in the loss of a cultural resource that imparts historical value to recommended wilderness.

Cumulative Impacts of Alternative A

An incremental increase in adverse effects to recommended wilderness would be anticipated from administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as commercial scenic flights on the west side of the divide, when combined with the effects of no action.

Conclusion

The no action alternative could have negligible to minor beneficial, long-term, and local impacts to the undeveloped appearance of the wilderness setting since, eventually, the lookout would deteriorate and would no longer be visible from a distance. But these benefits would be offset by ongoing minor adverse, site-specific, and long-term impacts to the immediate wilderness setting from man-made trash and debris that would continue to accumulate from the lookout's deterioration. The deterioration of the lookout and the concomitant loss of a significant cultural resource that contributes to the wilderness landscape would have long-term adverse, minor to moderate impacts that are site-specific to widespread. Cumulatively, impacts to recommended wilderness from Alternative A combined with past, ongoing, and future administrative and emergency flights over backcountry zones near the project area and commercial scenic flights west of the divide would be negligible to moderate, beneficial and adverse, long-term, site-

specific and local.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

The Heavens Peak Fire Lookout has been part of the Heavens Peak recommended wilderness landscape for some time. Under the preferred alternative, the lookout would continue to be visible from a distance, which may continue to slightly diminish the undeveloped appearance of the wilderness setting. But the presence of the lookout thus far has not detracted from the area's fundamental wilderness character: recommended wilderness surrounding Heavens Peak has retained its wild, untrammelled, and essentially undeveloped quality; natural processes have not been interfered with; and ample opportunities remain for solitude and unconfined recreation. Stabilization of the lookout would not permanently alter the current state of these wilderness-defining attributes; implementation of the project would cause only temporary disruptions. The lookout would remain in disuse after stabilization, and no trail construction or other actions would occur that would improve access and thus impact the area's remote backcountry character. Initially, visitation may increase slightly from interest in the newly stabilized structure, but visits to the site are expected to remain low due to the considerable difficulty in accessing the area.

Stabilization of the lookout would preserve a cultural resource that contributes historical value to the park's recommended wilderness, which would offset any diminishment of the undeveloped appearance of the wilderness setting. Because the lookout is part of the wilderness landscape and contributes to the unique character of recommended wilderness, stabilization of the structure would benefit recommended wilderness.

The minimum tool component of the MRDG analysis showed that using helicopters to ferry supplies, equipment, and prefabricated building components would enable the shortest time frame for completion of the project, thus limiting the amount of time that work crews would be bushwhacking to and from the project area, working onsite, and camping in an undesignated area. Large, prefabricated building components would be delivered to the work site, which would minimize crew size and noise impacts from onsite fabrication. All supplies, materials and equipment would be transported via sling loads and no landings would occur except in case of emergencies. Disturbance from helicopters would be temporary and short-term. Similarly, the minimum tool analysis showed that a generator would enable the use of some power tools, which would further reduce the amount of time necessary to complete the project and minimize impacts to recommended wilderness.

While helicopters would reduce the project time frame and thus the overall impacts to recommended wilderness, artificial noise and human activity would cause some temporary adverse impacts in the vicinities of both the lookout and the work campsite. Use of a small generator along with power and battery operated hand tools would cause short-term sound impacts that could be detectable beyond the immediate project area; locating the generator inside the propane storage annex during use would substantially minimize noise impacts from the generator. Helicopter flights would cause temporary sound impacts that could extend for several miles, depending on weather conditions. Work crews traveling to and from the project area, performing limited bushwhacking on the travel route, occupying the work campsite, and working at the lookout would constitute a greater than normal level of human activity in the area.

Overall, only a small percentage of the park's approximately 957,890 acres of recommended wilderness would be affected by the stabilization project, and effects would be temporary. Helicopter noise may be audible across an area of approximately 73,000 acres, or about 7.6 percent of the park's recommended wilderness. This area is based on topography and park

managers' experience with past helicopter activity, and is the maximum amount of area that would likely be affected. The temporary impacts to this relatively small area during stabilization would not affect the wilderness character or opportunities for primitive and unconfined types of recreation throughout the vast majority of the park.

The wilderness setting in the immediate area surrounding the lookout would benefit from the removal of man-made trash and debris that has accumulated from the building's deterioration. The lookout would likely require minor maintenance approximately every 10 years (i.e. painting, rock and mortar repair) and roof maintenance could be necessary every 15 to 20 years, depending on the severity of impacts from the weather. The proposed stabilization project is expected to maintain the lookout's structural durability for about 20 years. Periodic maintenance would add incremental disturbances to recommended wilderness over time, but would also help maintain the lookout so that full-scale stabilization such as proposed is infrequent over the long term.

Cumulative Impacts of Alternative B

The helicopter flights for this project would be included in the park's 2011 administrative flight restrictions of approximately 50 park-wide flights. Noise and human activity associated with the lookout stabilization project combined with administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as commercial scenic flights on the west side of the divide, could temporarily and incrementally increase the level of adverse impacts to recommended wilderness.

Conclusion

Stabilization of the Heavens Peak Lookout would result in the continued presence and visibility of the structure, and thus the slight diminishment of the undeveloped appearance of the wilderness setting. But this would not be different from current conditions nor would it measurably affect the area's fundamentally intact wilderness attributes and character. Adverse impacts from the continued presence of the structure would therefore be long-term, site-specific and local, but negligible. The removal of man-made trash that has been accumulating from the lookout's deterioration would have minor beneficial, long-term, and site-specific impacts to the site's immediate wilderness setting. The preservation of a cultural resource that contributes to the park's wilderness landscape would have long-term beneficial, minor to moderate impacts to recommended wilderness that are site-specific to widespread. Short-term, minor to moderate adverse, site-specific and local impacts to recommended wilderness would occur from temporary noise and intrusion during the project; sound impacts from helicopters delivering equipment to the project area would cause most of the disturbance. But only a small percentage of the park's approximately 957,890 acres of recommended wilderness would be affected, and the temporary impacts from the project would not affect the wilderness character or opportunities for primitive and unconfined types of recreation throughout the vast majority of the park. Adverse impacts to recommended wilderness from periodic maintenance of the lookout would be negligible to moderate, long-term, site-specific and possibly local. Cumulatively, impacts to recommended wilderness from Alternative B combined with past, ongoing, and future administrative and emergency flights over backcountry zones near the project area and commercial scenic flights west of the divide would be negligible to moderate, beneficial and adverse, short and long-term, site-specific and local.

Wildlife

AFFECTED ENVIRONMENT

Over 300 species of terrestrial wildlife occupy Glacier National Park either seasonally or year-round, and an unknown number of aquatic species inhabit park waters. The project area is in a remote location at 7200 ft. elevation on a steep rock shoulder of Heavens Peak, and the work campsite is at 6000 ft. elevation just below the saddle north of Heavens Peak. The site is flanked by two drainages, the Camas drainage to the southwest and the upper McDonald drainage to the northeast, which contain diverse habitat for numerous species of wildlife. Lower elevation drainage bottoms and riparian areas contain suitable habitat for ungulates, forest and mid-size carnivores, small mammals, and many bird species. Mountain goat, Rocky Mountain bighorn sheep, and pika habitat is present at upper elevations, including the high alpine terrain of Heavens Peak. The area is also within a documented fall migration corridor for raptors (GNP files).

Wildlife species observed on the Heavens Peak ridgeline between the Camas and upper McDonald drainages include mountain goat, elk, golden eagle, rough legged hawk, prairie falcon, Cooper's hawk, northern harrier, northern goshawk, and red-tailed hawk (GNP files). Within the Camas drainage, observations of moose, white-tailed deer, belted kingfisher, and blue grouse have been reported (GNP files). Numerous wildlife sightings have been reported from the upper McDonald drainage between Longfellow Creek and tributaries upstream of Packer's Roost, including harlequin duck, golden eagle, sharp-shinned hawk, Canada goose, three-toed woodpecker, pileated woodpecker, brown creeper, golden-crowned kinglet, black-headed grosbeak, common merganser, mink, pine marten, river otter, Canada lynx (tracks), mountain goat, moose, and garter snake.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to analyze the potential impacts on wildlife is an analysis of expected changes to wildlife under the different alternatives. GNP wildlife databases and current research and monitoring data were used to determine wildlife use of the project area. Disturbance to wildlife and changes in behavior and movement patterns are assessed. Impact intensity levels for this analysis are defined as:

- Negligible:* Effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to wildlife species' populations.
- Minor:* Effects on wildlife species would be detectable, although the effects would be localized and would be small and of little consequence to the species' population.
- Moderate:* Effects on wildlife species would be readily detectable and widespread, with consequences at the population level.
- Major:* Effects on wildlife would be obvious and would have substantial consequences to species' populations in the region.
- Short-term:* After implementation, would recover in less than 1 year.
- Long-term:* After implementation, would take more than 1 year to recover or effects would be permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

No action would be taken under this alternative, and there would be no effects to wildlife or wildlife habitat.

Cumulative Impacts of Alternative A

There would be no cumulative impacts to wildlife under Alternative A, since there would be no action.

Conclusion

Alternative A would have no impacts to wildlife or wildlife habitat.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

Stabilization of the Heavens Peak Lookout could cause some temporary, localized disturbances to wildlife at the lookout, the work camp site, and along the route work crews would use to access the project area. Wildlife are likely accustomed to hikers along Flattop Mountain Trail and the McDonald Creek Trail, but could periodically be displaced by work crews travelling off-trail from upper McDonald Creek to the work camp site. Noise and human activity at the lookout and work camp would be ongoing for several hours a day for approximately six weeks, possibly causing some animals to avoid these areas for the duration of the project. Ample adjacent habitat would be available for larger, mobile species. Some smaller species with more constrained ranges, such as small mammals and songbirds, could be displaced from foraging areas in the immediate vicinity of the project area. Disturbances would be slight, and few, if any, habitat alterations would be anticipated; impacts to wildlife would be negligible to minor and short-term.

