



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

**North Cascades National Park Service Complex
Stephen Mather Wilderness
Regions 8, 9, 10 and 12**

**FINDING OF NO SIGNIFICANT IMPACT
Backcountry Camp Modifications in North Cascades National Park**

Recommended:

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Date

Approved:

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Date

1. Introduction

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with two proposed projects in the North Cascades National Park (NOCA). The first project consists of rerouting a 2,400-foot section of the Pacific Northwest National Scenic Trail (PNT; along a segment locally known as the Brush Creek Trail) and the relocation of the Graybeal Hiker and Stock Camps along this same trail segment. The second project consists of constructing additional backcountry camp accommodations at Six Mile and Bridge Creek Camps along the Pacific Crest National Scenic Trail (PCT). These camps are for use by holders of a Long Distance Hiking Permit for the PCT issued by the Pacific Crest Trail Association (PCTA).

The purpose of this action is to accommodate contemporary levels of visitor use by maintaining and developing new overnight backcountry camping opportunities while preserving wilderness character, conserving natural and cultural resources, and maintaining access to the encompassed National Scenic Trails. Specific attention is given to minimizing and managing the impacts associated with backcountry recreation (hiking, backpacking, and stock packing). This includes designing camp layouts so that they meet preferred design features including adequate distances between common bear travel routes, cook areas, and tent pads to minimize human-bear conflicts.

The need for this project arises from existing conditions and the mandates prescribed by the Organic Act of 1916, the Wilderness Act of 1964, and the National Trails System Act of 1968 (as amended). The North Cascades National Park Wilderness Management Plan (NPS 1989) also addresses maintaining wilderness character, allowing for backcountry recreation, and minimizing impacts to natural and cultural resources. These documents provide the legislative and policy framework for the NPS and its actions, including the proposed action.

The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

2. Selected Alternative and Rationale for the Decision

Based on the analysis presented in the EA, the National Park Service selected a modified version of Alternative I detailed below:

Reroute Brush Creek Trail

A section of the PNT in Brush Creek will be rerouted by building a new 2,400-foot-long trail out of the valley bottom to reduce the threat of flood damage (p. 14, Figure 12 of the EA). Where necessary, the abandoned portion of Brush Creek Trail will be scarified and covered with debris to obscure it and promote vegetation reclamation.

The new section of trail will be constructed to “All Purpose” trail standards described in the NOCA Trails Handbook (NPS 1980) with a 24” wide tread and vegetation within the eight-feet wide by ten-

feet high trail corridor will be cleared. During construction the trail crew will remove as few trees as possible. No living old growth trees (> 30 inches diameter measured at 4 feet above the ground) will be removed during the construction of the trail and to the extent possible trail workers seek to minimize damage to the root zone of old growth trees.

The construction in Brush Creek will take a six-person trail crew approximately 64 days to complete over two or three years working between June and October. The trail crew plans to camp at the existing Graybeal Stock Camp during this time. Construction activities will require: picks, shovels, rock bars, Pulaskis, McLeods, sledgehammers, rigging and grip hoists, chainsaws, generators, roto hammers, explosives, and a helicopter.

The helicopter will be used to deliver and remove equipment and supplies to the construction location and potentially, to move material from gravel bars along Brush Creek to the new trail tread. The helicopter will transport up to eight sling loads of equipment and supplies during the spring and bring out up to four sling loads in the fall. In addition to these flights, one to two hours of flight time may be required to move gravel. Flight time will vary depending on the substrate underlying the new trail. A minimum requirements analysis (MRA) found in Appendix E was developed for the use of power tools and helicopter delivery which is prohibited in designated wilderness.

Graybeal Hiker and Stock Camps

Graybeal Hiker and Stock Camps may be relocated in the proximity to the Brush Creek Trail (p. 14, Figure 12 of the EA). Prior to the 2022 Chilliwaack Complex fire, planning efforts located campsites based on the best available soil types, terrain, and forest conditions for building and maintaining campsites and accommodating visitor use at these sites. However, wildfire damage may have compromised the viability of these locations. While the proposed hiker camp appears to be outside the edge of the burn perimeter it is on a debris cone and modeling of debris flow risk identifies this area with a moderate to high risk likely making it an unsuitable location (NPS 2022). The proposed stock camp is within the burn perimeter and most of the large trees were damaged due to burned roots, which may increase the number of hazard trees that require removal with a camp in that general area.

The NPS will close Brush Creek to camping for one or more seasons to monitor post-fire effects on the landscape and forests. This also provides time to re-evaluate the suitability of the originally proposed sites and seek alternative sites for Graybeal Stock and Hiker Camps if needed. Though they may be in different locations in the Brush Creek valley than originally planned, the NPS would develop campsites only at locations that do not exceed the scope and scale of impacts identified in the EA. As needed, the NPS will conduct a follow up environmental compliance review and approval process and document the action with a memo-to-file or a categorical exclusion under NEPA.

Siting and layout of the camps will meet preferred design features of camps to limit impacts to natural and cultural resources and solitude, including meeting design standards to reduce human-bear conflict (Appendix D). The camps will retain the original capacity for people and tents. Prior to

flood damage in 2017, Graybeal Hiker Camp had three sites to accommodate 4 people each. Graybeal Stock Camp is a single site to accommodate up to 12 people (pp. 15-16, Figures 13 and 14 of the EA for maps of general layout for these camps). Where necessary, abandoned campsites will be scarified and covered with debris to hasten revegetation and a return to a more natural state.

The new hiker camp will consist of three new camp sites with two tent pads each, a common cook area, and an open-air pit toilet. Simple single post signs will be installed at each trail junction with symbols and arrows pointing toward each area of the camp. Water will be available nearby at Brush Creek or a nearby tributary. If suitable trees are available, campers will be required to store food by hanging from the limbs of nearby trees. Otherwise, portable wildlife-resistant food canisters will be required for overnight camping or the NPS may install wildlife resistant food storage lockers.

The new stock camp will consist of four tent pads, a common cook area, a hitch rail, and an open-air pit toilet. One of the tent pads will be near the hitch rail so the packer can sleep close to pack animals. Simple single post signs will be installed at each trail junction with symbols and arrows pointing toward each area of the camp. Water will be available nearby at Brush Creek. Capacity at this camp will remain the same as the original camp.

Construction of both camps will take a six-person trail crew approximately forty days to complete between June and October. This work is expected to take place over two to three summer seasons. Construction activities will require: shovels, rock bars, Pulaskis, McLeods, sledgehammers, rigging and grip hoists, and chainsaws. The same helicopter flights outlined above will be utilized for the camp and trail reroute construction work.

The new camps will be located in old growth forest. Hazard trees are always a concern in these forests, particularly after the fire, and as mentioned above, the NPS manages to reduce risk of dead or diseased trees falling on people or stock animals using the camp areas. During camp site construction and subsequent ongoing maintenance, the NPS will continue to conduct a hazard tree abatement program for designated campsites in accordance with National Park Service Pacific West Region Directive PW-062 (NPS 2015) and North Cascades National Park Service Complex programmatic categorical exclusion for routine and cyclic trail maintenance (NPS 2021).

Bridge Creek Camp and Six Mile Camp Modifications

The Bridge Creek Camps serve several different user groups, including PCTA Long Distance Permit Holders, small backpacking groups (individual sites with a capacity of 4 people), large backpacking groups (up to 12 people), overnight stock users including a corral, and a Tent-to-Tent concession camping area. This area will be reconfigured to optimize space for all user groups and resource protection, including minimizing human-bear conflicts without constructing new facilities in designated wilderness. Additional camp space may be constructed in this area to accommodate up to 20 PCT drop-in hikers with individual tents. As needed, outhouses (design to be determined), wildlife-resistant food storage lockers, and signs will be added to the area. Archeological surveys and the necessary National Historic Preservation Act Section 106 compliance has been completed to develop the area labelled “proposed additional camp area” in Figure 15 of the EA (p. 17). This area

is available to develop without further environmental compliance review and approval. If additional archeological surveys and compliance are required, the NPS will conduct a follow up environmental compliance review and approval process and document the action with a memo-to-file or a categorical exclusion under NEPA.

When construction is complete the capacity of the expanded Six Mile Camp will accommodate between fifteen to twenty people with single person tents. Several modifications will be made and are shown on Figure 17 of the EA (p.19). First, a new cook area with two wildlife-resistant food lockers will be constructed that is separated from the tent pads. The camp already has one food locker, another will be transported in by helicopter. Second, the existing bare ground/disturbed area will be improved and expanded by incorporating the old cook area which will gain one or two tent pads. Third, an abandoned tent pad site to the east will be rebuilt to accommodate two to four additional tents.

Construction of these camp modifications in both areas is expected take a trail crew of four people approximately 30 days to complete over the course of one to two years (twenty days at Bridge Creek Camp and ten days at Six Mile Camp). Construction at Bridge Creek Camp is planned to occur between May and November and will require the following tools: picks, shovels, rock bars, Pulaskis, McLeods, sledgehammers, rigging and grip hoists, chainsaws, and a helicopter. Two to four helicopter flights will be needed to bring in wildlife-resistant food storage lockers and toilets too heavy and bulky to be carried in on foot or by stock. This would include one flight to Six Mile Camp to transport in a food locker and the rest to Bridge Creek Camps. See the minimum requirements analysis (MRA) in Appendix E for an explanation of the administrative need for prohibited uses in the designated wilderness. Hazard trees will be managed in the same manner as the Brush Creek Camps (NPS 2015).

Rationale

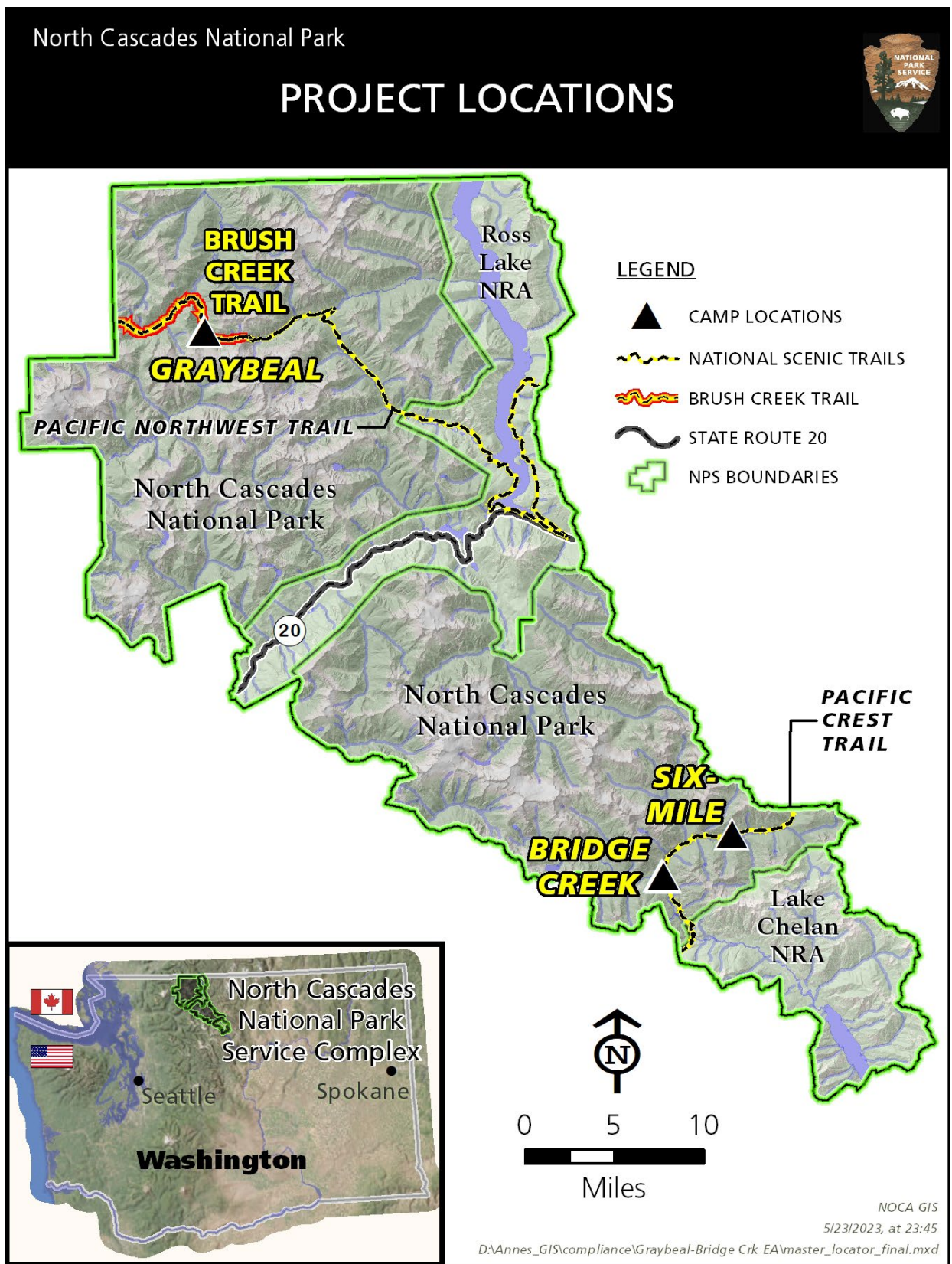
Based on the analysis presented in the EA, the NPS selected a modified version of Alternative I (the proposed action) because it was the best at meeting the project purpose and need and was the minimum activity required for administration of the area as wilderness. Alternative I will:

- Take action to improve and relocate backcountry facilities to address the effects of recent wildfires, flood damage, and changes in visitor use which will reduce impacts from recreation, preserve the wilderness character in the Stephen Mather Wilderness, conserve the natural and cultural resources of NOCA, and provide access to National and Scenic Trails for the long term.
- Improve to user experience along national scenic trails. These actions improve the public's enjoyment of the national trail system. Long distance PCT travelers' ability to camp without causing crowding for other PCT travelers improves the camping situation for all users, while also protecting the resources in the PCT corridor. Allowing natural alluvial processes to occur along the PNT, maintains a wild and natural trail experience. Both the PCT and PNT are defined by the National Trail System Act as being "extended trails so located as to

provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." The approximately half mile of reroute to the Brush Creek Trail and PNT will meaningfully contribute to the proper management of the Pacific Northwest National Scenic Trail.