Eleven or twelve helicopter supply flights to the project area could cause disturbances to wildlife, especially to animals using open alpine areas beneath the flight path. In 1994, the National Park Service submitted to Congress the *Report on the Effects of Aircraft Overflights on the National Park System* (NPS 1995). The report included effects of aircraft overflights on visitors, wildlife, natural quiet, safety, and cultural and historical resources/sacred sites and ceremonies, as well as conclusions, issues, and recommendations. In general, wildlife do respond to low level flights but to what extent and how delayed the response might be is not very well known, especially for carnivorous mammals. Behavioral and physiological responses to aircraft overflights may result in accidental injury, reproductive loss, energy loss, habitat avoidance and abandonment. Direct impacts to prey species may result in indirect impacts to predators. Unfortunately, indirect effects, of any kind, are difficult to measure.

Helicopter staging operations could temporarily disturb wildlife using riparian habitat near Logan Pit or Red Rock Point, depending on which location is used for a helispot. Helicopters staging from Logan Pit would cause less disturbance to wildlife because less flight time over upper McDonald Creek would be required. Staging from Red Rock Point would add considerably to the flight time along the Glacier Wall and above upper McDonald Creek, thus increasing the level of disturbance to wildlife.

Disturbances to wildlife from helicopter supply flights would be temporary and localized to the helispot, the project area, and the flight path and would not noticeably impact wildlife species at the population level. Impacts from helicopter supply flights would therefore be minor.

Cumulative Impacts of Alternative B

Helicopter flights for the lookout stabilization would be included in the park's 2011 administrative flight restrictions of approximately 50 park-wide flights or less. Human activity and noise associated with the proposed stabilization combined with administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as

commercial scenic flights west of the divide, could temporarily and incrementally increase the level of adverse impacts to wildlife.

Conclusion

Negligible to minor adverse, short-term, site-specific and local impacts to wildlife could occur under the preferred alternative due to temporary disturbances from helicopter supply flights and human activity within the project area. Cumulatively, noise and human activity from the proposed project combined with past, ongoing, and future administrative and emergency flights over backcountry zones near Heavens Peak, as well as commercial scenic flights west of the divide, would have negligible to minor, adverse, short-term, site-specific and local impacts to wildlife.

Threatened, Endangered and Species of Concern

AFFECTED ENVIRONMENT

Located between the Camas Creek and upper McDonald Creek drainages, the project area contains suitable habitat for grizzly bears, Canada lynx, Rocky Mountain gray wolves, and wolverines. Grizzly bears and Canada lynx are federally listed as threatened species, gray wolves are federally listed as endangered, and wolverines have recently been listed as a candidate species, which means they are being considered for listing. Under NPS Policy, candidate species are treated as if they are listed (Table 4).

Species of concern are those species that are rare, endemic, disjunct, vulnerable to extirpation, in need of further research, or likely to become threatened or endangered if limiting factors are not reversed. Likewise, a species may be of concern because of characteristics that make them particularly sensitive to human activities or natural events. Species of concern may also include big game, upland game birds, waterfowl, carnivores, predators, and furbearers whose populations are protected in the park but subject to hunting and trapping outside of the park. Harlequin ducks are listed as a species of concern with the Montana Natural Heritage Program (MNHP 2010). The helicopter staging areas at Red Rock Point and the Logan Creek comfort station are adjacent to upper McDonald Creek, which is one of the primary harlequin duck breeding and brood-rearing streams in Montana (MNHP 2010 and D. Genter as cited in Ashley 1994).

Table 4: Federally listed species that have may be present in the project area.

Species	Status
Grizzly bear (<i>Ursus arctos horribilis</i>)	Threatened
Canada lynx (<i>Lynx canadensis</i>)	Threatened
Gray wolf (<i>Canis lupus</i>)	Endangered
Wolverine (<i>Gulo gulo</i>)	Candidate

Grizzly Bear. Grizzly bear habitat is found throughout the park from the lowest valley bottoms to the summits of the highest peaks. Grizzly bears require large areas of undeveloped habitat, including a mixture of forests, moist meadows, grasslands, and riparian habitats, and a substantial amount of solitude from human interactions (USFWS 1993). They have home ranges of 130 to 1,300 square kilometers (USFWS 1993). Grizzly bear seasonal movements and habitat use are tied to the availability of different food sources. In spring, grizzly bears feed on winter-

killed ungulates and early greening herbaceous vegetation at lower elevations (Martinka 1972). During the summer, bears generally move to higher elevations in search of glacier lilies and other roots, berries, and army cutworm moths. In the fall, bears continue to forage for berries, roots, insects, and carrion and broaden their search for food considerably in order to build up enough fat reserves for the winter denning period.

GNP is part of the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. The park comprises 51% of the Greater Glacier Area (GGA), which occupies the northern third of the NCDE from the Canadian border to GNP's southern boundary and from the Whitefish Mountains west of the park eastward to the Blackfeet Reservation (Kendall et al. 2008). Recent findings of a 5-year population, distribution and genetic health study suggest that approximately 765 grizzly bears inhabit the NCDE (Kendall et al. 2009). Samples were only collected in 2004; therefore results indicate population size of grizzly bears in 2004. Genetic analysis of hair samples collected during 1998-2000 resulted in a population estimate of 241 grizzly bears in the GGA (Kendall et al. 2008). No population estimate has been developed exclusively for GNP.

Over the last ten years, more than 6500 grizzly bear sightings have been logged into GNP's Bear Information Management System (BIMS) database, with approximately 700 sightings from the Camas and upper McDonald drainages. However, reported observations are dependent on where people go within the park and are not necessarily an indicator of relative grizzly bear presence and habitat use. Most grizzly bear observations occur from May to August, when park visitation is highest. Some bears have habituated to the high level of human activity during these months and use open habitats along roads and trails when people are present. Bears that are more sensitive to human disturbance may avoid people or concentrate their activity at night or in remote areas that are relatively free from human influence.

Recent population studies show that both the Camas and upper McDonald drainages are used extensively by grizzly bears. Anecdotal information gathered over the years and DNA analysis of grizzly bear hair samples collected in 2000 and 2004 indicate that the Camas drainage may be an especially high use area (K. Kendall, personal communication). Bear sign has been consistently observed along the Camas Lake Trail year after year. The number of grizzlies detected in the Camas drainage in 2004 at baited bear hair traps and numerous naturally occurring rub trees was among the highest of all drainages in the park (K. Kendall, personal communication).

Grizzly bear habitat modeling by the Cumulative Effects Model (CEM) Working Group indicates high-value grizzly habitat in the vicinity of the project area, including the Heavens Peak ridgeline and the Camas and upper McDonald drainages (CEM 2004, based on findings from Mace et al., 1999). High value habitat is nearly contiguous throughout the drainage bottoms and along the elevational gradient below 5000 ft. Habitat values diminish at higher elevations and are generally low along the steep southwest aspect above Camas Lake. Habitat value is low at the saddle where the proposed work camp would be located, but higher at the lookout and along the ridgeline. The model indicates that grizzly bear habitat values are highest in summer and fall. A grizzly bear denning habitat model based on data from the South Fork Grizzly Bear Study indicates that grizzly bear denning habitat exists near the lookout above 5600 ft. along east, west, and north aspects (USFS 2000). Neither the lookout nor the work camp appears to be directly situated within grizzly bear denning habitat.

Glacier National Park was placed into grizzly bear management "situations" in accordance with the Grizzly Bear Recovery Plan (USFWS 1993) and Interagency Grizzly Bear Committee (IGBC) guidelines. Over 1 million acres of the park (proposed wilderness) are established as Management Situation 1, in which management decisions would favor the needs of the grizzly

bear when grizzly habitat and other land-use values compete, and grizzly-human conflicts would be resolved in favor of grizzlies, unless a bear is determined to be a nuisance. The remainder of the park, which is developed front-country, is established as Management Situation 3, in which grizzly habitat maintenance and improvement are not the highest management considerations, grizzly bear presence would be actively discouraged, and any grizzly involved in a grizzly-human conflict would be controlled. The project location is within Management Situation 1.

Canada Lynx. Lynx habitat is generally described as climax boreal forest with a dense undercover of thickets and windfalls (Ruediger et al. 2000). Lynx often prefer advanced successional stages of forests for denning and dense conifer stands for foraging. Lynx generally forage in young conifer forests where their primary prey, snowshoe hare, is abundant. Other prey includes squirrels, grouse, martens, and voles. Lynx may also forage in dense, multi-storied mature conifer forests, especially during winter. Travel corridors are thought to be an important factor in lynx habitat because of the animal's large and variable home ranges, which are generally 8-738 km² (Ruediger et al. 2000).

Historically, lynx were considered "more or less common" throughout the park (Bailey and Bailey 1918). Documented sightings declined during the 1970s and 1980s and have increased in recent years (NPS files); however, sightings may not be particularly sensitive to population changes and should be interpreted with caution. Systematic lynx surveys via snow tracking in 1994 and hair-snare/DNA sampling in 1999 and 2000 detected lynx in several drainages throughout the park, including the upper McDonald valley; no population estimates or trends were attempted during these studies. There have been no lynx den sites documented in the park, and no observations of lynx or lynx sign have been documented in the vicinity of the project area.

Preliminary lynx habitat modeling for the park defined moist conifer forests above 4,000 feet elevation as most likely to support lynx. Little is known about lynx habitat use in the park and these criteria are general in nature. The habitat model indicates the presence of some semi-contiguous high value lynx habitat in the vicinity of the lookout (approximately 30% high value habitat within 500 meters), and very little high value habitat near the work camp (less than 2% within 500 meters). Approximately 35 meters or less of the route work crews would take to the lookout passes through high value lynx habitat, as indicated by the model.

Actions that adversely affect lynx include elevated levels of human access into lynx habitat, human activity at or near den sites, modification of forested habitat, expansion of the range of competitors and/or predators, or reduction of prey species populations (Ruediger et al. 2000). Lynx are most susceptible to disturbance during the denning period and while newborns are developing (May–August) (Claar et al. 1999). No studies have specifically examined the effects of construction related activities on lynx behavior, although several authors have suggested that lynx are "generally tolerant of humans" and probably not displaced by human presence (Ruediger et al. 2000).

Gray Wolf. Gray wolves are wide ranging and their distribution is tied primarily to that of their principal prey – deer, elk, and moose. Pups are born in late March to early May and may remain near the den through much of the summer (USFWS 1987). Rendezvous sites are resting and gathering areas occupied by wolf packs during summer and early fall after the natal den is abandoned. Important components of wolf habitat are: 1) a sufficient, year-round prey base of ungulates and alternate prey; 2) suitable and somewhat secluded denning and rendezvous sites; and 3) sufficient space with minimal exposure to humans (USFWS 1987). Low elevation river bottoms that are relatively free from human influence provide important winter range for both wolves and ungulate prey species. Wolves are especially sensitive to disturbance from humans at

den and rendezvous sites; human activity near den sites can lead to pack displacement or physiological stress, perhaps resulting in reproductive failure or pup mortality (Mech et al. 1991).

GNP's predominately natural landscape contains some of the most secure and productive wolf habitat in the Northwest Montana Recovery Zone. Despite fluctuating numbers since 1986, Glacier's established wolf population has been a source for natural recolonization in northwest Montana and southern Canada (Boyd-Heger 1997). Resident pack activity has not been documented in the upper McDonald valley until last year, although the drainage has likely been used by dispersing wolves or individuals on forays. After numerous reports of wolf sightings, a two-year old radio-collared female (formerly of the Dutch Pack from the North Fork) was located in the upper McDonald drainage in the fall of 2009. Up to three wolves have since been observed travelling together, and denning was suspected in the spring of 2010 but could not be confirmed. The pack's home range has yet to be determined, but radio locations show that the wolves' territory extends at least between the head of Lake McDonald and the headwaters of upper McDonald Creek.

Wolverine. The wolverine is a rarely seen resident of coniferous forests and alpine meadows on both sides of the Continental Divide. Wolverines have large home ranges and are difficult to detect. They utilize a range of habitats including alpine areas, mature forests, ecotonal areas, and riparian areas. During a population study in GNP from 2002-2005, 27 wolverines were radio-instrumented and over 30,000 locations were recorded, providing a better understanding of wolverine population status, trends, and movement patterns in the park (Copeland and Yates 2008). The study documented home ranges, mortality, denning characteristics, dispersal and habitat use, and estimates the wolverine population in GNP at between 40-45 animals (Copeland and Yates 2008).

Two adult and three sub-adult wolverine mortalities were documented during the study and five out of seven kits died before the age of one year, indicating low survival to adulthood among juveniles (Copeland and Yates 2008). Causes of death included predation, shooting, falling off a cliff, avalanche, legal trapping outside GNP, and a truck collision on the Going-to-the-Sun Road (Copeland and Yates 2008; GNP files).

The park is considered to have very high quality wolverine habitat due to extensive alpine terrain, rugged topography, remoteness, and diverse ungulate populations. Wolverines move to lower elevations during the winter where they search for carrion in ungulate winter ranges. Den sites are typically located under deep snow, usually on high elevation talus slopes in sparsely forested areas with boulders, rock caves, and downed woody debris (Copeland and Yates 2008).

Male wolverines can cover over 150 kilometers per week with short movements between denning and foraging areas intermixed with longer movements of 10 kilometers or more; two adults are known to have dispersed out of the park (Copeland and Yates 2008). Average home ranges for wolverines in GNP are 521 square kilometers for males and 139 square kilometers for females (Copeland and Yates 2008).

Wolverine tracks and sightings have been reported in both the Camas and upper McDonald drainages (GNP files). While there are no reports of wolverines within the immediate project area, individuals may range near Heavens Peak and use associated ridgelines and alpine habitat for travel. Wolverine home ranges documented during the 2002-2005 population study include portions of both the Camas and upper McDonald drainages (Copeland and Yates 2008).

Species of Concern

Harlequin Duck. Harlequin ducks (*Histrionicus histrionicus*) are small sea ducks that migrate

inland to breed and raise their young on fast-flowing mountain streams. Females reach reproductive maturity at three years and return to their natal nesting stream to breed and nest. Some females of breeding age do not nest and productivity for the species is variable (Robertson and Goudie 1999). Unlike other ducks, male harlequins depart the breeding grounds immediately after females begin incubation, making it impossible for females to renest in the event of a nest failure. Harlequins are sensitive to human disturbance (Joslin and Youmans 1999) and may be displaced or disturbed by construction or recreation activities. Poor nest success has also been associated with high spring runoff, and changes in spring runoff resulting from climate change may affect harlequin populations (Robertson and Goudie 1999). Harlequins are most vulnerable during the breeding and brood-rearing periods, as displacement from important foraging sites can potentially reduce egg production and brood survival.

The harlequin duck is listed as a Species of Concern with the state of Montana and a Sensitive Species with the U.S. Forest Service and Bureau of Land Management (MNHP 2010). Harlequins occur on a limited number of streams in western Montana, arriving in mid-April and departing by early October, and streams in GNP comprise a large portion of occupied harlequin habitat. Upper McDonald Creek, above Lake McDonald, has been identified as the single most productive harlequin duck breeding stream in Montana; more than 25 percent of all harlequin duck chicks produced in the state are raised along the 9.7 mile stretch between the Lake McDonald inlet and Logan Creek (MNHP 2010). Breeding pairs inhabit upper McDonald Creek from late April through mid-June, and females with broods are on the creek during July, August and early September. Females and juveniles generally depart in late September.

The historic average number of harlequin breeding pairs and juveniles recorded on upper McDonald Creek between Lake McDonald and Logan Creek since 1991 is 8.6 and 9.8, respectively. Since 2001, high counts of 10 pairs and 25 juveniles have been documented (GNP files). No juvenile harlequins were detected, however, during stream surveys in 2010. Because harlequin brood production along upper McDonald Creek ultimately depends on the hatching of female chicks that will later return, the absence of broods in 2010 raises concerns about long-term reproductive success.

IMPACT ANALYSIS

METHODOLOGY

The Endangered Species Act of 1973 requires examination of impacts on all federally-listed threatened and endangered species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 *Management Policies* (NPS 2006) and Director's Order 77 *Natural Resources Management Guidelines* require the National Park Service to examine the impacts on federally-listed species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species.

Further protection under the Migratory Bird Treaty Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition, this act serves to protect environmental conditions for migratory birds from pollution or other ecosystem degradations.

This section is intended to augment the impact analysis for natural systems and processes by analyzing specific impacts of the proposed management alternatives upon federally listed threatened, endangered, and other sensitive species (species of concern). Impact intensity levels for this analysis are defined as:

- Negligible:* The alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a “no effect” determination in U.S. Fish and Wildlife Service terms.
- Minor:* An individual(s) of a listed species or its critical habitat would be affected, but the change would be small. Minor effect would equate with a “may affect, not likely to adversely affect” determination for the species in U.S. Fish and Wildlife Service terms and would require informal consultation.
- Moderate:* An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect could have some long-term consequence to individuals, populations, or habitat. Moderate effect would equate with a “may affect” determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of “likely...” or “not likely to adversely affect” the species and would require either informal or formal consultation.
- Major:* An individual or population of a listed species, or its critical habitat, would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a “may affect, likely to adversely affect” or “not likely to adversely affect” determination in U.S. Fish and Wildlife Service terms and would require formal consultation.
- Short-term:* After implementation, would recover in less than 1 year.
- Long-term:* After implementation, would take more than 1 year to recover or effects would be permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

There would be no action under this alternative. Therefore, there would be no effects to grizzly bears, Canada lynx, gray wolves, wolverines, or harlequin ducks or their habitat.

Cumulative Impacts of Alternative A

There would be no cumulative impacts to grizzly bears, Canada lynx, gray wolves, wolverines, or harlequin ducks under Alternative A, since there would be no action.

Conclusion

The no action alternative would have no impacts to grizzly bears, Canada lynx, gray wolves, wolverines, or harlequin ducks or their habitat.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

Grizzly Bear. Under Alternative B, project activities would occur in Management Situation 1 grizzly bear habitat, but no permanent alteration or loss of habitat would result. Stabilization of the lookout would not negatively affect bear food production because work activity would be limited to the immediate project area and the work camp. Human activity at the lookout and work camp and crews hiking to and from the project area might cause individual bears to be displaced from foraging sites or disrupted while passing through the project area. Helicopter supply flights could disturb or displace grizzly bears, especially individuals that are using open alpine areas near the flight path. However, any displacement would be temporary and alternate suitable habitats are available nearby, though those habitats could be occupied by other bears and conflicts between bears could ensue. Some bears could be displaced to surrounding areas that are in Management Situation 3, such as the Camas Road and the McDonald Lake visitor use

zone. This could increase the chance of incidental vehicular death and bear/human encounters, though this potential would probably be slight.