- Reroute 2,400 feet of the Brush Creek segment of the PNT and relocate the Graybeal Hiker and Stock camps out of the floodplain to: restore stock access, prevent further damage to the trail, ease maintenance requirements, reduce costs, and allow natural processes in the floodplain to occur unhindered.
- Construct additional backcountry camp accommodations for PCTA Long Distance Permit Holders along the Bridge Creek Trail to address crowding associated with increased use since 2016.
- Improve the layout of all camps to meet preferred design features for resource protection including adequate distances between common bear travel routes, cook areas, and tent pads to minimize human-bear conflicts.

Figure 1. Locations of the project in North Cascades National Park



3. Mitigation Measures

Mitigation measures and preferred design features for wilderness camps are described in Appendix D. In addition, while inherent in the proposed action, previously developed best management practices for trail maintenance and helicopter use in the Park Complex are included for transparency. The NPS has the authority to implement these mitigation measures under the Organic Act, The Wilderness Act, The National Historic Preservation Act, NPS Management Policies 2006, and other federal and state applicable requirements.

4. Other Alternatives Considered

Alternative A: No Action Alternative

Under the No Action Alternative, the NPS would have continued to manage these areas as it has been under current and developing conditions.

Brush Creek

The Brush Creek Trail and Graybeal camps would have continued to be maintained and utilized for their intended purposes to meet the preferred design features (PDFs) as much as practicable. However, after the 2022 Brush Creek 2 Fire, Graybeal Camps may have remained closed due to the risk of hazard trees and the possibility of lingering risk of landslides or debris flows. Closure decisions are based on monitoring and evaluation as on-the-ground conditions develop. Outside of the hazard tree and landslide risks, the Graybeal Camps are also likely to see even more flooding and associated damage post-fire with more hillslope sediment transported into Brush Creek contributing to additional aggradation of the stream bed, which could make maintenance of camp facilities difficult and potentially increase the risk to people and stock camping in the area.

Bridge Creek/Pacific Crest Trail

Current camp footprints would have been utilized along the PCT. While there may have been reassignments of existing camp areas to different user groups in the future, there would have been no increases in campsite footprints. No action would likely have led to an increase in vegetation trampling, human wildlife conflict, and conflict between users seeking a limited number of campsites.

Alternatives Considered but Dismissed

Project Work in Wilderness Solely with Non-motorized Tools

Use of only non-motorized tools in designated wilderness was considered and dismissed from detailed analysis in the EA because it has excessive costs and leads to an unacceptable level of impacts. While many construction tasks outlined in the proposed action could be accomplished without motorized tools, when the project is considered on balance with all the other trail maintenance needs in the wilderness, power tools are deemed to be the minimum tool for use in designated wilderness. Chainsaw and motorized tool use for the project work enables a limited

number of trail crew members to keep all trails and designated camps in the Park Complex up to established standards. It is not possible to maintain the current trail system to standards with the currently available trail crew and stock program with no power tool use. However, this situation was analyzed in the EA's MRA and these impacts to wilderness character are outlined in pp. 80-87 of the EA.

The NPS estimates maintaining trails to standard without motorized tools would require the crew size be doubled, from roughly 20 crewmembers and 10 head of stock to 40 crewmembers and 20 head of stock. An increase in crew and stock size would require a substantial reorganization of the park staff, budget, and facilities. This is not currently feasible given budget limitations, facilities (e.g. seasonal employee housing), and space limitations outside of wilderness. In the wilderness an increased crew size would require additional administrative camps to maintain capacity for the public, which would have long-term negative impacts on the undeveloped and natural qualities. Such impacts include a larger developed footprint for administrative use and need to abate hazard trees in these areas. Most of the trail system is in suitable habitat for northern spotted owl (NSO) and hazard trees can be suitable nest trees for this species. Minimizing the area needed for hazard tree abatement minimizes loss of suitable habitat for this federally Threatened species. While not a prohibited use, the increased trail crew presence and activity could impact visitors' opportunities for solitude at high use times and places. Maintaining the current trail system to standard with non-motorized tools would potentially have widespread localized impacts to soils, vegetation, and cultural resources along the trail corridor. In addition, very large, downed trees would be cleared with explosives, a potential disturbance to opportunities for solitude and federally Threatened bird species including NSO and marbled murrelet. See additional explanation in the final MRA (Appendix E).

Change to Dispersed Camping in Brush Creek

Abandoning designated campsites and creating a cross country zone with dispersed camping in Brush Creek was considered but dismissed because changing how visitor use is managed along the trail corridor is outside the scope of this EA. This would be a significant departure from the current management strategy of using designated campsites along trails along trails.

Closing Trails or Camps

Closing regularly used trails and campsites was determined to be unacceptable because it does not fit the purpose and need and eliminates the overnight camping opportunities that have existed since the establishment of NOCA and the Stephen Mather Wilderness

5. Public Involvement and Agency Consultation

The formal public scoping period for the EA was from March 9, 2022, through April 6, 2022, and was announced via email, press release, and the NPS Planning, Environment & Public Comment (PEPC) website. Ten comments were received from various individuals and organizations. A virtual public meeting for scoping was held on March 18, 2022, in which three members of the public attended.

The public comment period for the EA was from February 7, 2023, to March 8, 2023, and was announced via email, press release, and the NPS PEPC website. A digital version (PDF file) of the Draft EA was posted on the PEPC website for review and comment. Written comments were received from 1,484 correspondents. There were 31 substantive concerns identified which were addressed by NPS (Appendix B of this FONSI). These concerns are based on many more overlapping substantive comments. There was no media interest in the project.

Consultation

Section 106 of the National Historic Preservation Act Consultation

Several formal consultation letters describing the project components, and the potential effects that they may have on cultural resources, were sent to the State Historic Preservation Office (SHPO) and the associated tribal partners for each project. Consultation letters for the Brush Creek Trail and Graybeal Camps relocation were dated July 30, 2021, February 14, and April 13, 2022, and January 6, 2023. These letters were sent to the SHPO, Upper Skagit Indian Tribe, Nooksack Indian Tribe, Stó:lō First Nation, and the Nlaka'pamux First Nation. Responses were received by the SHPO in concurrence with the project's potential effects and proposed cultural resources monitoring on August 3, 2021, February 25, 2022, and January 9, 2023. The Upper Skagit Indian Tribe and Stó:lō First Nation also responded with their interests and concerns on August 2, and September 15, 2021, and February 28, and March 9, 2022. Kim DiCenzo, the Cultural Resources Manager at NOCA, also met virtually with a cultural resources program representative from the Stó:lō First Nation to discuss concerns and mitigations on February 2, 2022.

Consultation letters were also sent for both the Six Mile Camp and the Bridge Creek Camp expansion projects. These letters were addressed to the SHPO, Sauk-Suiattle Indian Tribe, Colville Confederated Tribes, and the Confederated Tribes and Bands of the Yakama Nation on May 12, and July 8, 2021, and February 10, and April 14, 2022. The SHPO concurred with our project components and survey findings for the Six Mile Camp expansion project on July 12, 2021, and February 16, 2022. NOCA received concurrence for Six Mile from the Colville Confederated Tribes on February 23, 2022. Additional concurrence was received for the Bridge Creek Camp expansion from the SHPO on May 12, 2021, and April 27, 2022, and the Colville Confederated Tribes on May 4, 2022.

Section 7 of the Endangered Species Act

Roger Christophersen, (NOCA Wildlife Biologist) discussed the rationale for No Effect determinations for listed species with Vince Harke with the US Fish and Wildlife Service on April 6, 2021, with follow up emails on April 7, 2021. Mr. Harke agreed the proposed action would have No Effect on listed species.

6. Finding of No Significant Impact

Potentially Affected Environment

Issues analyzed in the EA (pp. 22-41) include wildlife and wildlife habitat that has general considerations and specifically includes the Federally Threatened species Northern Spotted Owl and Marbled Murrelet; cultural resources; floodplain processes and water quality; old growth forest and vegetation; and wilderness character. In addition, environmental justice and Indian trust resources, invasive non-native plants, and visitor use and experience are all issues dismissed from detailed analysis (p. 22).

Degree of Effects of the Action

The NPS considered the following actual or potential project effects in evaluating the degree of effects (40 CFR 1501.3(b)(2)) for the selected alternative.

Beneficial and Adverse, and Short-term and Long-term Effects of the Selected alternative

No significant impacts to resources were identified that require analysis in an Environmental Impact Statement (EIS). Whether taken individually or as a whole, the impacts of the selected alternative, including direct, indirect, and cumulative effects, do not reach the level of a significant effect because most adverse impacts associated with implementation will be minimal or temporary, lasting only as long as actions are being executed. The selected action will result in substantial long-term beneficial impacts. Best management practices and mitigation measures as outlined above will further minimize any potential adverse impacts.

There will be no significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the NPS selected alternative will not violate any federal, state, or local environmental protection law.

No effects were identified that violate federal, state, tribal, or local law protecting the environment.

Northern Spotted Owl

The environmental assessment found no significant adverse impacts to northern spotted owl. No significant or even measurable adverse effects to spotted owl behaviors and habitat are expected, due to suboptimal spotted owl nesting habitat, no known spotted owl activity centers within a 0.7-mile radius of the project sites, only minor removal of understory vegetation associated with the construction of both proposed project areas, existing high ambient noise from adjacent streams, and the presence of already substantial camping activity and human use in each of the project areas. Adherence to best management practices (BMPs) as outlined in the park's programmatic trails maintenance guidance (NPS 2021) will also help mitigate potential noise disturbance during the construction period. NPS biologists have assessed the proposed project activity has a no effect determination to the northern spotted owl or critical habitat under Section 7 of the Endangered Species Act.

Cumulative Effects

Eventually as trees age in the immediate vicinity of the new campsites and other campsites in the area, there will be a need for hazard tree removal which will result in a medium-term minor effect because of the loss of snag habitat, also an important component of owl habitat. However, other planned projects in the project areas will increase the time that trail crews will be working in the area and occupying campsites that may otherwise be used by visitors. Several other proposed projects in the area may also contribute to an increase in noise disturbance from power tools and possibly helicopter flights. In consideration of these cumulative effects, NPS biologists have determined the proposed project activity will have a no effect determination to the northern spotted owl or critical habitat under Section 7 of the Endangered Species Act.

Marbled Murrelet

Brush Creek

The environmental assessment found no significant adverse impacts to marbled murrelet. Construction of the relocated camp and trail reroute will require power tools, such as chainsaws, and various hand tools. This increase in unfamiliar sound and human activity could cause a significant disturbance event by causing a murrelet to delay or avoid nest establishment, flush away from an active nest site, or abort a feeding attempt during incubation or brooding of nestlings. However, the value of the habitat in the project area is considered low for marbled murrelet nesting. Pacific silver fir is the dominant tree species within the project area and no known marbled murrelet nests have been located to date in this tree species within Washington. The sparsely scattered western red cedar and Douglas-fir trees that are present in the immediate vicinity of the project area did not appear to have large diameter limbs suitable for murrelet nesting platforms. The vegetation, such as the few scattered conifers present that could be potential marbled murrelet nesting trees, will not be altered through removal or degraded by project activities. The work will result in no reduction of canopy closure or the creation of canopy gaps. The elevation of the project is approximately 3,000 ft, slightly higher than the average elevation of 2,392 ft. for murrelet nests located in Washington (Wilk et al 2016). The trail reroute does not occur in marbled murrelet habitat, except for a short distance on either end where it ties into the main trail. These segments fall within marginal habitat given the limited suitable features and structure of the forest stands, therefore disturbance to murrelets is not anticipated. The marbled murrelet nesting season is from April 1 – September 23. Following BMPs established for trail work to include a marbled murrelet timing restriction (no work until two hours after sunrise and stop work two hours before sunset) can minimize any potential disturbance during the nesting season. NPS biologists have assessed that the proposed project activity will have a no effect determination to marbled murrelets or critical habitat under Section 7 of the Endangered Species Act.

Cumulative Effects

In consideration of the projects that could produce cumulative effects, NPS biologists have assessed the proposed project activity will have a no effect determination to the marbled murrelet or critical habitat under Section 7 of the Endangered Species Act.

The proposed action and other nearby projects will have minor or no cumulative effects to marbled murrelets habitat, since it is already marginal murrelet habitat and no large trees with adequate branch size for nesting platforms will be altered. Relocating the camps will not result in an increase in human use of the project area; therefore, this action will have little or no increase in cumulative effects from human use.

Other Wildlife

The environmental assessment found no significant adverse impacts to other wildlife.

Brush Creek

Remote cameras have detected the presence of several forest carnivores in the Chilliwack River drainage including wolverine, black bear, pine marten, cougar, and bobcat. To date, no den sites have been documented for these species within the project area. These carnivores typically have large home ranges and are often transitory in their movement patterns. Construction activity involving chainsaws and other power tools could potentially cause some temporary noise disturbance or displacement if any of these carnivores were passing through the project area at the time of construction but are expected to be short-lived in duration and have no long-term affect. Helicopter use may be needed to transport construction supplies but will occur only after carnivore spring denning season.

Constructing the new camps to the preferred design features (Appendix D) will reduce the risk of human-bear conflict and have a long-term beneficial effect.

Bridge Creek

Remote cameras, track surveys and scat collections have detected many of NOCA's native forest carnivores in the Stehekin River watershed to include gray wolf, black bear, cougar, Canada lynx, bobcat, wolverine, pine marten, striped and spotted skunk, and Pacific fisher. It's feasible that any one of these animals could either be transitory or have an established territory near the proposed project areas, however no den sites have been confirmed within the project areas or in the immediate vicinity to date. Construction activity involving chainsaws could potentially cause some temporary noise disturbance or displacement if any of these forest carnivores were in the vicinity at the time of construction, but this is not expected to be significant or have a long-term affect because following BMPs will minimize the impact. Use of a helicopter to transport equipment and supplies may be needed, but will occur only between July 16 and February 28, after the early spotted owl nesting season and carnivore denning season.

Constructing the new camps to the preferred design features (Appendix D) reduces the risk of human-bear conflict and have a long-term beneficial effect.