A human presence within the project area for nearly six weeks could cause some bears that are accustomed to very low levels of human activity to become more familiar with humans. But the small size of the work crews and the short-term nature of the project are not likely to cause bears to develop habitual over familiarity with people. Work activities would occur during daylight hours when grizzly bears are more likely to be on daybeds in forested areas, and strict measures to securely store all food attractants would prevent any bears from obtaining human food.

Since the proposed project would result in no long-term disturbance or loss of suitable habitat and would be unlikely to increase the chances of bears becoming overly familiar with humans, the potential impacts to grizzly bears would be short-term and negligible to minor.

Canada Lynx. The proposed lookout stabilization would be highly unlikely to adversely affect lynx or lynx habitat. The work would be localized to the project area and would not alter forested habitat, reduce the number of lynx prey species, or expand the ranges of competitor species. Nor would the project alter habitats or increase human use patterns in or near areas that could potentially serve as lynx den sites. Work activity would occur during daylight hours when lynx are less active (Ruediger et al. 2000), and there would be little intrusion into high value lynx habitat, especially at the work camp site and along the route crews would take to access the project area. No increased mortality risk to lynx would occur. Individual lynx could become displaced by helicopter supply flights or helicopter staging operations at Logan Pit or Red Rock Point. But disturbances would be short term and impacts from displacement would be tempered by the availability of suitable habitat nearby. Any adverse impacts to lynx from Alternative B would therefore be negligible to minor, short-term, and site-specific.

Gray Wolf. Stabilization of the Heavens Peak Lookout is unlikely to measurably affect wolves. Work activities would primarily be localized to the lookout and work camp and would occur late in the summer when wolf pups are able to travel and den sites are no longer in use. Wolves are highly mobile, and alternate available habitat in the vicinity of the project area and along the work crews' access route would be available. Some disturbances to wolves could occur from helicopter supply flights, but such disturbances would be temporary and minimal.

Wolverine. Helicopter supply flights could temporarily disturb individual wolverines in the project area. But wolverines are not likely to be measurably impacted by the proposed project given their high mobility, the availability of undisturbed area, and the small scale and localized nature of the work.

Harlequin Duck. Project activities at the lookout and work camp would not affect harlequin ducks, but harlequins would be adversely impacted by helicopter staging operations along upper McDonald Creek. Helicopter staging operations beginning in late July and continuing until early September could displace female harlequins with broods from foraging areas and could cause females to abandon their broods well before the chicks are able to survive on their own. Displacement from foraging sites could also result in diminished energy reserves among female and juvenile ducks and affect their migration back to the coast.

Female harlequins are slow to mature, have highly variable reproductive success, and only breed on the stretch of stream where they were born. Adverse impacts on harlequins could be long-term if females abandon their broods and if abandonment results in a decreased number of female chicks reaching reproductive maturity and returning to upper McDonald Creek to breed. No juvenile harlequins were detected during stream surveys in 2010, and concerns about long-term reproductive success would increase with activities that could result in brood reduction for

a subsequent year.

The level of impacts to harlequins would depend considerably on where the helispot is located; a helispot at Red Rock Point would have higher intensity adverse impacts than a helispot at Logan Pit. A helicopter originating from Red Rock Point would travel over prime harlequin habitat for a much greater time and distance than a helicopter taking off from Logan Pit, thereby increasing the risk of displacement along a longer segment of the creek. Also, habitat conditions at Red Rock Point and the immediate vicinity upstream are ideal for harlequin ducks. Surveys between the head of Lake McDonald and Logan Creek have identified the area as a primary foraging and resting area for harlequin pairs and females with broods. Harlequins have been observed on the creek at Logan Pit, and if ducks are present they could be flushed by helicopters using the Logan Pit helispot. But harlequin habitat at Logan Pit is not optimal, whereas habitat at Red Rock Point is superior. Harlequins displaced from a prime foraging area would likely undergo more energetic stress than ducks that are displaced from less favorable habitat. Red Rock Point is also likely to be more heavily used by females with broods than Logan Pit; displacement from Red Rock Point would therefore likely affect a greater number of ducks, and the risk of abandonment could affect a greater number of broods.

Broods counts along upper McDonald Creek are dependent on a number of environmental conditions, including spring runoff levels. A heavy snow year is anticipated in 2010-2011, which could result in high spring run-off and consequential harlequin nest failures. Human-caused disturbances that affect brood success in 2011 combined with nest failures and zero harlequin chick production in 2010 could have adverse consequences for the upper McDonald Creek sub-population. Impacts to harlequins from helicopter staging operations would therefore be adverse, short-term, site-specific, local, and possibly long-term and regional. They would be minor to moderate if the helispot is located at Logan Pit and moderate if the helispot is at Red Rock Point.

Cumulative Impacts of Alternative B

Grizzly Bears. Helicopter flights for this project would be included in the park's 2011 administrative flight restrictions of approximately 50 park-wide flights or less. Human activity and construction noise during the lookout's stabilization combined with administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as commercial scenic flights west of the divide, could incrementally and temporarily increase adverse impacts to grizzly bears in the Camas and upper McDonald drainages.

Canada Lynx. Alternative B combined with administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as commercial scenic flights west of the divide, could incrementally and temporarily increase the level of disturbance to lynx.

Gray Wolf. Human activity during the proposed project combined with previous, ongoing, and future fixed-wing and helicopter flights near the project area could incrementally increase temporary disturbances to wolves.

Wolverine. Human caused disturbances associated with the lookout stabilization project combined with previous, ongoing, and future fixed-wing and helicopter flights could add an incremental and temporary level of disturbance to wolverines.

Harlequin Duck. Helicopter flights for the lookout stabilization would be included in the park's 2011 administrative flight restrictions of approximately 50 park-wide flights or less. Depending on the number of administrative and emergency helicopter flights that are staged from Logan Pit or Red Rock Point, harlequins along upper McDonald Creek could be exposed

to an increased level of disturbance. The level of impacts to harlequins would depend on the time of year that the helicopter activity occurs and on the location of the helispot. Flights that occur in September or later and are staged from Logan Pit would have minor adverse impacts to harlequins; flights that occur between May and September or are staged from Red Rock Point would have moderate adverse impacts.

Conclusion

Grizzly Bears. Under Alternative B, grizzly bears could be temporarily displaced from the immediate project area or from areas near the helicopter flight path, but work activities would not measurably alter the distribution of bears within the ecosystem, there would be no loss or permanent alteration of bear habitat, and the risk of mortality would not increase. Impacts to grizzly bears from the preferred alternative would therefore be negligible to minor, adverse, short-term, site-specific and possibly local. Cumulatively, human activity from the lookout's stabilization combined with past, ongoing and future administrative and emergency flights over backcountry zones near Heavens Peak, as well as commercial scenic flights west of the divide, would have negligible to minor, adverse, short-term, and local impacts to grizzly bears.

Canada Lynx. Adverse impacts to lynx from the proposed project would be highly unlikely since lynx foraging and denning habitat would not be lost or altered and little high-value lynx habitat exists within the project area. Any disturbances that do occur from helicopter flights or other human activity associated with the project would be negligible to minor, short-term, site-specific, and possibly local to the McDonald drainage. Cumulatively, human activity from the project combined with past, ongoing and future administrative and emergency flights near the project area, as well as commercial scenic flights west of the divide, would have negligible to minor, adverse, short-term, and local impacts to lynx.

Gray Wolf. Measurable disturbances to wolves from stabilization of the lookout are unlikely, since the work would occur outside the denning period for wolves and because alternate available habitat would be available. Wolves could be temporarily disturbed by helicopter supply flights; adverse impacts to wolves would be negligible, short-term, site-specific and possibly local. Cumulatively, human activity from the project combined with past, ongoing and future administrative, emergency, and commercial scenic flights would have negligible, adverse, short-term, and local impacts to wolves.

Under Section 7 of the Endangered Species Act, the determination for grizzly bears and Canada lynx would be "may affect, not likely to adversely affect"; the determination for gray wolves would be "no effect".

Wolverine. Given their high mobility, the availability of undisturbed area, and the small scale and localized nature of the project, wolverines are not likely to be measurably impacted by Alternative B. Helicopter supply flights could temporarily disturb individual wolverines. Any adverse impacts to wolverines would be negligible, short-term, site-specific and possibly local. Cumulatively, human activity associated with the project combined with past, ongoing and future administrative, emergency, and commercial scenic flights would have negligible, adverse, short-term, and local impacts to wolverines.

Harlequin Duck. Helicopter staging operations along upper McDonald Creek would have adverse impacts to harlequin duck females with broods due to the risk of displacement from foraging sites and an increased potential for startled females to abandon their broods. Adverse impacts would be short-term, site-specific, local, and possibly long-term and regional; they would be minor to moderate if the helispot is located at Logan Pit and moderate if the helispot is

at Red Rock Point. Cumulatively, impacts to harlequins from the preferred alternative combined with past, ongoing, and future helicopter activity would be adverse, minor to moderate, short and long term, site-specific, local, and possibly regional from a potential increase in disturbance from staging operations along upper McDonald Creek. The level of cumulative impacts would depend on the time of year that helicopter activity occurs and the location of the helispot. Flights that occur in September or later and are staged from Logan Pit would have minor adverse impacts to harlequins; flights that occur between May and September or are staged from Red Rock Point would have moderate adverse impacts.

Natural Soundscapes

AFFECTED ENVIRONMENT

An important part of the NPS mission is to preserve the natural soundscapes of national parks. Natural soundscapes are the sounds of nature, a diminishing resource in an ever modernizing world. Natural sounds have intrinsic value as part of the unique environment of Glacier National Park, and they predominate throughout most of the park. Glacier's natural soundscape includes the pervading quiet and stillness, low decibel background sounds, birdsong and animal calls, the buzz of insects, and the sound of wind, rain, and water, among others. Natural soundscapes vary across the park, depending on elevation, proximity to water, vegetative cover, topography, time of year, and other influences.

The Heavens Peak Fire Lookout is located in the park's backcountry management zone within an alpine/subalpine acoustic zone, which has a natural ambient sound level of 34 dBA (U.S. DOT 2009). Soundscapes for Glacier's backcountry and rustic zones differ markedly from the soundscapes within visitor service zones; day use zones often overlap between rustic or backcountry zones, and soundscapes in these areas may be characteristic of both the backcountry and more developed areas. According to the park's General Management Plan (NPS 1999), management in backcountry areas (which includes recommended wilderness) is focused on protection and, when necessary, restoration of resources and natural processes. Backcountry zones, where natural sounds predominate, are managed for natural quiet. The rustic zone is managed to provide a staging area for use of the adjacent backcountry zone; facilities and campgrounds are primitive, and natural sounds also predominate. In contrast, visitor service and day use zones allow for heavier use and more congested conditions, and some level of artificial noise is expected. Soundscapes in day use zones are managed for a range of conditions that include some artificial noise as well as natural quiet, depending on their location in the park, while visitor service zones are managed for higher levels of human caused noise.

Artificial noise in Glacier National Park originates from human activities and varies depending on location, time of day, and time of year. Sources of artificial noise in the park include road traffic (including motorcycles); motorboats; aircraft; railroad traffic; human activity at visitor centers, campgrounds, picnic areas, and along trails; and park administrative activities that require power tools, heavy equipment, airplanes, helicopters, or emergency vehicles. Elevated noise levels are generally concentrated near campgrounds, roads, and developed areas. Existing and future development outside the park, including logging and construction, may also contribute to artificial noise within the park.

Road traffic on the GTSR is a primary contributor to artificial noise in the upper McDonald valley, especially during the summer when visitation is highest. Natural sounds along the GTSR corridor are punctuated with noises generated by human activity and traffic on the road, at picnic areas and campgrounds, at the Lake McDonald Lodge, and on the shorelines of Lake McDonald and upper McDonald Creek. In the backcountry of the upper McDonald valley and

the adjacent Camas drainage, including areas surrounding Heavens Peak Fire Lookout, the natural soundscape is characterized almost exclusively by natural sounds and is interrupted only now and then by hiking parties or aircraft.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to assess potential impacts to the natural soundscape is an analysis of expected changes to existing sound levels under the different alternatives. Impacts to soundscapes are often gauged by how they could affect visitor experience and wildlife behavior, physiology and habitat, and such effects are considered in our analysis. Disturbances and changes to the natural soundscape in the backcountry, rustic, day use, and visitor service zones are assessed. In general, soundscapes in the backcountry and rustic zones are managed so that natural sounds predominate, and day use and visitor service zones can be expected to have higher levels of human caused noise. But existing ambient sound levels differ within each of these zones, and therefore soundscape management objectives for each zone are also different. For example, day use zones are predominantly managed for natural sounds but are also expected to have higher levels of human caused noise. For analysis purposes, we have combined the backcountry zone with the rustic zone, and the day use zone with the visitor service zone, and assessed them according to a range of metrics that addresses the range of soundscape differences as well as different management objectives.

Our analysis examines the duration of noise generated by the project, as well as attenuation (reduction in acoustic energy or amplitude) of the noise from the source. In addition to duration and attenuation, we considered the percentage of a 12-hour day over which artificial noise from implementation of the project could be audible. This component of the analysis takes into consideration the existing levels of artificial noise within the project area and allows for audible artificial noise over a greater percentage of time in day use and visitor service zones than in backcountry and rustic zones. For the analysis specific to this action, we determined that artificial noise that is audible between zero and 5 percent of a 12-hour day in the backcountry and rustic zones or zero and 12 percent of a 12-hour day in day use and visitor service zones would have a minor effect; artificial noise that is audible between 5 and 15 percent of a 12-hour day in the backcountry or 12 and 25 percent of a 12-hour day in day use and visitor service zones would have a moderate effect; and artificial noise that is audible for more than 15 percent of a 12-hour day in the backcountry and rustic zones or 25 percent of a 12-hour day in day use and visitor service zones would have a major effect when combined with the other criteria for a major effect.

Impact intensity levels for this analysis are defined as:

- | | |
|--------------------|--|
| <i>Negligible:</i> | Noise from the action would very rarely be audible or would be below the level of detection and would not result in any perceptible consequences. |
| <i>Minor:</i> | The action would be less than 1 month or noise from the action would rarely be audible or would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within a short distance (<100m for backcountry and rustic zones; <200m for day use and visitor service zones) from the source. |
| <i>Moderate:</i> | The action would be 1 to 3 months or noise from the action would occasionally be audible or would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within an intermediate distance (100m - 500m for backcountry and rustic zones; 200m - |

600m for day use and visitor service zones) from the source.

Major: The action would be more than 3 months and noise from the action would be regularly audible and would attenuate to 33 to 35 dBA in the backcountry and rustic zones and 23 to 25 dBA in day use and visitor service zones within a large (>500m for backcountry and rustic zones; >600m day use and visitor service zones) distance from the source.

Short-term: Would be temporary during implementation.

Long-term: Would be permanent or continual.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

There would be no action under alternative A; therefore, there would be no new impacts to natural soundscapes.

Cumulative Impacts of Alternative A

There would be no cumulative impacts to natural soundscapes, since there would be no action under Alternative A.

Conclusion

No impacts would occur to natural soundscapes under this alternative because there would be no action.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

Disturbances to the natural soundscape would occur from helicopter flights, a Honda 2000 generator, power tools, battery operated hand tools, and some non-electric tools (such as hammers). Noise from the generator and electric and non-electric tools would be localized to the project site in the backcountry, and helicopter noise would affect a greater area that includes backcountry and rustic zones, as well as day use and visitor service zones associated with the Going-to-the-Sun Road (GTSR) corridor.

Placing the generator inside the propane storage annex would reduce the effects on the surrounding backcountry soundscape and limit impacts to wildlife and visitors. Due to natural attenuation, generator noise would be reduced to levels below natural ambient within 17 meters. Power and battery operated hand tools would be used intermittently and produce noise ranging between 45 and 81 dBA three meters from the source. When used outside the structure, noise from most of the power tools would diminish to natural ambient levels (33 to 35 dBA) within 300 meters. When used inside the lookout, noise from most of the power tools would diminish to natural ambient levels within 100 meters. The loudest tools (grinder and portable electric saw) would attenuate to natural ambient levels within 455 meters when used outside the structure and 185 meters when used inside.

Helicopter noise would likely be heard along the length of drainages that intersect the flight path, especially upper McDonald Creek and side tributaries. Flights would occur on at least four and possibly five days over the duration of the project. There would be one flight on day 1, five flights on day 7, one and possibly two flights from days 22 to 26, and four flights on day 39. Flight times are not anticipated to exceed 15 minutes per round trip, and are likely to require only 10 to 12 minutes round trip. The helicopter would fly 2,000 feet above ground level (AGL) from West Glacier to the staging area along upper McDonald Creek and the GTSR. Assuming that the helicopters could be heard from a given location during the entire flight, and that each round trip flight lasted for 15 minutes, helicopters would be audible in the upper McDonald drainage

(including backcountry, rustic, day use and visitor service zones) for approximately 10 percent of a 12 hour day on day 7, 8 percent on day 39, and 4 percent on days 22 to 26. These times represent a maximum amount of audibility based on a worst case scenario in which flight times are 15 minutes and the helicopter is audible from a given location during the entire flight. Audibility would vary between drainages depending on topography, weather conditions, and proximity to the flight path. For example, within the upper Camas drainage, helicopters would be audible during brief periods of time (1 to 2 minutes per flight) when the helicopter crests the Heavens Peak ridgeline to unhitch a sling-load before flying away. Overall, helicopter noise would affect a small percentage of the park's total backcountry area. Ninety-five percent of the park, or approximately 957,890 acres, is recommended wilderness. It is possible that helicopter noise could be audible across an area of approximately 73,000 acres, or about 7.6 percent of the park's recommended wilderness. This area of audibility is based on topography and park managers' experience with past helicopter activity, and is the maximum amount of area that would likely be affected.

The introduction of artificial noise under the preferred alternative would be temporary and short-term. The stabilization project is estimated to require 50 days, including 11 days off-site in the carpentry shop. Work at the lookout would be underway during daylight hours only. On Saturdays and Mondays when work crews are exchanged, very little time (if any) would be spent on the job site, and little to no impactful noise would be anticipated on these days (a total of 12 days over the course of the project). When onsite construction noise is produced, it would not occur continuously, but would be interrupted by periods of relative quiet when crews are doing work that does not require electric tools or hammers. The audibility of noise beyond the project area would also be affected by weather conditions. Wind and rain tend to mask and alter the propagation of noise, and the lookout is located on a high elevation ridge where strong winds are frequent.

The generator and power tools used at the work site would likely have adverse effects to wildlife and visitors close to the site. Noise could mask biologically important sounds, degrade habitat, and cause behavioral and physiological changes in individual animals. However, impacts would diminish as the distance from the site increases. Noise levels from most tools would attenuate to ambient conditions within 300 meters when used outside of the structure and 100 meters when used inside. Helicopter noise could cause behavioral and physiological changes, temporarily displace animals, and mask important sounds. The noise would also disrupt opportunities to experience a sense of quiet and solitude for some visitors, especially in the backcountry. However, on the days with the most flights (day 7 and 39) helicopters would be audible no more than 10 percent of the time. As a result, adverse impacts to natural soundscapes in the backcountry, rustic, day use, and visitor service zones in the affected area under the preferred alternative would be minor to moderate, adverse, short-term, site-specific, and local.