Cumulative Effects

Building new and improved trails and camps in both project areas is likely to contribute to increased use in these areas in the long-term. In addition, current trends show an overall increase in backcountry visitation and with time there may be an increase in the number of nights that the camps are at full capacity. This increased human activity in the existing camp area may contribute to an

increase in cumulative effects to wildlife and their habitat, which at a most basic level may include short-term behavioral shifts, temporary physiological changes and alterations in overall fitness when disturbed by recreationists. This could potentially occur after a lull in Brush Creek after visitor use has been re-established following post-fire landscape stabilization.

Cultural Resources

The environmental assessment found no significant adverse impacts to cultural resources. Maintaining the park's trails and campgrounds in good condition and ensuring campsites are sized for the appropriate number of people keeps most visitors within previously disturbed areas. This helps reduce the risk of damage to sensitive cultural resources whether they are known or unknown. In addition, the trails and campgrounds allow visitors to access and enjoy historic structures and other less culturally sensitive sites that are preserved for visitor enjoyment and education.

Brush Creek

While it is unknown whether historic properties are within the Area of Potential Effect, trails workers will avoid sensitive areas which could result in minor adverse impacts by having archeologists monitor the construction work.

Bridge Creek

Based on the findings from the survey and consultation, any potential construction impacts to historic properties within the footprint of the proposed new campsites and the adjacent area in designated wilderness will be avoided with an inadvertent discovery and monitoring plan.

Cumulative Effects

Building new and improved camps is likely to contribute to increased use in these areas in the long-term. In addition, current trends show an overall increase in backcountry visitation, and with time, there may be an increase in the number of nights that the camps are at full capacity. An increase in human activity at any of these camps may contribute to an increase in consequential cumulative effects on both known and unidentified cultural resources. Furthermore, the areas for the proposed camps within the Brush Creek drainage were burned or near the burn perimeter of the Chilliwick fires in 2022. The decrease in vegetation from the fires could expose previously unidentified cultural resources, making them more vulnerable to human activity in the area until the forest has recovered.

In consideration of the nearby projects that could cause cumulative effects (Section 2.4), NPS cultural resources staff have either completed inventories within the footprints of these projects or have prepared plans to mitigate any impacts to historic properties that may occur.

Floodplain Processes and Water Quality

The environmental assessment found no significant adverse impacts to floodplain processes and water quality.

Common to All Locations

Construction of the new trails and campsites could generate potential adverse effects to water quality. During rain events bare soil will be susceptible to erosion and sediment transport to nearby streams, increasing the turbidity of the streams. Such turbidity can be detrimental to aquatic life. However, given the local topography, distance to sensitive aquatic habitat, and preventative camp/trail construction and maintenance practices (NPS 2021) the adverse effects are anticipated to be minimal.

Brush Creek

Removing the trail and camps from the Brush Creek floodplain will have beneficial effects on water quality since a pit toilet and stock hitchrail will no longer be maintained within the floodplain. It will reduce human and stock foot traffic and camping in the Brush Creek floodplain which will have beneficial effects on aquatic organisms by reducing turbidity generated from foot travel and altering habitat to fit camp uses (i.e., social trails, firewood collection), and trail and camp maintenance activities. Moving the trail and camps out of the floodplain has beneficial effects to Brush Creek since natural processes of channel migration can occur without alteration.

Bridge Creek

Adding the additional bare ground of the tent pads to Six Mile Camp could have adverse effects on water quality by contributing a source of fine sediment that could be transported into Bridge Creek causing additional turbidity during rainstorms and snow melt.

Cumulative Effects

All the nearby projects that could cause cumulative effects (Section 2.4) may have local short-term adverse effects during the work. However, the goal of all of these is to maintain or improve the trail system to contain foot traffic to the trail and protect against the water quality impacts mentioned above. Cumulatively and in the long-term, all these actions have neutral to beneficial effects to water quality.

Old Growth Forest and Vegetation

The environmental assessment found no significant adverse impacts to old growth forest and vegetation.

Common to All Locations

The deliberate design of the proposed action mitigates impacts to vegetation so that plants are less likely to be damaged or removed by recreational use outside of trails and camps because visitors are more likely to concentrate their use on well-maintained trails and camps.

Constructing and relocating camps require clearing of understory plants and felling of trees in an area that needs to be cleared for development (trails, tent pads, etc.).

Trees rated as hazardous based upon the potential for failure and the presence of a target which include cooking areas, tent pads, and toilets will be felled during construction and on an ongoing basis as part of reducing risk for trees falling on the camps in the future. This includes all trees that are tall enough to be within falling distance of a target. A commonly used mitigation, though not the

only possible mitigation, is the removal of hazard trees. Other possible mitigations include closing the target or relocating it. Assuming current practices extending into the future, the proposed action will result in additional felling of hazard trees or snags. From parkwide data, an average of seven hazard trees per backcountry camp are removed each year. Recurring hazard tree surveys and hazard tree risk mitigation for the life of the camps will be necessary. Hazard tree surveys will consider all management options when addressing hazard trees which include, removal of the target, trimming or topping hazard tree, or removal/felling of the hazard tree. Effects specific to each area are summarized in the sections below.

Brush Creek

The project will remove approximately a 10-ft X 2400 ft (0.55 acre) swath of native vegetation along the new trail corridor. Out of the total length of this proposed segment approximately 800 feet cross talus and 150 feet cross a brushy avalanche path. The direct effects in the swath include removal of all vegetation including an unknown number of trees, and disturbance of talus habitat which mostly harbors lichens and mosses. The overall number of trees to be removed, particularly large trees, will be minimized as much as is practicable. In forested areas this will result in the cutting and removal of some tree roots.

A roughly equivalent length of the old trail segment will be allowed to naturally revegetate. The segment that will be abandoned is primarily in old growth forest on the floodplain. The new trail alignment will result in less ongoing disturbance to root zones and understory plants from trail maintenance which includes activities such as brushing, short reroutes, and clearing fallen trees from the trail.

Construction of the new Graybeal camps will remove approximately 0.2 acre of vegetation resources, including an unknown number of trees, from clearing new access trails, cook areas, toilets, stock hitching area, and tent pads. The overall number of trees to be removed, particularly large trees, will be minimized as much as is practicable and limited to the number necessary to implement the proposed project. In forested areas this results in the cutting and removal of some tree roots.

Considering the large acreages of surrounding vegetation, these changes will have no or minor effects to forest structure, forest processes, the sustainability of individual trees, and forest ecosystems. While some trees are expected to be removed, the proposed action will have minor effects on overall species richness throughout the forest, critical habitat, overall forest health, tree seedling growth rates, and levels of carbon sequestration due to the acreage of unaffected vegetation adjacent to the site and across the ecosystem.

Moving the Graybeal Hiker and Stock camps new locations requires hazard tree surveys over approximately 11 acres for each camp (total of 22 acres). This estimate is based on a 200-foot radius around each unit of the camp which allows for mitigation of any tree up to 200 feet in height, which if failed, could fall in the camp. This will be slight increase in camp area compared to the old sites which will be abandoned. The new sites likely have higher rates of removal due to mortality from the 2022 Chilliwaack complex fire and latent mortality of trees affected by the fire. Removal of trees and snags could result in decreased ecological value of the local forest.

Bridge Creek

The project will remove up to 0.15 acres of vegetation resources from construction of the new PCT drop-in camp at Bridge Creek and expansion of Six Mile Camp, including an unknown number of trees.

Increasing the size of Six Mile Camp and Bridge Creek Camp as proposed will increase the area requiring annual hazard tree survey and mitigation. The addition of a new campsite at Bridge Creek will require hazard tree surveys over approximately 32 acres based on a 200-foot radius around each unit of the camp which will allow for mitigation of any hazard tree up to 200 feet in height. The Six Mile expansion requires hazard tree surveys over approximately 6.3 acres. The impacts from premature removal of trees and snags, including large individuals, include decreased ecological value of the local forest, reduction in carbon sequestration ability of the existing forest, loss of genetic potential, decreased plant species diversity and decreased forest health and tree seedling development.

Ongoing removal of hazard trees results in minor effects to the old growth forest ecosystem. The additional number of hazard trees affecting the modified area should be minimal.

Cumulative Effects

Several of the nearby projects that could cause cumulative effects (Section 2.4) have the goal to maintain or improve the trail system to contain foot traffic to the trail and maintain existing camps to continue to address overnight visitor use. These maintenance and improvement projects result in a beneficial effect to vegetation because plants are less likely to be damaged or removed by recreational use outside of trails and designated camps because visitors are more likely to concentrate their use on well-maintained trails and camps.

Given the increased camp area of the proposed action an additional effect is the removal of additional hazard trees. This additional project work will have minimal cumulative effect on the vegetation resources. Cumulative effects which include decreased ecological value of the local forest, reduction in carbon sequestration ability of the existing forest, loss of genetic potential, decreased plant species diversity and decreased forest health and tree seedling development are minor due to the large acreage of unaffected vegetation adjacent to the site and across the ecosystem.

Wilderness Character

The environmental assessment found no significant adverse impacts to wilderness character.

Untrammelled

No components of the action are considered to intentionally manipulate biophysical processes and result in trammeling actions.

Undeveloped

For the proposed Brush Creek Trail reroute and Graybeal camps relocations there is no net change in facilities and no additional effect on the Undeveloped quality. The expansion of and addition of a food storage locker at Six Mile Camp results in a negative long-term effect on a small area.

Helicopter and power tool use will result in short-term effects to the undeveloped quality at Six Mile Camp.

Natural

Relocating the Brush Creek Trail and Graybeal camps out of the floodplain removes human activity from within the floodplain. All camps with proposed changes have layouts and facilities to help reduce human-wildlife conflicts, a long-term positive effect on this quality. For example, the expanded Six Mile Camp is designed to increase the separation between cooking and sleeping areas which should reduce human-wildlife conflicts improving the natural quality. Use of the helicopter and chainsaws result in short-term effects to the natural quality primarily due to noise disturbance to wildlife that will be in the area. Presence of Trail Crews and other NPS staff has a minimal effect on this quality.

Maintaining the trail and camp system to standard has a positive impact on the Natural Quality in that it minimizes negative impacts (trail braiding, bare ground near water or in fragile meadows, impacts to stream banks or lake shores, unmanaged human waste) that occurs by unmanaged visitor use. Maintaining trail tread and structures protect the natural quality in high use areas because they prevent visitors from departing the trail and trampling vegetation to find the easiest way around an obstruction or across a stream. With a sufficient crew capacity to keep up with annual clearing, brushing, repair, and replacement this prevents these impacts and by keeping up with maintenance reduces future workloads.

Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation

Relocating and constructing new Graybeal camps increases opportunities for solitude for visitors staying in these camps as they'll be configured so that different camping parties have better separation for solitude and privacy. The change of location of the Brush Creek Trail and Graybeal camps likely reduce repair and maintenance needs in this area, restore the loss of stock access for the public and administrative use. Given this area's remoteness and short work season, not having NPS stock access for trail maintenance lengthens repair times. These factors provide long-term beneficial effects to opportunities for primitive recreation.

Building a new PCT drop-in camp at Bridge Creek and Six Mile provides additional camping opportunities for PCTA Long Distance Permit Holders and they will be less prone to stay at other camps in wilderness along the PCT without a NOCA backcountry permit. Observed past behavior shows that PCTA Long Distance Permit Holders in this situation are more likely to use other camps with permitted visitors staying in them. Unpermitted hikers "crashing" permitted hikers camps has a negative impact on opportunities for solitude.

The sight and sound of the helicopter, chainsaws, and any other motorized tools have short-term negative effects on opportunities for solitude for any visitors in the area at the time of use.

Opportunities for solitude will be maintained by rerouting Brush Creek Trail and with the trail and camp system maintained because users are able to travel in predictable timeframes from camp to camp thus preventing overcrowding in campsites and often on the trails. In short, this condition

allows for the efficacy of the backcountry permit system. For that subset of more self-reliant users seeking a primitive and unconfined type of recreation maintenance of the trails adversely affects their experience. However, these users have ample opportunities if they get off the maintained trail system and travel cross-country in the wildlands of the North Cascades.

Other Features of Value

Effects to cultural resources that contribute to this quality are outlined in the Cultural Resources section above.

Cumulative Effects

The only potential additional impacts from the nearby projects outlined in the EA (pp. 20-21; Section 2.4) are to opportunities for solitude. As long as there are no wildfires or aerial searches/rescues in the area, the flyover of additional helicopters from projects adds a few minutes of some distant motorized noise to the project area. However, as is evident from the helicopter activity primarily associated with the Chilliwack Complex Fire this can necessitate well over a hundred landings/longline deliveries and tens of hours of helicopter traffic over head. Additional traffic on the trail and presence of the trail crew doing maintenance on the trails and at camps would likely not be noticeable to most users of the trail. However, the maintenance work prolongs the period in which chainsaws are used and visitors will be subject to the sight and sound of them. There will be a similar cumulative impact on the undeveloped quality.

7. Conclusion

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). This finding is based on consideration of CEQ criteria for significance (40 CFR 1501.3 (b)), regarding the potentially affected environment and degrees of effects of the impacts described in the EA.

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

Note: Appendices include:

- Appendix A: Errata indicating text changes to EA;
- Appendix B: Response to substantive public comments;
- Appendix C: A non-impairment determination;
- Appendix D: Selected Alternative Mitigation Measures;
- Appendix E: Minimum Requirements Analysis.

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Appendix A: Errata Indicating Text Changes to EA

The following corrections, additions, and deletions have been made to the Backcountry Camp Modifications EA and in appropriate places in the final minimum requirement analysis. Page numbers referenced pertain to the pages in the original EA. These errata, when combined with the EA, comprises the only amendments deemed necessary for the purposes of completing compliance and documentation for the project. Original text from the EA is included to provide context and to allow for comparison to the text change. Additions and corrections are underlined; ~~strikeouts~~ indicate a deletion.

Page 1, 1.1: Proposal:

The National Park Service (NPS) is proposing two projects in the North Cascades National Park. The first project consists of rerouting a 2,400-foot section of the Pacific Northwest National Scenic Trail (PNT; along a segment locally known as the Brush Creek Trail) and the relocation of the Graybeal Hiker and Stock Camps along this same trail segment in Brush Creek.