Cumulative Impacts of Alternative B

Helicopter flights for this project would be included in the park's 2011 administrative flight restrictions of approximately 50 park-wide flights or less. Noise and human activity associated with the lookout stabilization project combined with other administrative flights and possible emergency flights to Granite Park and backcountry sites near the project area, as well as commercial scenic flights on the west side of the divide, could temporarily and incrementally increase the level of adverse impacts to natural soundscapes.

Conclusion

Noise from the generator and electric and non-electric tools would be localized to the project site, but a greater area would be affected by helicopter noise, depending on topography, weather conditions, and proximity to the flight path. Only a small percentage (approximately 7.6 percent) of

the park's total backcountry area would be affected. Artificial noise would be temporary and short-term and would be interrupted by periods of quiet; weather conditions and high winds may also minimize the audibility of artificial sounds. Wildlife and visitors close to the site could be adversely affected by noise from the generator and electric and non-electric tools; however the effects would diminish as distance from the site increases. Helicopter noise could displace animals and impact visitors, but on the days with the most flights helicopters would be audible no more than 10 percent of the 12-hour day in the backcountry, rustic, day use, and visitor service zones in the area. Adverse impacts to the natural soundscape would therefore be minor to moderate, short-term, site-specific and local. Cumulatively, noise from the lookout's stabilization combined with past, ongoing, and future administrative and emergency flights over backcountry zones near the project area, as well as commercial scenic flights west of the divide, would have minor to moderate, adverse, short and long-term, site-specific and local impacts to natural soundscapes.

COMPLIANCE REQUIREMENTS

National Environmental Policy Act (NEPA) and Regulations of the Council on

Environmental Quality – The National Environmental Policy Act applies to major federal actions that may significantly affect the quality of the human environment. This generally includes major construction activities that involve the use of federal lands or facilities, federal funding, or federal authorizations. This EA meets the requirements of the NEPA and regulations of the Council on Environmental Quality in evaluating potential effects associated with activities on federal lands. If no significant effects are identified a finding of no significant impacts (FONSI) would be prepared. If significant effects are identified a notice of intent (NOI) would be filed for preparation of an environmental impact statement (EIS).

Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) – Section 7 of the Endangered Species Act is designed to ensure that any action authorized, funded, or carried out by a federal agency likely would not jeopardize the continued existence of any endangered or threatened plant or animal species. If a federal action may affect threatened or endangered species, then consultation with the U.S. Fish and Wildlife Service is required. In accordance with Section 7, the NPS has determined that the proposed action “**may affect, but not likely to adversely affect**” grizzly bears and Canada lynx. The NPS has determined “**no effect**” to bull trout and gray wolves. On May 12, 2010, the NPS submitted a biological assessment to the U.S. Fish and Wildlife Service. On May 27, 2010 the USFWS concurred with Glacier National Park’s determination that the project may affect but is not likely to adversely affect Canada lynx or grizzly bears, which completed Section 7 consultation. In late 2010, gray wolves were re-listed as endangered. Glacier National Park biologists concluded that the project would result in negligible impacts to gray wolves, which would equate to a “no effect” determination under Section 7. Therefore, an amended biological assessment is not required. However, a copy of this EA will be submitted to the USFWS for their review and concurrence.

Wilderness Act – the Wilderness Act of 1964 (16 USC 1131 et seq.) established a wilderness preservation system. Public law 88-577 established a national wilderness preservation system and describes wilderness with the following language:

A wilderness...is...an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean... an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which: 1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; 2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; 3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and 4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value.

The Minimum Requirement Decision Guide prepared for this project is included in Appendix B.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.)— Section 106 of the National Historic Preservation Act of 1966 (as amended) requires all federal agencies to consider effects from any federal action on cultural resources eligible for or listed in the National Register of Historic Places (NHRP), prior to initiating such actions. On November 10, 2010, the Montana State Historic Preservation Office concurred with the park’s finding of no adverse effect for the preferred alternative.

CONSULTATION/COORDINATION

PREPARERS

Kurt Fristrup, Ph.D., Acoustic Biologist, NPS Natural Sounds Program Center – natural soundscapes analysis

Kyle Johnson, Wilderness Manager – Recommended wilderness sections

Lon Johnson, Cultural Resource Specialist – Cultural Resource sections, project design, SHPO consultation

Joyce Lapp, Horticulturalist – Vegetation and soils sections

Jack Polzin, Maintenance Mechanic Supervisor, Historic Restoration, Buildings and Utilities Operations – project description and design

Mary Riddle, Environmental Protection Specialist, Team Captain – project description, alternatives, and document compilation; editing, formatting, supervision, and quality review; coordinates internal and regional reviews and agency consultation

Amy Secrest, Compliance Biological Science Technician – assisted with preparation of the Plan/EA, particularly the wildlife, T&E species, wilderness, and natural soundscapes sections; assisted with editing, formatting, and compilation

Frank Turina, Ph. D., Outdoor Recreation Planner, NPS Natural Sounds Program Center – natural soundscapes analysis

John Waller, Ph. D., Wildlife Biologist – Wildlife and T&E sections, Biological Assessment.

AGENCIES/ TRIBES/ ORGANIZATIONS/ INDIVIDUALS CONTACTED (EA RECIPIENTS)

Federal and International

Advisory Council on Historic Preservation

Max Baucus, United States Senate

Jon Tester, United States Senate

Dennis Rehberg, United States House of Representatives

Flathead National Forest (Kalispell, Hungry Horse)

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service (Helena and Creston)

U.S. Geological Survey, Biological Resources Division

U.S. Department of the Interior, Office of the Solicitor

Waterton Lakes National Park, Canada

Premier of the Province of Alberta, Honorable Ed Stelmach

State

Environmental Quality Council, Director, Helena

Montana Department of Environmental Quality, Board of Environmental Review

Montana Department of Environmental Quality Permitting & Compliance, Helena

Montana Department of Environmental Quality, Water Protection Bureau

Montana Department of Environmental Quality, Air Quality Division

Montana Department of Natural Resources and Conservation

Montana Fish, Wildlife, and Parks, Region One Supervisor, Kalispell

Montana State Historic Preservation Office

Brian Schweitzer, Governor of Montana

Stillwater State Forest

Tribes

Willie A. Sharp, Jr., Chair, Blackfeet Tribal Business Council w/copies to Tribal Council and the Blackfeet Tribal Historic Preservation Office

E.T. Moran, Chair, Confederated Salish and Kootenai Tribes of the Flathead Reservation w/copies to Tribal Council and Confederated Salish and Kootenai Tribal Historic Preservation Department

County and City

Chair, Flathead County Board of Commissioners

Glacier County Commissioners

Mayors and City Councils of Browning, Kalispell, Columbia Falls, and Whitefish, MT

Public Libraries: Bigfork, Columbia Falls, Kalispell, Whitefish, MT

Groups/Businesses

Forest Fire Lookout Association, Montana-North Idaho Chapter

Friends of the Wild Swan

Glacier National Park Fund

Glacier Natural History Association

Glacier Park Inc.

Glacier Park Foundation

Glacier Raft Company

Glacier Waterton NP Visitor Association

Great Northern Whitewater Resort

Montana Preservation Alliance

Montana Raft Company

Montana Wilderness Association

National Parks Conservation Association

National Smokejumpers Association

National Trust for Historic Preservation, Mountain/Plains Office

Rocky Mountain Outfitter

Swan View Coalition

Wilderness Watch

Wild River Adventures

Individuals

A complete list is available upon request

Printed on recycled paper



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APPENDIX A – IMPAIRMENT

National Park Service's *Management Policies* 2006 require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute impairment, but an impact would be more likely to constitute impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; 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 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 findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relate back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

Impairment may result from National Park Service 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 impairment is based on whether an action would have **major (or significant)** effects. The following analysis evaluates whether or not the applicable resources carried forward in this document would be impaired by the preferred alternative.

- **Historic Structures.** Glacier National Park was established to protect natural and cultural resources, and the park's historic structures chronicle the long, diverse, and significant history of human activities. This project involves the stabilization of Heavens Peak Fire Lookout, which is a building listed in the National Register of Historic Places. Using the above criteria, historic structures are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although historic structures are a significant resource at the park, the preferred alternative would result in moderate, long-term, site-specific, beneficial impacts to historic structures; therefore, there would be no impairment to historic structures.
- **Recommended Wilderness.** Glacier National Park was established to protect natural and cultural resources. The park's areas of recommended wilderness are key repositories of ecological and geological processes; provide essential habitat for the park's native flora and fauna; offer opportunities for solitude and recreation; and contain cultural resources, including archeological sites, historic structures, and ethnographic features, that contribute to the wilderness landscape. This project would result in the continued presence of a periodically maintained historic structure within recommended wilderness; and would cause temporary disturbances to the wilderness setting of Heavens Peak due to human activity and noise from helicopters, a generator, power tools, and electronic and battery operated hand tools. Using the above criteria, Glacier National Park's primitive wilderness landscape is necessary to fulfill the purposes for which the park was established; is key to the natural integrity of the park and opportunity for enjoyment of the park; and is identified as being significant in park planning documents. Although recommended wilderness is a significant resource at the park, the preferred alternative would result in negligible to moderate, adverse and beneficial, short and long-term, site-specific to widespread impacts to recommended wilderness.
- **Wildlife.** Glacier National Park was established to protect natural and cultural resources and the park's wildlife contribute to GNP's significance as one of the most ecologically intact areas in the temperate regions of the world. This project would cause temporary disturbance to wildlife during helicopter flights and human activity at the lookout and work camp site. Using the above criteria, wildlife are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and to the opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although wildlife is a significant resource at the park, the preferred alternative would only result in negligible to minor adverse, short-term, site-specific and

local impacts to wildlife; therefore, there would be no impairment to wildlife.

- **Threatened and Endangered and Species of Concern.** Glacier National Park was established to protect natural and cultural resources. The park's threatened and endangered species and species of concern contribute to GNP's significance as one of the most ecologically intact areas in the temperate regions of the world. This project would temporarily disturb threatened and endangered species and species of concern during helicopter flights and human activity at the lookout and work camp site. Using the above criteria, threatened and endangered species and species of concern conservation are key to the natural integrity of the park and the larger region and to the opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although threatened and endangered species and species of concern are a significant resource at the park, the preferred alternative would only result in negligible to moderate, short-term, site-specific, local, and possibly long-term and regional adverse impacts to threatened and endangered species and species of concern; therefore, there would be no impairment to threatened and endangered species and species of concern.
- **Natural Soundscape.** Glacier National Park was established to protect natural and cultural resources. The park's natural soundscapes have intrinsic value as part of the unique environment of GNP. Artificial noise from this project would cause temporary disturbances to the natural soundscape within the backcountry or wilderness surrounding Heavens Peak, and to the visitor services zone in the GTSR corridor. Using the above criteria, natural soundscapes are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and to the opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although natural soundscapes are a significant resource at the park, the preferred alternative would only result in minor to moderate adverse, short-term, site-specific and local impacts to natural soundscapes; therefore, there would be no impairment to natural soundscapes.



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

APPENDIX B

MINIMUM REQUIREMENT DECISION GUIDE

(Note: Glacier National Park is using the most recent MRDG form. This form is currently used by most Federal agencies, and will be used by the park in the future.)



GLACIER NATIONAL PARK

MINIMUM REQUIREMENTS DECISION GUIDE

“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”

– the Wilderness Act, 1964

Please refer to the accompanying MRDG *instructions* for filling out this guide.

The spaces in the worksheets will expand as necessary as you enter your response.

Project Title: Heavens Peak Fire Lookout Stabilization Project

Step 1: Determine if any administrative action is necessary.

Briefly describe the situation that may prompt action.

A significant cultural resource that contributes historical value to the park's recommended wilderness has deteriorated and is in danger of being lost. Built before the Wilderness Act in 1945 by conscientious objectors of the Civilian Public Service (CPS), the Heavens Peak Fire Lookout was present when the surrounding area was proposed as wilderness, and was listed in the National Register of Historic Places in 1986. The lookout embodies the NPS rustic design philosophy of buildings that are harmonious with the landscape and is significant for its association with the CPS. The original historic fabric and structural integrity of the lookout is deteriorating from lack of maintenance and harsh weather conditions. Man-made trash and debris that is accumulating from the lookout's deterioration is diminishing the wilderness setting in the immediate area. The proposed project would structurally stabilize the lookout and preserve a historically and architecturally significant structure that represents a distinct period of Glacier's history and is part of the park's recommended wilderness landscape.

A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes

Explain: The lookout is within recommended wilderness and was built into the rock on Heavens Peak. It cannot be relocated.

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows or requires consideration of the Section 4(c) prohibited uses? Cite law and section.

No

C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes

Explain: The National Historic Preservation Act of 1966 (NHPA) directs the park to assume responsibility for the preservation of historic properties, including historic structures, for present and future generations. As the primary federal agency through which the NHPA is realized, the NPS is committed to the preservation of cultural history. Park lands included in the original wilderness recommendations contained a number of cultural resources, such as historic backcountry cabins and fire lookouts. The Wilderness Act's definition of wilderness includes lands which may "contain ecological, geological, or other features of scientific, educational, scenic, or historical value [Section 2(c)(4)]. Historic preservation laws, including the Antiquities Act, the Historic Sites Act, the National Historic Preservation Act, and the NPS Organic Act, are applicable within wilderness but "must generally be administered to preserve the area's wilderness character."

D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes

Explain: In accordance with Section 6.3.8 of NPS Management Policies 2006, the NPS remains responsible for the preservation of cultural resources within wilderness and recommended wilderness.

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: Untrammeled, Undeveloped, Natural, Outstanding opportunities for solitude or a primitive and unconfined type of recreation, or other unique components that reflect the character of this wilderness area?

Untrammeled: **No**

Undeveloped: **No**

Natural: **No**

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

No

Other unique components that reflect the character of this wilderness:

Yes

Explain: Heavens Peak Lookout is a significant cultural resource that imparts historical value to the park's recommended wilderness and contributes to the wilderness setting surrounding Heavens Peak. Built before the Wilderness Act in 1945 by conscientious objectors of the Civilian Public Service (CPS), the Heavens Peak Fire Lookout was contained in park lands recommended for wilderness and was listed in the National Register of Historic Places in 1986. The lookout embodies the NPS rustic design philosophy of buildings that are harmonious with the landscape and is significant for its association with the CPS.

F. Describe Effects to the Public Purposes of Wilderness

Is action necessary to be consistent with one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: Yes

Explain: While the trail to the lookout is no longer maintained and has largely disappeared, a few park visitors, including descendants of some of the original CPS crew members, occasionally visit the site.

Scenic: Yes

Explain: Designed to merge with the rugged backcountry terrain, the lookout has become part of the Heavens Peak wilderness setting.

Scientific: No

Education: Yes

Explain: The Heavens Peak Lookout has educational value as a significant cultural resource.

Conservation: Yes

Explain: The National Historic Preservation Act of 1966 (NHPA) supports and encourages the preservation of historic resources, including historic structures, for present and future generations. As the primary federal agency through which the NHPA is realized, the NPS is committed to the preservation of cultural history.

Historical use: Yes

Explain: The lookout was in operation from its construction in 1945 through the 1953 fire season when it was abandoned in favor of aerial detection. Currently, while the lookout is not regularly occupied for fire detection purposes, it has been and could be used by fire management personnel as an additional vantage point for monitoring a fire in the area.

Step 1 Decision: Is any administrative action necessary in

Yes:

Explain: Without administrative action, the park will eventually lose a significant cultural resource that contributes historical value to the park's recommended wilderness, depicts craftsmanship in harmony with the landscape, and represents the Civilian Public Service's contribution to the park.

If action is necessary, proceed to Step 2 to determine the minimum activity.

Step 2: Determine the minimum activity.

Please refer to the accompanying MRDG [*Instructions*](#) for information on identifying alternatives and an explanation of the effects criteria displayed below.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Alternative # <u> 1 </u>

Description: Helicopters would be used to fly materials and equipment to the project area. Up to 12 flights, 10-12 minutes (maximum of 15 minutes) round trip, would be required over a 6 week period. These flights would be within the park's 2011 administrative flight restrictions of approximately 50 flights or less. A small Honda 2000 generator, hand, battery operated, and small power tools would be used onsite; the generator would be kept inside the existing propane storage annex to minimize noise impacts. Structural and finish building components would be prefabricated off-site and flown in to reduce project time, limit onsite personnel, and thereby minimize resource damage and noise impacts. Power tools would enable the project to be completed within a much shorter time period in one summer season, and would limit the amount of time work crews are traveling, working, and camping in recommended wilderness. Some food items and small hand tools would be transported on foot when possible. Construction debris and equipment would be flown out on back hauls of incoming flights and after project completion. Trash and debris that has accumulated from the lookout's deterioration would be flown out. Flights would be coordinated with other work projects in the area to minimize flight time over recommended wilderness. All flight times and routes, and camping and backcountry procedures would be coordinated through the natural resources and Park Ranger staffs.

Effects:

Wilderness Character

"Untrammeled": Human activity and helicopters could temporarily diminish the unmanipulated quality of recommended wilderness in the immediate area near Heavens Peak. Benefits to the untrammeled quality could occur from the removal of accumulated trash and debris that is degrading the immediate wilderness setting. But the overall untrammeled quality of the park's recommended wilderness would not be affected.

"Undeveloped": Human activity and helicopter activity would temporarily diminish the undeveloped character. But the undeveloped character of the immediate area has already been degraded by the accumulation of man-made trash and debris from the lookout's deterioration. Alternative 1 would enable the removal of the trash, which would benefit the undeveloped quality of the site.

"Natural": Helicopter and human activity could temporarily disrupt wildlife travel and habitat use patterns. Removing the accumulated trash and debris would restore the site immediately surrounding the lookout to a more natural condition.

"Outstanding opportunities for solitude or a primitive and unconfined type of recreation": Helicopters and work crews would temporarily disrupt opportunities for solitude within a very small portion of the park's recommended wilderness. Primitive and unconfined recreational opportunities would not be threatened.

Other unique components that reflect the character of this wilderness: The lookout contributes historical value to recommended wilderness surrounding Heavens Peak. The ability to adequately stabilize the structure would increase with the use of some power and battery operated tools, and by using helicopters to fly in prefabricated building components.

Heritage and Cultural Resources: The preservation of a significant cultural resource, the Heavens Peak Fire Lookout, would be possible. Alternative 1 would improve the ability to adequately stabilize the structure. (Note: “Heritage” is a term used by the U.S. Forest Service to refer to cultural resources.)

Maintaining Traditional Skills: Some traditional skills such as hiking and backcountry camping would be necessary to complete the project. Hand tools would be used when possible, but traditional skills and tools would not be exclusively relied upon since helicopters and some electric and battery operated tools would be used to minimize the project time frame and thus the overall level of impacts to wilderness. Periodic maintenance of the structure would likely require future use of hand tools and backcountry skills.

Special Provisions: No special provisions would be affected.

Economics and Timing Constraints: Because of the high elevation and potential for inclement weather, the work window is fairly small. Alternative 1 would enable the work to be completed in a timely manner, within a six week period in one summer season. Timely completion of the project would enable preservation of a cultural resource, keep soil and vegetation impacts at the work camp and job site at a minimum, and would be less intrusive to wildlife and visitors. The overall cost of the project would be less if helicopters and power tools are used.