Page 1, 1.2: Background:

The Pacific Crest Trail Association (PCTA) issues limited daily permits (<https://permit.pcta.org/>) for long distance hiking and equestrian travelers. These users are referred to as PCTA Long Distance Permit Holders in this document. These permits are required for anyone planning on traveling more than 500 miles on the PCT. Anyone traveling less than 500 miles that wishes to camp in the Park Complex is required to obtain an NPS backcountry permit (<https://www.nps.gov/noca/planyourvisit/permits.htm>) or make a reservation for a front country campground in the Stehekin Valley (<https://www.nps.gov/noca/planyourvisit/camping-in-stehekin.htm>).

Page 3, Figure 1:

On the map the PNT is shown where it traverses the park on this map and indicated as such in the legend.

Page 4, Figure 2:

On the map a label and service mark are placed on the map indicating that the trail on the map is also the Pacific Northwest National Scenic Trail.

Page 5 and on in the document, where applicable:

~~PCT hikers, PCT long-distance hiker, or PCT through hikers~~ changed to PCTA Long Distance Permit Holder.

In reference to users of the PCT, ~~hikers~~ changed to travelers.

Page 8, 1.3: PURPOSE AND NEED FOR ACTION:

Considering recent environmental and visitor use changes (discussed above), the purpose of this action is to accommodate contemporary levels of visitor use by maintaining existing and developing limited new, overnight backcountry camping opportunities while preserving wilderness character, and conserving the natural and cultural resources in North Cascades National Park Service Complex and maintaining access to the encompassed National Scenic Trails. Specific attention is given to minimizing and managing the impacts associated with backcountry recreation (hiking, backpacking, and stock packing). This includes designing camp layouts so that they meet preferred design features (see Appendix B) including adequate distances between common bear travel routes, cook areas, and tent pads to minimize human-bear conflicts.

Page 11 (and on where applicable):

~~PCT hiker drop-in camps~~ are changed to PCT Drop-in Camps.

Self-identified “PCT hikers” are assumed to be PCT Long Distance Permit Holders.

In addition, the layout of Six Mile and Bridge Creek camps does not have adequate distances between common bear travel routes, cook areas, and tent pads to minimize human-bear conflicts and this must be addressed. Bridge Creek camps may not have an optimal use of space for all user groups also may need overall reconfiguration.

p. 20, 2.3: Alternatives Considered but Dismissed

Project Work in Wilderness Solely with Non-motorized Tools

~~Use of only non-motorized tools in designated wilderness was considered and dismissed from detailed analysis in this EA but is considered in more detail in the MRA (Appendix C). While many construction tasks outlined in the proposed action could be accomplished without motorized tools, when the project is considered on balance with all the other trail maintenance needs in the wilderness, power tools are deemed to be the minimum tool for use in designated wilderness. Chainsaw and motorized tool use for the project work enables a limited number of trail crew members to keep all trails and designated camps in the Park Complex up to established standards. Not keeping trails to maintenance standards results in numerous short and long term impacts to wilderness character that the NPS considers unacceptable.~~

Use of only non-motorized tools in designated wilderness was considered and dismissed from detailed analysis in the EA because it has excessive costs and leads to an unacceptable level of

impacts. While many construction tasks outlined in the proposed action could be accomplished without motorized tools, when the project is considered on balance with all the other trail maintenance needs in the wilderness, power tools are deemed to be the minimum tool for use in designated wilderness. Chainsaw and motorized tool use for the project work enables a limited number of trail crew members to keep all trails and designated camps in the Park Complex up to established standards. It is not possible to maintain the current trail system to standards with the currently available trail crew and stock program with no power tool use. However, this situation is analyzed in the MRA (Appendix C) and these impacts to wilderness character are outlined in pp. 80-87 of the EA.

The NPS estimates maintaining trails to standard without motorized tools would require the crew size be doubled, from roughly 20 crewmembers and 10 head of stock to 40 crewmembers and 20 head of stock. An increase in crew and stock size would require a substantial reorganization of the park staff, budget, and facilities. This is not currently feasible given budget limitations, facilities (e.g. seasonal employee housing), and space limitations outside of wilderness. In the wilderness an increased crew size would require additional administrative camps to maintain capacity for the public, which would have long-term negative impacts on the undeveloped and natural qualities. Such impacts include a larger developed footprint for administrative use and need to abate hazard trees in these areas. Most of the trail system is in suitable habitat for northern spotted owl (NSO) and hazard trees can be suitable nest trees for this species. Minimizing the area needed for hazard tree abatement minimizes loss of suitable habitat for this federally Threatened species. While not a prohibited use, the increased trail crew presence and activity could impact visitors' opportunities for solitude at high use times and places. Maintaining the current trail system to standard with non-motorized tools would potentially have widespread localized impacts to soils, vegetation, and cultural resources along the trail corridor. In addition, very large, downed trees would be cleared with explosives, a potential disturbance to opportunities for solitude and federally Threatened bird species including NSO and marbled murrelet.

2.3.2: Change to Dispersed Camping in Brush Creek

Abandoning designated campsites and creating a cross country zone with dispersed camping in Brush Creek was considered but dismissed because changing how visitor use is managed along the trail corridor is outside the scope of this EA. This would be a significant departure from the current management strategy of using designated campsites along trails along trails.

2.3.3: Closing Trails or Camps

Closing regularly used trails and campsites was determined to be unacceptable because it does not fit the purpose and need and eliminates the overnight camping opportunities that have existed since the establishment of NOCA and the Stephen Mather Wilderness

It is also worth mentioning that the proposed action makes improvements to the user experience along national scenic trails. These actions improve the public's enjoyment of the national trail system. Long distance PCT travelers' ability to camp without causing crowding for other PCT travelers improves the camping situation for all users, while also protecting the resources in the PCT corridor. Allowing natural alluvial processes to occur along the PNT, maintains a wild and natural trail experience. Both the PCT and PNT are defined by the National Trail System Act as being "extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." The approximately half mile of reroute to the Brush Creek Trail and PNT will meaningfully contribute to the proper management of the Pacific Northwest National Scenic Trail.

Page 37, 3.5.2: Environmental Consequences Alternative I: Proposed Action

Untrammelled

No components of the action are considered to intentionally manipulate biophysical processes and result in trammeling actions. ~~If trails and campsites are kept to standards, then this promotes effective drainage and use of the facilities that minimizes trammeling effects due to damming of water and erosion. While the other components may cause some trammeling effects, they are likely negligible when mitigations and best practices for work are followed.~~

Natural

Maintaining the trail and camp system to standards keeps drainage structures maintained and working so they do not impede the flow of snow melt and rainwater which would cause unwanted damming and erosion effects in some areas. These effects have been observed in many places before trail clearing and the cumulative effects are enough to count as a degradation against wilderness character. The North Cascades are notoriously steep and wet, especially on the west side of the range and the large amounts of snowmelt and rain interacting with steep slopes can cause some notable damming and erosion where the trail tread impedes the flow of water. Timely clearing of downed trees and hazard trees at designated campsites is similarly necessary to promote camping in these areas rather than a proliferation of camping along lakeshores and other ecologically sensitive areas which tramples vegetation, compacts soils, and displaces wildlife.

Page 41, 3.5.3: Environmental Consequences Alternative II: No Action Alternative

Natural

Maintaining the trail and camp system to standards keeps drainage structures maintained and working so they do not impede the flow of snow melt and rainwater which would cause unwanted damming and erosion effects in some areas. These effects have been observed in many places before trail clearing and the cumulative effects are enough to count as a degradation against wilderness character. The North Cascades are notoriously steep and wet, especially on the west side of the range and the large amounts of snowmelt and rain interacting with steep slopes can cause some notable damming and erosion where the trail tread impedes the flow of water. Timely clearing of downed trees and hazard trees at designated campsites is similarly necessary to promote camping in these

areas rather than a proliferation of camping along lakeshores and other ecologically sensitive areas which tramples vegetation, compacts soils, and displaces wildlife.

Page 50, Appendix A:

Comments on FarOut, a navigation application popular with PCT users, reference nights with high use at Six Mile during the late summer. For example, one traveler wrote on August 29th, 2022, "I believe there are 12-15 tents here tonight. Nice flat spots, bear bin, and clear flowing creek." Another PCT hiker on August 31st, 2022, "We had 20+ tents here last night could've fit a couple more."

Page 53, Appendix B: Preferred Design Features for Stephen Mather Wilderness Camps:

- Camp areas are contained by iceberged rocks and strategically placed logs to contain trampling impacts in flat areas.
- As appropriate and applicable may have the following installations for visitor use mitigation:
 - Simple signs indicating trails to toilet, tent pads, or food storage as needed.
 - Thoughtfully laid out trails between cook areas, food storage areas, tent pads, water source, and the main trail.

The following was added to Appendix C: Minimum Requirements Analysis,

Page 60, Step 1 Decision:

"In summary, action is necessary to manage visitor use while also preserving wilderness character, which encompasses natural and cultural resources and providing outstanding opportunities for solitude and a primitive and unconfined type of recreation. Proactively addressing the flood damaged trail is necessary so that an intentional solution to the problem is devised instead of more reactive short-term solutions. Overnight camping in these areas is an established use and under the current system of designated campsites and permits, maintaining these opportunities helps preserve visitor opportunities for primitive and unconfined recreation."

Page. 62, Describe Other Direction:

NPS Management Policies, 6.3.5 Minimum Requirement

..."When determining minimum requirements, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable."

Administrative use of motorized equipment or mechanical transport will be authorized only if determined by the superintendent to be the minimum requirement needed by management to achieve the purposes of the area, including the preservation of wilderness character and values, in accordance

with the Wilderness Act; or in emergency situations (for example, search and rescue, homeland security, law enforcement) involving the health or safety of persons actually within the area.

Such management activities will also be conducted in accordance with all applicable regulations, policies, and guidelines and, where practicable, will be scheduled to avoid creating adverse resource impacts or conflicts with visitor use."

Pages 60, 66, 74; Untrammeled Quality:

For Line 7-All wilderness trails and campsites kept closer to standards: the Positive checkbox is unchecked, and the No Effect checkbox is checked; "1" under Long-term is removed.

~~Explain: If trails and campsites are kept to standards then this promotes effective drainage and use of the facilities that minimizes trammeling effects due to damming of water and erosion. While the other e) Components may cause some trammeling effects, they are likely negligible when mitigations and best practices for work are followed.~~

Page 82; Untrammeled Quality

For Line 7-All wilderness trails and campsites kept closer to standards: the Negative checkbox is unchecked, and the No Effect checkbox is checked; "1" under Long-term is removed.

~~If trails and campsites are kept to standards then this promotes effective drainage and use of the facilities that minimizes trammeling effects. If the trail prism is not properly maintained it will dam water and cause muddy areas and slope instabilities. In addition, by maintaining designated campsites this keeps backpackers from camping to close to lakeshores and other sensitive resources. Frequent human traffic in these areas are short term small area manipulations that may cumulatively be significant, to soils, vegetation, and wildlife using the lake and shoreline areas.~~

No components of the action are considered to notably manipulate biophysical processes and result in trammeling actions.

Pages 68, 76; Natural Quality

Maintaining the trail and camp system to standards keeps drainage structures maintained and working so they do not impede the flow of snow melt and rainwater which would cause unwanted damming and erosion effects in some areas. These effects have been observed in many places before trail clearing and the cumulative effects are enough to count as a degradation against wilderness character. The North Cascades are notoriously steep and wet, especially on the west side of the range and the large amounts of snowmelt and rain interacting with steep slopes can cause some notable damming and erosion where the trail tread impedes the flow of water. Timely clearing of downed trees and hazard trees at designated campsites is similarly necessary to promote camping in these areas rather than a proliferation of camping along lakeshores and other ecologically sensitive areas which tramples vegetation, compacts soils, and displaces wildlife.

Page 84; Natural Quality

Timely clearing of downed trees and hazard trees at designated campsites is similarly necessary to promote camping in these areas rather than a proliferation of camping along lakeshores and other ecologically sensitive areas which tramples vegetation, compacts soils, and displaces wildlife.

Appendix B: Response to Substantive Public Comments

This appendix provides the National Park Service's (NPS) response to public comments on the Backcountry Camp Modifications Environmental Assessment (EA). Many of the written responses to the EA expressed an opinion or preference; some were substantive. According to the NPS NEPA Handbook, pg. 65 (NPS 2015), substantive comments are those that:

- Question, with reasonable basis, the accuracy of information in the environmental analysis.
- Question, with reasonable basis, the adequacy of the environmental analysis.
- Present reasonable alternatives other than those presented in the environmental analysis.
- Cause changes or revisions in the proposal.

In other words, substantive comments raise, debate, or question a point of fact or analysis. Per the NPS NEPA Handbook, pg. 65, "comments that merely support or oppose a proposal or that merely agree or disagree with NPS policy are not considered substantive and do not require a formal response." Below are 31 substantive concerns with responses. These concerns are based on many more overlapping substantive comments.

Concern: The topography of the Bridge Creek Camps area may lead to some site expansion in areas where the terrain is relatively flat. We recommend that the layout of the camp include thoughtful connections to the PCT and defined paths between sites. The whole area will be visible from the PCT which may make the public less likely to stay on access trails and increase the risk of trampling vegetation. PCTA encourages the park to consider iceberging of rocks or strategically placed logs in order reduce the potential for trampling and site expansion across the whole area. Bridge Creek was historically accessible by motorized vehicles. As one enters the camp area from either direction along the PCT, the character of the trail changes from being defined by its wilderness corridor to a more modified environment. The trail would benefit from additional signage or PCT logo reassurance markers to help make this transition feel more intentional and guide hikers to the designated camping locations.

Response: Appendix B of the EA (p. 53-54) has a list of preferred design features for backcountry camps that help ensure camps concentrate visitor use on a limited footprint that minimizes impacts to surrounding resources. Park managers are aware of the strategies mentioned in the comment; thoughtfully laid out trails between different parts of camps and between camps, iceberged rocks and strategically placed logs to contain trampling impacts in flat areas, and signs to guide the user around the camp. These are not explicitly mentioned in the preferred design features list and will be added. These changes are reflected in the errata for the EA (Appendix A of the FONSI) and in the Appendix D Mitigations in the FONSI.

Concern: Regarding the two campground development options at Bridge Creek, the much-preferred option is a new drop-in camp location immediately along the old road, in non-wilderness. This site is close to existing impacted areas (especially the old road). The other location requires a new camp construction within designated Wilderness, WHICH SHOULD BE AVOIDED AS MUCH AS POSSIBLE, especially given the easy option of developing the camp in a non-wilderness location that serves all visitors just as well. Constructing the new camp at Bridge Creek within designated Wilderness would have a negative effect to the Natural Quality of wilderness character; this negative impact can be (and should be) avoided by constructing the new camp in the non-wilderness section along the road.

Response: The NPS explored this option of developing camp facilities in Wilderness adjacent to the Bridge Creek Camps during public scoping and continued to keep the option open in the EA (p. 17). However, this option is NOT carried into the final decision and is not included in the FONSI. The NPS will not develop camp facilities in the wilderness adjacent to Bridge Creek Camps but will focus on reconfiguring the camps in the non-wilderness area to optimize space for all user groups and resource protection, including minimizing human-bear conflicts.

Concern: The need for the proposal is not demonstrated. The EA (Appendix A, visitor use data, EA pages 45 and 46) clearly shows there is no need for new campsites. The sites are rarely full. For example, Bridge Creek Hiker camp was full two percent of the time.

Response: The data on pages 45-46 are not meant to demonstrate need but rather provides context of how popular and in demand the respective designated campsites are. The need to relocate Graybeal Camps is based on the current location on the floodplain and the effects of the 2022 wildfire (pages 8-10). No change in size/capacity of the Graybeal camps is planned. Table A-2 on page 46 does indicate that Bridge Creek Camps are rarely full. However, the analysis of PCT long-distance hiker use on pages 47-52 walks the reader through the rationale for the capacity of PCT drop-in camps. The selected action will reconfigure all Bridge Creek Camps as necessary to meet standards to reduce human-bear conflict for different user groups and other visitor and resource protection measures.

Concern: Hazardous trees need to be felled and removed along all campsites and trails and within the entire burn perimeter in order to protect public health and safety. These treatments should occur within Wilderness and areas with wilderness characteristics in order to protect users as it poses a great safety threat. "Wilderness Act states that certain uses are prohibited "except as necessary to meet the minimum requirements for the administration of the area for the purpose of this Act...". We would like to note that Visitor Use and Experience does not address public health and safety. There is not adequate analysis and information on how the proposed projects will affect the public user experience. Felling and removal of hazardous trees also helps prevent future forest fires. The greatest risk to Northern Spotted Owl and other wildlife and habitat is wildfire. NPS should be doing all in their power to maintain these public lands to prevent wildfire that causes harm not only to

wildlife and habitat but the public as well. Wildfire is such a large contributor to greenhouse gas emissions that the analysis of potential wildfire due to not felling and removing hazardous trees needs to be included.

Response: p. 1, Introduction of the EA states: *The NPS conducts a hazard tree abatement program for designated campsites in accordance with National Park Service Pacific West Region Directive PW-062 (NPS 2015). The objective of this directive is, 'to provide parks with a framework for a hazard tree program that will minimize threats to life and property from the failure of hazard trees within developed areas, consistent with the NPS mission of conserving parks' natural and cultural resources.'* The directive expressly addresses designated campsites in wilderness, *'Where wilderness or backcountry campsites or other developments are designated and assigned by the NPS, e.g., permitted campsites, these areas should be identified for inclusion in the hazard tree management program, and such sites should be surveyed, and hazards abated/mitigated.'* Further hazard trees and the related needs for public health and safety are addressed throughout the proposed action and analysis of environmental consequences (pages 15, 16, 18, 20, 21, 23, 34, and 35)

Risks from falling hazard trees to trail users, who are intermittently passing any given point along the trail, have a low, transitory exposure compared to an overnight exposure at a designated camp (NPS 2015) and therefore not part of the park's hazard tree abatement program. Managing wildfire and its effects is outside of the scope of this EA.

Public health and safety were not considered for detailed analysis or included as an issue dismissed from detailed analysis because, where and when appropriate, health and safety are part of the proposed action and upon implementation safety measures are an inherent part of NPS operations. In addition, the backcountry and wilderness environment have inherent risks that cannot be mitigated that employees and visitors accept when they travel in these areas.

Concern: We understand the need for 2-4 helicopter flights to deliver bear lockers and toilets. However, we request that the PCTA receive advance notice of planned flights in order to inform PCT users of the inevitable impacts the sight and sounds a helicopter will have on their PCT experience. We would utilize PCTA website's trail conditions page to inform PCT users.

Response: Advance notification is regularly given to the public regarding helicopter flights into and over wilderness and other areas that may affect the public. A mitigation measure has been added to the FONSI (Appendix D).

Concern: The EA includes the use of helicopters, chainsaws, and other motorized equipment, all of which are antithetical to Wilderness, disturb wildlife and visitors, and are banned by the Wilderness Act (except in rare instances where such use is essential to wilderness protection or search and rescue operations, neither of which applies here). The NPS must adhere to the Wilderness Act, as well as its

own Wilderness regulations, and instead utilize primitive tools and skills to accomplish any work that needs to be done.

Response: p. 37 of the EA states: *Section 4(c) of the Wilderness Act states that certain uses are prohibited “except as necessary to meet the minimum requirements for the administration of the area for the purpose of this Act...”. Prohibited uses include motor vehicles, motorized equipment, landing of aircraft, mechanical transport, structures, installations, and others. A minimum requirements analysis (MRA) was prepared to consider and account for tangible effects to wilderness character from various alternatives.*

Further, the purpose of the Wilderness Act is “to secure for the American people of present and future generations the benefits of an enduring resource of wilderness” (Section 2(a)). The NPS has the long-term goal of preserving wilderness character, a complicated and nuanced endeavor that sometimes necessitates short-term impacts from helicopters and motorized equipment. Such uses are thoroughly considered and weighed against other alternatives. The NPS avoids and minimizes such use as much as possible but at times the necessity becomes clear when working through a minimum requirements analysis. Note that the 2006 NPS Management Policies state:

6.3.5 Minimum Requirement

...When determining minimum requirements, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable.”

Administrative use of motorized equipment or mechanical transport will be authorized only if determined by the superintendent to be the minimum requirement needed by management to achieve the purposes of the area, including the preservation of wilderness character and values, in accordance with the Wilderness Act; or in emergency situations (for example, search and rescue, homeland security, law enforcement) involving the health or safety of persons actually within the area.

Such management activities will also be conducted in accordance with all applicable regulations, policies, and guidelines and, where practicable, will be scheduled to avoid creating adverse resource impacts or conflicts with visitor use.

Given the standards for minimum requirements/tools, park staff are extremely selective when deciding to use motorized equipment and helicopters in the wilderness. For example, chainsaws are typically only used in the spring when crews are opening trails and making backcountry camps safe for public use (by felling hazard trees). The vast majority of chainsaw use occurs in April through June, which is when trails are clogged with blowdowns, camps have hazard trees or downed trees, and backcountry visitation is the lightest. Whenever possible, helicopter use is also limited to either spring or fall months to limit

impacts to wilderness character. In addition, helicopters are only used for supplies and equipment that is too large or heavy to be transported by pack animals and/or are needed in a remote location that is inaccessible by pack stock.

Concern: The MRA would have us believe that in addition to the campsite in the Bridge Creek area, gouging out new tent pads and building new campsite structures is less natural than just keeping the existing sites.

Response: The MRA was referring to the beneficial effect to the Natural quality of wilderness character by maximizing separation between cooking and tenting areas at Bridge Creek Camps, which helps reduce human-wildlife conflicts. Maximum flexibility for camp layout would have been achieved by allowing new campsite structures in a portion of the Wilderness adjacent to the camps. However, upon further consideration the NPS has decided this benefit is not worth the cost to the long-term impacts to the undeveloped quality and has removed this development in Wilderness from the Selected Action.

Concern: Further, the MRA portion of EA is somewhat confusing in that it claims on page 73 helicopters won't be used for routine trail maintenance for this project.

Response: The MRA portion of the EA on page 73 refers to the work component activities for the MRA's no action alternative analysis. This alternative analyzes the case where the proposed action is not undertaken and "business as usual" continues without addressing the issues presented in the EA and MRA. In that case routine trail maintenance would continue as it has been with foot and stock access the primary means of transport for people, equipment, and supplies, with no helicopter landings/deliveries. The park does have a programmatic MRA for trails maintenance approved by the Park Superintendent, but this does not include programmatic approval for the use of helicopter transport to wilderness sites. Helicopter transport is only used for special cases in which it has been determined to be the minimum tool. A MRA is required to evaluate each case in which aircraft may be the minimum tool for use in or over wilderness.

Concern: The MRA on page 82 seems to not understand what trammeling is and seems to erroneously conflate it with trampling. The idea that doing something with traditional skills would trammel an area misses the point.

Response: The definition of trammeling in use in the MRA is an action by humans that intentionally controls or manipulates the "earth and its community of life" inside wilderness. This is the standard interagency definition from *Keeping It Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (Landres et al 2015).

The analysis indicates that if trail crew work capacity is limited by use of non-motorized tools, then they will not be able to keep up with maintenance of the 287 miles of trails in the Stephen Mather Wilderness. The inability to clear trees and maintain drainage structures in some locations will impede the flow of snow melt and rainwater causing unwanted damming and erosion effects in those areas. These effects have been observed in many places before trail clearing and the cumulative effects are enough to count as a degradation against wilderness character. The North Cascades are notoriously steep and wet, especially on the west side of the range and the large amounts of snowmelt and rain interacting with steep slopes can cause some notable damming and erosion where the trail tread impedes the flow of water.

Timely clearing of downed trees and hazard trees at designated campsites is similarly necessary to promote camping in these areas rather than a proliferation of camping along lakeshores and other ecologically sensitive areas which often leads to trampled vegetation, compacted soils, and displaced wildlife.

The effects described above are the result of manipulation earth and its community of life, but the primary intention of the trail system and designated campsites is to accommodate and manage recreational use and not to control biophysical processes. Effects on the Untrammeled quality are counted when the primary intention is to manipulate biophysical processes. Because the impacts above do not represent an intentional manipulation of the earth and its community of life, they are accounted for by the natural quality of wilderness character. The MRA and EA have been edited to reflect this change (See Errata, Appendix A).

Concern: This EA fails to consider and fully describe all genuine alternatives, instead apparently reflexively selecting alternatives that degrade the Wilderness with motorized incursions, without providing a genuine analysis of whether these projects are truly necessary, and even describing the chosen alternatives in vague terms. The NPS is offering no alternatives for these projects other than a "No action" alternative and, to undertake these projects, the EA gives NPS a blank check to degrade the Wilderness in several ways.

Response: The EA explains why it dismissed from consideration an alternative with only non-motorized tools (p. 20). As described, such an alternative was dismissed because: *Chainsaw and motorized tool use for the project work enables a limited number of trail crew members to keep all trails and designated camps in the Park Complex up to established standards. Not keeping trails to maintenance standards results in numerous short and long-term impacts to wilderness character that the NPS considers unacceptable.* The NPS may dismiss alternatives from consideration for several reasons, including those that are technically or economically infeasible (NPS NEPA Handbook, p. 54). The reasoning described in the EA above is consistent with this guidance.

Concern: There is NO need to be using mechanized vehicles, helicopters, etc. to bring in materials and personnel to a fire-scarred area in any wilderness area! Mules have long been the non-mechanized transport system and work well. They can bring in anything you need and won't make much noise or pollute the air. Please revise your EA to include at least a non-mechanized alternative, but mention mules in particular. There are plenty of mules and packers in rural areas that would be delighted to help you.

Response: The NPS maintains a stock program at North Cascades that includes a combination of approximately twelve horses and mules that routinely assist with trail maintenance and projects. These animals can assist with transport of equipment and supplies in some cases but not others. Any item that can fit on a mule and that has a destination accessible to stock is conveyed by pack string. There are times when this form of transportation is inappropriate or impossible. Sometimes we must move objects that simply are too big to put on a mule including composting toilets, bearproof storage boxes and bridge stringers. In addition, natural processes such as wildfires and winter storms occasionally destroy large segments of trail infrastructure rendering areas inaccessible to stock, so helicopters become necessary to support Park efforts to reopen those trails for stock access. In Brush Creek, once park staff can restore the trail access to pack stock standards, the NPS anticipates using animals for transporting supplies and tools needed to support the work of trail crews spending multiple nights at a time working on trail restoration, trail relocating, and campsite relocation.

Concern: The data that are contained within the EA undercut the offered rationale for the projects. For example, although the EA claims that more sites are needed at Bridge Creek, Table A-2 shows that Bridge Creek Hiker Camp was full only 2 percent of the time on average over the past 8 years. That hardly demonstrates a pressing need for massive expansion of the camp, let alone expansion into Wilderness. The EA claims that cooking areas are too close to tent sites, which justifies modest reconfiguration of the camp—not the major expansion advocated by the EA and certainly not intrusion into the Wilderness.

Response: Table A-2 on page 46 does indicate that Bridge Creek Camps are rarely full. However, the analysis of PCT long-distance hiker use on pages 47-52 walks the reader through the rationale for the capacity of PCT drop-in camps. The proposed capacity for a PCT drop-in camp at Bridge Creek is not based on use at Bridge Creek alone but based on all camp use at camps between High Bridge and Bridge Creek (also includes Tumwater, and Shady). See table A-3 on p. 48.

Concern: The issue of the campsites deserves even more attention. In both instances, the construction of tent pads using motorized tools is certainly in excess of the minimum necessary. If structures are needed, signing can show where the tent locations are found on the ground. The Park Service in the recommended wilderness of Yellowstone National Park does not construct tent pads. Rather the small signs indicate the assigned campsites. While we also dispute the need for toilets in

the Wilderness—Yellowstone National Park has none in the backcountry—why couldn't they be hauled in by stock and built on site? The Forest Service packed in a bridge that spanned well over a hundred feet in the Bob Marshall Wilderness. Why are bear boxes needed when a simple wood pole suspended between two trees suffice as is done elsewhere? The same goes for the constructed campsites preferred by the NPS in this park versus the more primitive sites in Yellowstone's recommended wilderness. In any case, assigned and constructed campsites are usually less in keeping with proper wilderness administration and stewardship than permit systems based on carrying capacity which allow the visitor to camp where they wish.