Additional Wilderness-specific Comparison Criteria: A cultural resource that was on the landscape when the park’s wilderness recommendations were made, and which imparts historical value to the Heavens Peak wilderness setting and contributes to the unique character of the area’s recommended wilderness would be preserved. The ability to adequately stabilize the structure would improve with Alternative 1.

Safety of Visitors, Personnel, and Contractors: The use of helicopters to transport materials and supplies would greatly reduce the hazards of hand carrying materials to and from the work camp and job site through a trail-less area on uneven terrain. Without the use of helicopters, scaffolding required for job safety could not be packed to the lookout nor procured onsite. Propane, gas, concrete, heavy camping gear and other materials and supplies could not be safely transported by other means. A small generator and small, common power tools would lessen physical demands at a remote job site.

Alternative # <u> 2 </u>

Description: All materials, supplies, and equipment would be transported to the work camp and lookout via cross-country hiking, or with livestock where possible. Work and camp supplies and materials would be broken down into several packable loads; additional crews would likely be necessary to transport the loads, and several supply trips would be required per week. Substantial trail clearing would occur; in order for pack animals and large work crews to safely access the work camp and job site, a temporary trail would have to be built, followed by restoration and revegetation. Livestock would not be able to access the lookout site, and stabilization materials and tools would be packed from the work camp on foot by the work crews. Materials and building components would not be prefabricated off-site, but would be constructed onsite. No power or battery operated tools would be used; hand tools would be used exclusively to complete the project. Project completion would require two and possibly three full summer seasons; an additional summer season would be anticipated if there are consistently poor weather conditions. Trash and debris that has accumulated from the lookout’s deterioration would not be removed.

Effects:

Wilderness Character

“Untrammelled”: Fewer noise impacts would occur from this alternative, compared to the temporary noise from helicopters and power tools under Alternative 1. But the intensity and duration of human activity (including large work crews and pack animals) associated with building a temporary trail to the work site, numerous supply trips per week, and a prolonged project time frame would negatively affect the unmanipulated quality of the area. Impacts from numerous supply trips and trail clearing could be permanent or long-term.

“Undeveloped”: Man-made trash that has accumulated from the lookout’s deterioration would remain on the landscape, thus diminishing the undeveloped quality of the immediate setting.

“Natural”: Wildlife habitat use and travel patterns at the lookout and along the route workers would take to access the site would be negatively affected by Alternative 2, probably for the long term. Wildlife displacement and disturbance would be long term and could become permanent. Wildlife would be displaced for two and possibly three seasons by livestock and large work crews travelling through the backcountry, working at the site, and camping in an undesignated area. Traveling with livestock cross-country would damage plants and soil. A temporary trail to the work site would have to be cleared, which would increase access to the site long after the project is completed. The accumulated trash could not be removed, which would diminish the natural condition of the immediate area.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”: Disturbance to solitude would occur over a lesser area, since helicopters would not be used, and construction noise would be less audible with the exclusive use of hand tools. But a prolonged project time frame and frequent intrusion from large work crews and pack animals over two to three seasons would diminish opportunities for solitude, and trails and trailheads would be more crowded, potentially degrading the hiking experience for some visitors.

Other unique components that reflect the character of this wilderness: The Heavens Peak Lookout reflects the historical value of recommended wilderness in the area. The ability to adequately stabilize the structure would decrease with the exclusive use of hand tools; large building components would not be prefabricated off site and flown in. If Alternative 2 were to prove infeasible, the lookout would not be preserved. Also, the development of a permanent trail to the site could affect the ecological value of the area from localized changes to plant communities and wildlife use patterns.

Heritage and Cultural Resources: The preservation of a significant cultural resource, the Heavens Peak Lookout, would be threatened or impossible due to difficult access and the infeasibility of packing materials and equipment to the job site. The use of traditional tools alone could hinder the ability to adequately stabilize the structure.

(Note: “Heritage” is a term used by the U.S. Forest Service to refer to cultural resources.)

Maintaining Traditional Skills: Traditional skills would be maintained through the exclusive use of hand tools and human and animal equipment transport.

Special Provisions: No special provisions would be affected.

Economics and Timing Constraints: If equipment and materials were transported via human crews and/or livestock, and if traditional hand tools were used exclusively, the lookout stabilization project would require two and possibly three full summer seasons. The overall cost of the project would increase if hand tools are used exclusively and equipment is transported on foot or livestock.

Additional Wilderness-specific Comparison Criteria: If feasible, Alternative 2 would preserve a cultural resource that contributes to the unique character of recommended wilderness surrounding Heavens Peak and was present on the landscape when the park’s wilderness recommendations were made. The ability to adequately stabilize the structure would diminish with Alternative 2.

Safety of Visitors, Personnel, and Contractors: Human and/or livestock transport of equipment and materials would greatly increase the risk of injury to work crews. Cumbersome and heavy building components would be carried over rough and uneven terrain and handled many times during transport and at the job site. Large items, such as scaffolding (required for job safety), could not be packed to the lookout nor procured onsite. The safety of crews packing heavy loads multiple times through bear country and on uneven and very steep terrain would be compromised. Injuries, including long term afflictions, would be likely. More livestock staging at Packer’s Roost and additional livestock on the Flattop Mtn. and McDonald Creek trails would present an increased safety hazard to visitors and hikers.

Comparison of Alternatives

It may be useful to compare each alternative's benefits and adverse effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

(+) = beneficial; (-) = adverse; N/A = not applicable; N/E = no effect

	Alternative 1	Alternative 2	No Action
Untrammeled (unmanipulated by human activity)	+, -	-, -, -	+, -
Undeveloped	+, -	-	+, -
Natural	+, -	-, -, -	-, -
Solitude or Primitive Recreation	-	-, -	+, -
Unique components	+, +	+, -	-
WILDERNESS CHARACTER	+++++/- - - -	+/- - - - - - - - -	+++/- - - - - -

	Alternative 1	Alternative 2	No Action
Heritage & Cultural Resources	+, +	+	-
Maintaining Traditional Skills	+, +, -	+	-
Special Provisions	N/A	N/A	N/A
Economics & Timing	+	-	N/E
Additional Wilderness Criteria	+	+	-
OTHER CRITERIA SUMMARY	+++++ +/-	++ +/-	- - -

	Alternative 1	Alternative 2	No Action
SAFETY (PUBLIC AND WORKERS)	+	-	N/E

Safety Criterion

Occasionally, safety concerns can legitimately dictate choosing one alternative which degrades wilderness character (or other criteria) more than an otherwise preferable alternative. In that

case, describe the benefits and adverse effects in terms of risks to the public and workers for each alternative here but avoid pre-selecting an alternative based on the safety criteria in this section. While safety has been a factor in the minimum tool analysis, the selection has not been made on the basis of safety alone. See the above analyses on the safety of visitors, personnel, and contractors for alternatives 1 & 2.

Step 2 Decision: What is the Minimum Activity?

Selected alternative: 1

Rationale for selecting this alternative (including safety criterion, if appropriate):

The duration of the project and adverse impacts to the work and camp sites, threatened and endangered species, soils and vegetation, wilderness character, and project safety are all reduced by using helicopters to transport construction materials and equipment, and by using some power and battery operated tools to complete the project. Some food items and small tools will be transported on foot during crew changes and oversight visits.

Mitigations:

The mitigation measures below were developed to mitigate impacts to recommended wilderness. The attached environmental assessment includes other mitigation measures for wildlife and other resources.

- A low-rider toilet kit would be flown to the work camp and removed at the end of the project.
- Several building components would be prefabricated off-site to reduce on-site noise impacts, limit on-site personnel, and minimize project time.
- Non-electric hand tools would be used as much as possible to reduce artificial noise.
- The generator would be kept inside the existing propane storage annex during use to reduce noise impacts.
- Construction debris and equipment and garbage would be flown out on back-hauls of incoming flights and after project completion.
- Flights would be coordinated with other area work projects in order to minimize administrative flights over recommended wilderness. Hauling needs for other projects would be combined with the Heavens Peak Lookout project as able.

Monitoring and reporting requirements: see attached environmental assessment

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- | | |
|--|--|
| <input checked="" type="checkbox"/> mechanical transport | <input checked="" type="checkbox"/> landing of aircraft (long line only) |
| <input checked="" type="checkbox"/> motorized equipment | <input type="checkbox"/> temporary road |
| <input type="checkbox"/> motor vehicles | <input type="checkbox"/> structure or installation |
| <input type="checkbox"/> motorboats | |

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

Approvals	Signature	Name	Position	Date
Prepared by:		Kyle Johnson	Wilderness Specialist	
		Jack Polzin	Maintenance Mechanic Supervisor	
Recommended:		Kyle Johnson	Wilderness Specialist	
Recommended		Jack Potter	Chief, Science and Resources Management	

Recommended:		Mark Foust	Chief Ranger	
Approved:		Chas Cartwright	Superintendent	

APPENDIX C

PROJECT TOOL DECIBEL READINGS

Decibel readings for hand, battery operated, and power tools that would be used during stabilization of the Heavens Peak Fire Lookout (readings were measured 9 feet from the source):

Honda 2000 generator:	59 dBA
Framing nailer:	56 dBA
Finish nailer:	45 dBA
Hammer:	65 dBA
Electric 1/2" drill:	76 dBA
Cordless drill:	65 dBA
Makita electric saw:	80 dBA
Electric jig saw:	75 dBA
Electric sawsall:	75 dBA
Cordless sawsall:	70 dBA
Hand saw:	58 dBA
Grinder:	81 dBA