Response: Comparing visitor use management strategies for the North Cascades with Yellowstone is not a meaningful comparison because these two areas have very different terrain, geology, and vegetation. In the steep, rocky, and narrow valleys of the North Cascades there are few natural places to camp as the terrain and vegetation do not offer many flat places. The new campsites will need flat pads cleared and constructed for cooking and tents because of the generally hummocky surface of available landforms, thick understory vegetation, and numerous downed limbs and trees. In flat areas with more potential for informal expansion of bare ground areas, barriers such as logs and "iceberged" rocks can be used to limit trampling impacts from people camping in those areas.

Wooden open air pit toilet boxes, locally known as "Wallowa toilets" are able to be packed in and built on site. Pit toilets are feasible for the Brush Creek segment of the PNT because of lower visitor use. However, along the Bridge Creek segment of the PCT, which has higher use, the Wallowa toilet holes began filling very quickly (within a couple of seasons) and at the prospect of digging new holes in archeologically sensitive areas, the NPS decided to begin using above ground "composting" toilets. This action was deemed necessary at some camps along the PCT in a NEPA Categorical Exclusion and MRA completed in 2019. While these toilets initially had to be flown in with helicopter, the accumulated human waste is packed out by stock animals as needed. Some kind of toilet is necessary in these areas because there is limited area available for people to continually dig new catholes in these valleys. NPS provided toilets keeps sanitary and aesthetic impacts to a minimum.

Wildlife resistant food storage boxes were deemed necessary at camps along the PCT in a NEPA Categorical Exclusion and MRA completed in 2019. Black bears are commonly active in and around camps in the Bridge Creek drainage, as they use the PCT as a natural travel route. Past human-bear conflict has been focused on camps at junctions between Bridge Creek and its tributaries (e.g. Fireweed, South Fork, and North Fork, as well as at Bridge Creek Camp). Increased use of the PCT by through-hikers in particular correspondingly increases the possibility of human-bear conflict, particularly among a hiker population not given to proper food storage. Camps along this trail are often also frequently used by large groups setting out on long trips, who are unable to fit supplies into bear canisters and not always able to hang attractants properly. Likewise at Cottonwood, group size creates challenges to proper bear attractant storage. Food conditioning of black bears has been reported at times, while on other occasions bear behavior has indicated they have

obtained food rewards from people - such as by bears who refuse to leave camp or follow people long distances. Given the observed maximum number of campers on any given night at Six Mile Camp two boxes are necessary to provide space for everyone's food. Only one box is currently present and another needs to be flown in because currently available boxes that have durable and reliable latches are pre-constructed and won't fit on a pack animal.

Concern: The EA and MRA all suggest the need for motorized equipment and helicopters to expand campground capacity in the Bridge Creek area (southern group of projects). For example, see the EA at page 64. However, there is no alternative that would use a permit system for Pacific Crest Trail (PCT) through-hikers or decrease the number of PCT through-hikers, or work with the Forest Service on PCT through-hikers. This proposed action, by definition, can't be the minimum necessary without looking at options that don't violate the Wilderness.

Response: NPS staff have worked collaboratively with the US Forest Service and the Pacific Crest Trail Association (PCTA) for many years. Past adjustments to the permit system have been able to address some, but not all of the purpose and need for the project. The EA explains the background on this:

p.7: In 2020, the NPS designated Six Mile Camp and a portion of the hiker camp at Bridge Creek as drop-in camps for hikers holding a PCT long-distance permit issued by the Pacific Crest Trail Association. The drop-in camps were implemented to avoid crowding and user conflicts during peak season and provide a solution more aligned with the travel patterns of long-distance hikers (see more details in the Purpose and Need section below). PCT hikers may also obtain a NPS backcountry permit to stay at any of the other designated camps along the trail.

In 2020, the Pacific Crest Trail Association (PCTA) and the US Forest Service (USFS) instituted a limit of 15 southbound hikers per day, which helps to limit hikers exceeding campsite capacity eliminate camping areas from being overwhelmed with too many people starting in one day near the northern terminus of the trail, including the Park Complex. This appears to have reduced crowding impacts seen at camping areas at Stehekin in 2019. The PCTA and USFS also have a limit of 50 northbound hikers per day from the southern terminus of the trail, however, given the distance between the southern terminus and NOCA this has much less effect once hikers spread out along the trail.

p.11: Since 2020 the NPS has not had staffing capacity to make sure that PCT hikers obtain a NPS backcountry overnight camping permit for specific designated camps. Given the patterns of travel for PCT hikers, they have limited phone and internet access and obtaining backcountry permits is difficult. When these hikers don't obtain the NPS permit they are prone to camp anywhere that is convenient which can result in "crashing" campsites already occupied by NPS permitted parties. This results in crowding and a loss of solitude for the permitted parties.

Prior to honoring PCTA's long-distance hiking permit and designating drop-in camps for those permit holders, the NPS required all PCT hikers to obtain a NPS overnight camping permit. Between 2016 and 2019 staff made a concerted effort to issue these permits to any PCT hikers wishing to camp overnight in the Park Complex. In addition, NPS staff recorded each person or party that identified as a PCT hiker. This information along with nearby trail counter data captures the travel patterns of most of the PCT hikers passing through the Park Complex and provides the basis for estimating levels of use and capacity needs (see below and Appendix A).

Concern: The environmental assessment itself does not give equal emphasis to the PCT and the PNT. Throughout the sections of the planning document devoted to the rerouting of the PNT, the proposed action refers to the relocation of 2,400 feet of congressional designated trail as simply rerouting Brush Creek Trail. The document only mentions the PNT twice. At one point it states that the PNT is co-located with the Brush Creek Trail. The assessment states, "The Pacific Northwest National Scenic Trail (PNT) also follows this route" (3). The only other mention of the PNT relates to an observation that PNT travelers use Graybeal camps. The environmental assessment gives considerably greater attention to the PCT. One small but telling example is the area maps in Figure 2 and Figure 4. Figure 2 shows the Graybeal camps. It does not display any reference to the PNT. Figure 4 shows the Bridge Creek and Six Mile camps. On that map, the PCT is labeled and includes the PCT's service mark. We are not sure why the environmental assessment refers to the reroute as occurring on Brush Creek Trail instead of using its congressional designation. The omission of the PNT from maps and project descriptions may have diminished the public's understanding that the proposed Graybeal area actions occur in a national scenic trail corridor.

Response: This was an unintended oversight likely related to the amount of management attention the park has had for managing PCT long-distance hikers versus PNT long-distance hikers. Currently, the PCT has nearly 10 times as many long-distance hikers moving through than the PNT. To correct this oversight the EA will be amended (see Errata). In addition, in future public communications the NPS will be sure to give the PNT equal emphasis to the PCT.

Concern: WTA asks for an evolution in how North Cascades National Park talks about users on its national scenic trails. The environmental assessment occasionally suggests that not all PCT hikers are PCT hikers. At one point it says, "Analysis of the 2016-2019 NPS overnight camping permit dataset shows that approximately 30% of the camping use along the PCT corridor in the Park Complex (including campgrounds in the lower Stehekin valley) was by PCT hikers" (11). All hikers and equestrians on the PCT are PCT users. In all likelihood 100% of camping along the PCT corridor was by PCT hikers and equestrians. About 30% of those use nights are connected to individuals traveling on longer itineraries who may have PCT Long Distance Permits, but all journeys along national scenic trails are national scenic trail experiences.

Response: The term "PCT hikers" in the EA, was being used as shorthand for PCT long-distance or PCT through hikers. The NPS acknowledges that all using the PCT are "PCT travelers" and are having national scenic trail experiences. The EA is edited in the errata to distinguish when those holding PCTA Long Distance Permits (PCTA Long Distance Permit Holders) are specifically being referred to.

Concern: All of the actions in this assessment make improvements to the user experience along national scenic trails. These actions improve the public's enjoyment of the national trail system. Long distance PCT users' ability to camp without causing crowding for other PCT travelers improves the camping situation for all users, while also protecting the resources in the PCT corridor. Allowing natural alluvial processes to occur along the PNT, maintains a wild and natural trail experience. Both the PCT and PNT are defined by the National Trail System Act as being "extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." WTA hopes that future planning efforts that include reroutes of a national scenic trail explicitly address how the realignment better provides for the nature and purposes of the affected national scenic trail. WTA believes that the approximately half mile of reroute to the PNT will meaningfully contribute to the proper management of the Pacific Northwest National Scenic Trail, but we were disappointed that a discussion of this point was not in this EA. Future planning efforts of this kind should more explicitly reference National Trail System Act law and policy.

Response: This point was inadvertently left out and is addressed in the errata for the EA.

Concern: I urge the NPS to complete a thorough Environmental Impact Statement (EIS) that includes a wilderness-compatible alternative that would protect the area's wild character. Such an analysis would first consider whether trail rerouting and campsite relocation and construction are truly necessary. The EIS must also address the issue of what is appropriate recreational use in the Stephen Mather Wilderness. That includes implementing a better system for managing PCT thru-hiker use and coordinating with the Forest Service to ensure that the permit system is being properly administered.

Response: The EA analyzed impacts to wilderness character in Section 3.5 of the EA (pp. 36 - 41). The analysis includes impacts to the Stephen Mather Wilderness and is organized based on wilderness character qualities highlighted in the Wilderness Act of 1964. The wilderness character analysis in the EA includes impacts to the following: untrammeled, undeveloped, natural, and outstanding opportunities for solitude and primitive and unconfined type of recreation. The EA analyzed the creation of new backcountry camping opportunities, in addition to upgrading existing ones, to meet the purpose and need of the project (p. 8). There will be short-term negative effects to wilderness during construction of trails and camps. However, the proposed projects are designed to preserve or improve wilderness character in the long-term, particularly the natural quality, opportunities for solitude, and opportunities for primitive and unconfined recreation (EA, p. 39). The park's

Superintendent, with consideration by the Regional Director, evaluated the impacts presented in the EA, and concerns addressed by the public, and determined that a Finding of no Significant Impact (FONSI) is appropriate. Broader questions about the PCT are outside of the scope of this EA.

Section 1.3 of the EA (p. 8) states: *The North Cascades National Park Wilderness Management Plan (NPS 1989) also addresses maintaining wilderness character, allowing for backcountry recreation, and minimizing impacts to resources.* The plan addresses appropriate recreational use in the Stephen Mather wilderness and specifically mentions day hiking, backpacking, mountaineering, stock animal use. The plan lays out the framework for the overnight permit system as well as area classifications that designate areas for trailed use with designated camps and crosscountry zones for dispersed use without maintained trails.

Concern: The use of motorized equipment and the construction of permanent structures in Wilderness are actions that require the preparation of an EIS. These are not normal actions for Wilderness, nor should they be. The very narrow exception for this kind of use is governed by section 4(c) of the Wilderness Act.

Response: This comment incorrectly speculates on the relationship between the Wilderness Act and National Environmental Policy Act (NEPA). The EA is conducted and written to satisfy the requirements of NEPA, and the purpose of the EA is to determine if the proposed actions would have the potential for significant effects on the human environment. If the proposed action is found to have the potential for significant effects, then that would require the preparation of an EIS. However, in this case the NPS has found that impacts do not warrant the preparation of an EIS and have instead prepared a Finding of No Significant Impact (FONSI) (40 CFR Section 1501.5). NEPA regulations direct that the agency shall prepare draft documents "concurrent and integrated with environmental impact analyses and related surveys and studies required by all other Federal environmental review laws and Executive orders applicable to the proposed action" (40 CFR Section 1502.24(a)). The analysis of effects in the EA (including wilderness character), the Minimum Requirements Analysis appendix, and the FONSI show that the degree of effects is not significant and are not considered to warrant the preparation of an EIS (40 CFR Section 1501.3). The use of motorized equipment and installations in wilderness, as analyzed in the EA, has limited effects, and specifically employed to preserve multiple qualities of wilderness character.

Concern: The two general locations are separated by many miles, each of which contain two or three separate projects. They don't fit together in a single EA. It is impossible to do site-specific analysis on such disparate proposals in one document.

Response: The actions in this plan have independent utility, are considered as similar actions. Similar actions are those with similar geography, timing, purpose, or other features that provide a basis for evaluating the combined impacts in a single NEPA review and can

proceed independently from the proposed action and have independent utility (NPS NEPA Handbook, p. 49). It's useful to combine similar actions into one analysis, to provide a clear understanding of the effects, including cumulative effects. Therefore, the park found it appropriate to analyze the actions in one NEPA document.

Concern: This EA fails to consider and fully describe all genuine alternatives, instead apparently reflexively selecting alternatives that degrade the Wilderness with motorized incursions, without providing a genuine analysis of whether these projects are truly necessary, and even describing the chosen alternatives in vague terms. The NPS is offering no alternatives for these projects other than a "No action" alternative and, to undertake these projects, the EA gives NPS a blank check to degrade the Wilderness in several ways.

Response: The park followed the guidance for considering and evaluating alternatives based on the NPS NEPA Handbook (NPS 2015; pp. 53-54), which requires to the park to consider a reasonable range of alternatives, and to dismiss those from further consideration for several reasons, including, technical infeasibility, don't respond to the purpose and need, unreasonable environmental impacts, among other reasons. Additional explanation of alternatives considered but dismissed are addressed in the Errata (Appendix A of this FONSI).

Concern: Re the Graybeal hiker and stock camp locations, the 2022 fires caused potentially significant impacts to the new proposed locations (I personally saw both locations in September 2022 as part of evaluating fire impacts to the trail and campground resources thru the BAER planning process). Careful evaluation - as proposed - will be required for any new locations to ensure visitors safety concerns from hazard trees and debris flows are minimized. However, assuming one or more of the pre-fire proposed locations can no longer be used, it will also be necessary to ensure there is no allowance of greater natural/cultural resource impacts to construct the camps in any revised camp locations due to the fire effects.

Response: Page. 15 of the EA states: *Though they may be in different locations in the Brush Creek valley than originally planned, the NPS would only develop campsites at locations that do not exceed the scope and scale of impacts identified in this EA. The NPS will conduct a follow up environmental compliance review and likely cover the action with a memo-to-file or a categorical exclusion under NEPA.*

Concern: BRC believes in order to fully comply with NEPA and look at a broad range of alternatives, NPS should analyze the permitting system.

"Given the patterns of travel for PCT hikers, they have limited phone and internet access and obtaining backcountry permits is difficult. When these hikers don't obtain the NPS permit they are prone to camp anywhere that is convenient which can result in "crashing" campsites already

occupied by NPS permitted parties. This results in crowding and a loss of solitude for the permitted parties."

There is clearly a need for more camping areas and possible removal of the permit system altogether if requiring permits is nonsensical in the first place.

Response: Exploration of different systems for managing visitor use with permitting or not permitting overnight use is outside the scope of the EA. Pages 1 and 7 of the EA explain the current permitting system. Pages 11 and 12 and Appendix A of the EA specifically describe the need for the proposed action. The NPS explored how to permit PCT long-distance hikers for several years and arrived at the current practice of providing PCT drop-in camps for PCTA Long Distance Permit Holders. In 2020 the shift to PCT drop-in camps utilizing existing camp space was appropriately covered by a NEPA Categorical Exclusion.

Concern: We support accommodating campgrounds and dispersed camping opportunities. BRC believes that all users can and should be accommodated. This plan should analyze increasing even more so the amount of areas where dispersed recreation is allowed. BRC supports all recreational activities if done responsibly. There needs to be an alternative that opens more dispersed camping sites in addition to keeping available the existing camping experiences. More areas need to be available to campers and it was shown through data provided that NPS has concluded increasing camping opportunities in areas such as Bridge Creek Camp will not have a significant negative impact. These opportunities need to be expanded upon.

Do we really need established campsites in a wilderness area-- --I think not! For instance, an open camping policy that is strictly enforced would have less impact on the site than an established 'park'. And any improvements that are deemed worthy should be accomplished by non-invasive means that would not disrupt the surroundings.

Response: Exploration of different systems for managing visitor use is outside the scope of the EA. Designated camps along trails are an integral part of the system to manage visitor use for the protection of resources. The designated camps are part of the 1989 Wilderness Management Plan, which still guides the overall system for managing visitor use.

Concern: One comment is that I while understand the rationale for rebuilding the trail to a stock standard up to the new Graybeal Stock camp, I would urge the Park in future planning to no longer designate the trail past Graybeal as a stock-use trail. As the planning document states, it's been 20 years since stock could get past Graybeal, and I bet even longer since stock could be taken over Whatcom Pass and down into Little Beaver. There is likely very little stock demand for that route, even if it was maintained as such, and it's simply not realistic to maintain that as a stock route over Whatcom Pass given the terrain and limitations on trail crew resources.

Response: This type of concern could be addressed in the upcoming planning effort for a new Wilderness Stewardship Plan.

Concern: New park funding for staff through opportunities like the Inflation Reduction Act (IRA) could potentially address the need to hire more crews and mitigate the struggle to find adequate workers to get the jobs done in a timely way. As former (volunteer) Chair of the Highlands Trail Committee of the New York - New Jersey Trail Conference, and having worked with volunteers in the greater NY area, and on the Long Trail in Vermont, I know what volunteers can do. It might be more costly to employ professionals if motorized transport and equipment is not used, but that's where volunteers come in. I know it can be done on the west coast as well as the east.

Response: The park recognizes the value of volunteers and has worked with many volunteer groups on trails throughout the years. However, it is also widely recognized that volunteers do not necessarily possess the same skills and capabilities to perform trail work up to the rigorous standards of a professional trail worker. This, of course, is not the expectation. The benefits of volunteers work in National Parks are numerous, but efficiency and effectiveness of completing trail work is not necessarily one of them. In addition, volunteers are not free. Trail volunteers require coordination, oversight, and supervision by multiple park staff.

Concern: Why move the campsite that was near where fire happened? Unless it is just plain dangerous now, why not just repair any damage that might be and continue to use it instead of moving the whole thing. The cost would be less and why can't campers enjoy watching the return of nature in it's natural way, coming back to the area and make it a yearly camp to go to enjoy seeing the changes.

Response: Page 9 of the EA states: *Relocations of Graybeal Hiker Camp is necessary because of the repeated damage due to flooding occurring in Brush Creek in 2003, 2006, 2017, and 2021 and wildfire damage in 2022. The relocation of the Graybeal Stock Camp is due to the future threat of flooding and 2022 wildfire damage. This flooding is believed to have increased aggradation in Brush Creek near the current Graybeal Hiker and Stock Camps. In essence, large volumes of sediment are being moved downstream, which raises the elevation of the stream channel making both camp areas more susceptible to flooding. The 2006 NPS Management Policies provide clear guidance on minimizing impacts to streams:*

4.6.6 Watershed and Stream Processes: The Service will manage watersheds as complete hydrologic systems and minimize human-caused disturbance to the natural upland processes that deliver water, sediment, and woody debris to streams. These processes include runoff, erosion, and disturbance to vegetation and soil caused by fire, insects, meteorological events, and mass movements. The Service will manage streams to protect stream processes that create habitat features such as floodplains, riparian systems, woody debris accumulations, terraces, gravel bars, riffles, and pools. Stream processes include flooding, stream migration, and associated erosion and deposition.

The Service will protect watershed and stream features primarily by avoiding impacts on watershed and riparian vegetation and by allowing natural fluvial processes to

proceed unimpeded. When conflicts between infrastructure (such as bridges and pipeline crossings) and stream processes are unavoidable, NPS managers will first consider relocating or redesigning facilities rather than manipulating streams. Where stream manipulation is unavoidable, managers will use techniques that are visually nonobtrusive and that protect natural processes to the greatest extent practicable.

Flood damage includes erosion and deposition of sediment in large portions of the hiker camp and a small portion of the stock camp (Figure 10 of the EA). Patterns of erosion and sand deposition have forced the layout of the hiker camp into a confusing web of trails, tent pads, and cook areas that do not meet the preferred design features of camps in Stephen Mather Wilderness (See Appendix B of the EA). Both NPS staff and visitors have commented on the poor condition and layout of this camp. Moving the campsites out of the floodplain zone would prevent further damage, ease maintenance requirements, reduce costs, allow natural processes to occur unhindered, and ensure compliance with NPS policies.

Concern: We have to remember what is at stake in these sorts of discussions. What is the priority, the purpose of these lands as they are designated. Recreation can be had, but by doing so, do we jeopardize the intent of the SMW. That needs to be the first question asked. By answering that question, we may know how to proceed. What ever is done, it must not damage or degrade the wilderness that exists.

Response: The need statement on page 8 of the EA references the three laws that mandate preservation of resources. "The need for this project arises from both existing conditions and the mandates prescribed by the Organic Act of 1916, the Wilderness Act of 1964, and the National Trails System Act of 1968 (as amended). The North Cascades National Park Wilderness Management Plan (NPS 1989) also addresses maintaining wilderness character, allowing for backcountry recreation, and minimizing impacts to resources. These documents provide the legislative and policy framework for the NPS and its actions, including the proposed action."

Concern: The EA proposes to increase visitor numbers rather than manage visitor numbers. Increasing use is an issue that should be addressed and even the EA hints that it should be addressed. Nonetheless, the EA evades the issue of increasing use, which supposedly necessitates heavy-handed use of structures and motorized equipment for camp construction, rather than considering viable options. This kind of fragmentation evades a real analysis of what is the minimum necessary.

Response: The EA proposes to accommodate contemporary levels of visitor use by maintaining existing capacity and modestly increasing backcountry camping opportunities along the PCT under the current system of overnight permitting and designated campsites for the management of visitor use. The PCT drop-in camp capacities are based on recent use data and the assumption that PCT long-distance hiker use was close to the maximum in 2019. As

described in the EA multiple factors inform how to manage visitor use. Addressing visitor capacity beyond needs for the PCT is beyond the scope of this project and will be addressed in a future wilderness stewardship plan.

Concern: We agree with the assessment that during periods of peak visitation by long distance hikers overnight use at Six Mile can be anticipated to exceed 12 persons per night. Comments on FarOut, a navigation application popular with PCT users, reference nights with high use at Six Mile during the late summer. For example, one traveler wrote on August 29th, 2022, "I believe there are 12-15 tents here tonight. Nice flat spots, bear bin, and clear flowing creek." Another PCT hiker on August 31st, 2022, "We had 20+ tents here last night could've fit a couple more." It should also be noted that long distance PCT users may have a different ground disturbing impact per individual compared to other backcountry users. It is our experience that long distance hikers tend to carry individual shelters. Some PCT users seem to tolerate camping closer together than other users. Long distance hikers' tents have been observed squeezed into areas that may seem too small to managers. These variables speak to the need for the adjusted site layout to be intuitive and any new campsites to be desirable. Lastly, a portion of long distance PCT users carry hammocks. We hope that some thought can be given to providing access to trees to prevent trampling of vegetation.

Response: This is great information. Thank you for sharing. This has been noted in the Errata for Appendix A: Analysis to Determine Camp Capacity for Bridge Creek and Six Mile PCT Drop-In Camps.

Concern: We are concerned that closing dispersed camping options will eventually lead to reservation systems which ultimately give advantage to upper-class users as oftentimes marginalized groups do not have the luxury of making reservations that far in advance. Another issue is those who make reservations and don't show up, it takes away opportunities to utilize public lands from someone who otherwise would have used the camping spot. The USFS should look at data of reservation system implementations to see how they affect various user groups before implementing any type of reservation system. According to a study on reservation systems in National Parks, "Results suggest that for each of the five campgrounds, those campers camping in sites that require reservations came from areas with higher median household incomes, on average." The study also concludes that the online reservation systems cater to primarily white users. The USFS should stop their proposals to limit free, primitive, and dispersed camping as more and more research is showing that is discriminatory.

Response: Exploration of different systems for managing visitor use, including reservation systems, is outside the scope of the EA. While the park does have a reservation system for backcountry permits, 40% of all available sites are held for walk-up permits, which can only be booked the day of or day before the first day of the trip. This hybrid system of advanced reservation and walk-up permits is meant to accommodate diverse user groups. Due to high demand, there is a fee for permits during the peak season, permits are free for the remaining 7 months of the year. In addition, there is no charge for PCTA Long Distance Permits. Page 7

of the EA explains a benefit of PCTA Long Distance Permit limits: *In 2020, the Pacific Crest Trail Association (PCTA) and the US Forest Service (USFS) instituted a limit of 15 southbound hikers per day, which helps to limit hikers exceeding campsite capacity eliminate camping areas from being overwhelmed with too many people starting in one day near the northern terminus of the trail, including the Park Complex. This appears to have reduced crowding impacts seen at camping areas at Stehekin in 2019. The PCTA and USFS also have a limit of 50 northbound hikers per day from the southern terminus of the trail, however, given the distance between the southern terminus and NOCA this has much less effect once hikers spread out along the trail.*

Appendix C: A Non-Impairment Determination

The Prohibition on Impairment of Park Resources and Values

NPS Management Policies 2006, section 1.4.4, explains the prohibition on impairment of park resources and values: “While Congress has given the Service management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the 1916 Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them. The impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by the legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.”

What is Impairment?

NPS Management Policies 2006, section 1.4.5, “What Constitutes Impairment of Park Resources and Values,” and section 1.4.6, “What Constitutes Park Resources and Values,” provide an explanation of impairment. “Impairment is an impact that, in the professional judgment of the responsible NPS manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values.” Section 1.4.5 of NPS Management Policies 2006 states:

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

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park’s general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may but would not necessarily lead to impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.” Per section 1.4.6 of NPS Management Policies 2006, park resources and values at risk for being impaired include:

- “the park's scenery, natural and historic objects, and wildlife, and the processes and condition 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, structure, 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 Determination for the Selected Alternative

This determination on impairment has been prepared for the National Park Service selected alternative described in the finding of no significant impact. An impairment determination is made for all resource impact topics analyzed for the selected alternative. An impairment determination is not made for visitor use and experience because impairment findings relate back to park resources and values, and this impact topic is not generally considered to be a park resource or value according to the Organic Act and cannot be impaired in the same way that an action can impair park resources and values. Based on the evaluation of potential impacts identified in the plan/EA, the topics evaluated for impairment include the following:

- Northern Spotted Owl;
- Marbled Murrelet;
- Other Wildlife;
- Cultural Resources;
- Floodplain Processes and Water Quality;

- Old Growth Forest and Vegetation; and
- Wilderness Character

Northern Spotted Owl

The environmental assessment found no significant adverse impacts to northern spotted owl. No significant or even measurable adverse effects to spotted owl behaviors and habitat are expected, due to suboptimal spotted owl nesting habitat, no known spotted owl activity centers within a 0.7-mile radius of the project sites, only minor removal of understory vegetation associated with the construction of both proposed project areas, existing high ambient noise from adjacent streams, and the presence of already substantial camping activity and human use in each of the project areas. Adherence to best management practices (BMPs) as outlined in the park's programmatic trails maintenance guidance (NPS 2021) will also help mitigate potential noise disturbance during the construction period. NPS biologists have assessed the proposed project activity has a no effect determination to the northern spotted owl or critical habitat under Section 7 of the Endangered Species Act.

Cumulative Effects

Eventually as trees age in the immediate vicinity of the new campsites and other campsites in the area, there will be a need for hazard tree removal which will result in a medium-term minor effect because of the loss of snag habitat, also an important component of owl habitat. However, other planned projects in the project areas will increase the time that trail crews will be working in the area and occupying campsites that may otherwise be used by visitors. Several other proposed projects in the area may also contribute to an increase in noise disturbance from power tools and possibly helicopter flights. In consideration of these cumulative effects, NPS biologists have assessed that the proposed project activity will have a no effect determination to the northern spotted owl or critical habitat under Section 7 of the Endangered Species Act.

Marbled Murrelet

Brush Creek

The environmental assessment found no significant adverse impacts to marbled murrelet. Construction of the relocated camp and trail reroute will require power tools, such as chainsaws, and various hand tools. This increase in unfamiliar sound and human activity could cause a significant disturbance event by causing a murrelet to delay or avoid nest establishment, flush away from an active nest site, or abort a feeding attempt during incubation or brooding of nestlings. However, the value of the habitat in the project area is considered low for marbled murrelet nesting. Pacific silver fir is the dominant tree species within the project area and no known marbled murrelet nests have been located to date in this tree species within Washington. The sparsely scattered western red cedar and Douglas-fir trees that are present in the immediate vicinity of the project area did not appear to have large diameter limbs suitable for murrelet nesting platforms. The vegetation, such as the few scattered conifers present that could be potential marbled murrelet nesting trees, will not be altered through removal or degraded by project activities. The work will result in no reduction of canopy

closure or the creation of canopy gaps. The elevation of the project is approximately 3,000 ft, slightly higher than the average elevation of 2,392 ft. for murrelet nests located in Washington (Wilk et al 2016). The trail reroute does not occur in marbled murrelet habitat, except for a short distance on either end where it ties into the main trail. These segments fall within marginal habitat given the limited suitable features and structure of the forest stands, therefore disturbance to murrelets is not anticipated. The marbled murrelet nesting season is from April 1 – September 23. Following BMPs established for trail work to include a marbled murrelet timing restriction (no work until two hours after sunrise and stop work two hours before sunset) can minimize any potential disturbance during the nesting season. NPS biologists have assessed that the proposed project activity will have a no effect determination to marbled murrelets or critical habitat under Section 7 of the Endangered Species Act.

Cumulative Effects

In consideration of the projects that could produce cumulative effects, NPS biologists have assessed the proposed project activity will have a no effect determination to the marbled murrelet or critical habitat under Section 7 of the Endangered Species Act.

The proposed action and other nearby projects will have minor or no cumulative effects to marbled murrelets habitat, since it is already marginal murrelet habitat and no large trees with adequate branch size for nesting platforms will be altered. Relocating the camps will not result in an increase in human use of the project area; therefore, this action will have little or no increase in cumulative effects from human use.

Other Wildlife

The environmental assessment found no significant adverse impacts to other wildlife.

Brush Creek

Remote cameras have detected the presence of several forest carnivores in the Chilliwack River drainage including wolverine, black bear, pine marten, cougar, and bobcat. To date, no den sites have been documented for these species within the project area. These carnivores typically have large home ranges and are often transitory in their movement patterns. Construction activity involving chainsaws and other power tools could potentially cause some temporary noise disturbance or displacement if any of these carnivores were passing through the project area at the time of construction but are expected to be short-lived in duration and have no long-term affect. Helicopter use may be needed to transport construction supplies but will occur only after carnivore spring denning season.

Constructing the new camps to the preferred design features (Appendix D) will reduce the risk of human-bear conflict and have a long-term beneficial effect.

Bridge Creek

Remote cameras, track surveys and scat collections have detected many of NOCA's native forest carnivores in the Stehekin River watershed to include gray wolf, black bear, cougar, Canada lynx, bobcat, wolverine, pine marten, striped and spotted skunk, and Pacific fisher. It's feasible that any

one of these animals could either be transitory or have an established territory near the proposed project areas, however no den sites have been confirmed within the project areas or in the immediate vicinity to date. Construction activity involving chainsaws could potentially cause some temporary noise disturbance or displacement if any of these forest carnivores were in the vicinity at the time of construction, but this is not expected to be significant or have a long-term affect because following BMPs will minimize the impact. Use of a helicopter to transport equipment and supplies may be needed, but will occur only between July 16 and February 28, after the early spotted owl nesting season and carnivore denning season.

Constructing the new camps to the preferred design features (Appendix D) reduces the risk of human-bear conflict and have a long-term beneficial effect.

Cumulative Effects

Building new and improved trails and camps in both project areas is likely to contribute to increased use in these areas in the long-term. In addition, current trends show an overall increase in backcountry visitation and with time there may be an increase in the number of nights that the camps are at full capacity. This increased human activity in the existing camp area may contribute to an increase in cumulative effects to wildlife and their habitat, which at a most basic level may include short-term behavioral shifts, temporary physiological changes and alterations in overall fitness when disturbed by recreationists. This could potentially occur after a lull in Brush Creek after visitor use has been re-established following post-fire landscape stabilization.

Cultural Resources

The environmental assessment found no significant adverse impacts to cultural resources. Maintaining the park's trails and campgrounds in good condition and ensuring campsites are sized for the appropriate number of people keeps most visitors within previously disturbed areas. This helps reduce the risk of damage to sensitive cultural resources whether they are known or unknown. In addition, the trails and campgrounds allow visitors to access and enjoy historic structures and other less culturally sensitive sites that are preserved for visitor enjoyment and education.

Brush Creek

While it is unknown whether historic properties are within the Area of Potential Effect, trails workers will avoid sensitive areas which could result in minor adverse impacts by having archeologists monitor the construction work.

Bridge Creek

Based on the findings from the survey and consultation, any potential construction impacts to historic properties within the footprint of the proposed new campsites and the adjacent area in designated wilderness will be avoided with an inadvertent discovery and monitoring plan.

Cumulative Effects

Building new and improved camps is likely to contribute to increased use in these areas in the long-term. In addition, current trends show an overall increase in backcountry visitation, and with time, there may be an increase in the number of nights that the camps are at full capacity. An increase in

human activity at any of these camps may contribute to an increase in consequential cumulative effects on both known and unidentified cultural resources. Furthermore, the areas for the proposed camps within the Brush Creek drainage were burned or near the burn perimeter of the Chilliwick fires in 2022. The decrease in vegetation from the fires could expose previously unidentified cultural resources, making them more vulnerable to human activity in the area until the forest has recovered.

In consideration of the nearby projects that could cause cumulative effects (Section 2.4), NPS cultural resources staff have either completed inventories within the footprints of these projects or have prepared plans to mitigate any impacts to historic properties that may occur.

Floodplain Processes and Water Quality

The environmental assessment found no significant adverse impacts to floodplain processes and water quality.

Common to All Locations

Construction of the new trails and campsites could generate potential adverse effects to water quality. During rain events bare soil will be susceptible to erosion and sediment transport to nearby streams, increasing the turbidity of the streams. Such turbidity can be detrimental to aquatic life. However, given the local topography, distance to sensitive aquatic habitat, and preventative camp/trail construction and maintenance practices (NPS 2021) the adverse effects are anticipated to be minimal.

Brush Creek

Removing the trail and camps from the Brush Creek floodplain will have beneficial effects on water quality since a pit toilet and stock hitchrail will no longer be maintained within the floodplain. It will reduce human and stock foot traffic and camping in the Brush Creek floodplain which will have beneficial effects on aquatic organisms by reducing turbidity generated from foot travel and altering habitat to fit camp uses (i.e., social trails, firewood collection), and trail and camp maintenance activities. Moving the trail and camps out of the floodplain has beneficial effects to Brush Creek since natural processes of channel migration can occur without alteration.

Bridge Creek

Adding the additional bare ground of the tent pads to Six Mile Camp could have adverse effects on water quality by contributing a source of fine sediment that could be transported into Bridge Creek causing additional turbidity during rainstorms and snow melt.

Cumulative Effects

All the nearby projects that could cause cumulative effects (Section 2.4) may have local short-term adverse effects during the work. However, the goal of all of these is to maintain or improve the trail system to contain foot traffic to the trail and protect against the water quality impacts mentioned above. Cumulatively and in the long-term, all these actions have neutral to beneficial effects to water quality.

Old Growth Forest and Vegetation

The environmental assessment found no significant adverse impacts to old growth forest and vegetation.

Common to All Locations

The deliberate design of the proposed action mitigates impacts to vegetation so that plants are less likely to be damaged or removed by recreational use outside of trails and camps because visitors are more likely to concentrate their use on well-maintained trails and camps.

Constructing and relocating camps require clearing of understory plants and felling of trees in an area that needs to be cleared for development (trails, tent pads, etc.).

Trees rated as hazardous based upon the potential for failure and the presence of a target which include cooking areas, tent pads, and toilets will be felled during construction and on an ongoing basis as part of reducing risk for trees falling on the camps in the future. This includes all trees that are tall enough to be within falling distance of a target. A commonly used mitigation, though not the only possible mitigation, is the removal of hazard trees. Other possible mitigations include closing the target or relocating it. Assuming current practices extending into the future, the proposed action will result in additional felling of hazard trees or snags. From parkwide data, an average of seven hazard trees per backcountry camp are removed each year. Recurring hazard tree surveys and hazard tree risk mitigation for the life of the camps will be necessary. Hazard tree surveys will consider all management options when addressing hazard trees which include, removal of the target, trimming or topping hazard tree, or removal/felling of the hazard tree. Effects specific to each area are summarized in the sections below.

Brush Creek

The project will remove approximately a 10-ft X 2400 ft (0.55 acre) swath of native vegetation along the new trail corridor. Out of the total length of this proposed segment approximately 800 feet cross talus and 150 feet cross a brushy avalanche path. The direct effects in the swath include removal of all vegetation including an unknown number of trees, and disturbance of talus habitat which mostly harbors lichens and mosses. The overall number of trees to be removed, particularly large trees, will be minimized as much as is practicable. In forested areas this will result in the cutting and removal of some tree roots.

A roughly equivalent length of the old trail segment will be allowed to naturally revegetate. The segment that will be abandoned is primarily in old growth forest on the floodplain. The new trail alignment will result in less ongoing disturbance to root zones and understory plants from trail maintenance which includes activities such as brushing, short reroutes, and clearing fallen trees from the trail.

Construction of the new Graybeal camps will remove approximately 0.2 acre of vegetation resources, including an unknown number of trees, from clearing new access trails, cook areas, toilets, stock hitching area, and tent pads. The overall number of trees to be removed, particularly large trees, will

be minimized as much as is practicable and limited to the number necessary to implement the proposed project. In forested areas this results in the cutting and removal of some tree roots.

Considering the large acreages of surrounding vegetation, these changes will have no or minor effects to forest structure, forest processes, the sustainability of individual trees, and forest ecosystems. While some trees are expected to be removed, the proposed action will have minor effects on overall species richness throughout the forest, critical habitat, overall forest health, tree seedling growth rates, and levels of carbon sequestration due to the acreage of unaffected vegetation adjacent to the site and across the ecosystem.

Moving the Graybeal Hiker and Stock camps new locations requires hazard tree surveys over approximately 11 acres for each camp (total of 22 acres). This estimate is based on a 200-foot radius around each unit of the camp which allows for mitigation of any tree up to 200 feet in height, which if failed, could fall in the camp. This will be slight increase in camp area compared to the old sites which will be abandoned. The new sites likely have higher rates of removal due to mortality from the 2022 Chilliwack complex fire and latent mortality of trees affected by the fire. Removal of trees and snags could result in decreased ecological value of the local forest.

Bridge Creek

The project will remove up to 0.15 acres of vegetation resources from construction of the new PCT drop-in camp at Bridge Creek and expansion of Six Mile Camp, including an unknown number of trees.

Increasing the size of Six Mile Camp and Bridge Creek Camp as proposed will increase the area requiring annual hazard tree survey and mitigation. The addition of a new campsite at Bridge Creek will require hazard tree surveys over approximately 32 acres based on a 200-foot radius around each unit of the camp which will allow for mitigation of any hazard tree up to 200 feet in height. The Six Mile expansion requires hazard tree surveys over approximately 6.3 acres. The impacts from premature removal of trees and snags, including large individuals, include decreased ecological value of the local forest, reduction in carbon sequestration ability of the existing forest, loss of genetic potential, decreased plant species diversity and decreased forest health and tree seedling development.

Ongoing removal of hazard trees results in minor effects to the old growth forest ecosystem. The additional number of hazard trees affecting the modified area should be minimal.

Cumulative Effects

Several of the nearby projects that could cause cumulative effects (Section 2.4) have the goal to maintain or improve the trail system to contain foot traffic to the trail and maintain existing camps to continue to address overnight visitor use. These maintenance and improvement projects result in a beneficial effect to vegetation because plants are less likely to be damaged or removed by recreational use outside of trails and designated camps because visitors are more likely to concentrate their use on well-maintained trails and camps.

Given the increased camp area of the proposed action an additional effect is the removal of additional hazard trees. This additional project work will have minimal cumulative effect on the vegetation resources. Cumulative effects which include decreased ecological value of the local forest, reduction in carbon sequestration ability of the existing forest, loss of genetic potential, decreased plant species diversity and decreased forest health and tree seedling development are minor due to the large acreage of unaffected vegetation adjacent to the site and across the ecosystem.

Wilderness Character

The environmental assessment found no significant adverse impacts to wilderness character.

Untrammeled

No components of the action are considered to intentionally manipulate biophysical processes and result in trammeling actions.

Undeveloped

For the proposed Brush Creek Trail reroute and Graybeal camps relocations there is no net change in facilities and no additional effect on the Undeveloped quality. The expansion of and addition of a food storage locker at Six Mile Camp results in a negative long-term effect on a small area. Helicopter and power tool use will result in short-term effects to the undeveloped quality at Six Mile Camp.

Natural

Relocating the Brush Creek Trail and Graybeal camps out of the floodplain removes human activity from within the floodplain. All camps with proposed changes have layouts and facilities to help reduce human-wildlife conflicts, a long-term positive effect on this quality. For example, the expanded Six Mile Camp is designed to increase the separation between cooking and sleeping areas which should reduce human-wildlife conflicts improving the natural quality. Use of the helicopter and chainsaws result in short-term effects to the natural quality primarily due to noise disturbance to wildlife that will be in the area. Presence of Trail Crews and other NPS staff has a minimal effect on this quality.

Maintaining the trail and camp system to standard has a positive impact on the Natural Quality in that it minimizes negative impacts (trail braiding, bare ground near water or in fragile meadows, impacts to stream banks or lake shores, unmanaged human waste) that occurs by unmanaged visitor use. Maintaining trail tread and structures protect the natural quality in high use areas because they prevent visitors from departing the trail and trampling vegetation to find the easiest way around an obstruction or across a stream. With a sufficient crew capacity to keep up with annual clearing, brushing, repair, and replacement this prevents these impacts and by keeping up with maintenance reduces future workloads.

Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation

Relocating and constructing new Graybeal camps increases opportunities for solitude for visitors staying in these camps as they'll be configured so that different camping parties have better separation for solitude and privacy. The change of location of the Brush Creek Trail and Graybeal

camps likely reduce repair and maintenance needs in this area, restore the loss of stock access for the public and administrative use. Given this area's remoteness and short work season, not having NPS stock access for trail maintenance lengthens repair times. These factors provide long-term beneficial effects to opportunities for primitive recreation.

Building a new PCT drop-in camp at Bridge Creek and Six Mile provides additional camping opportunities for PCTA Long Distance Permit Holders and they will be less prone to stay at other camps in wilderness along the PCT without a NOCA backcountry permit. Observed past behavior shows that PCTA Long Distance Permit Holders in this situation are more likely to use other camps with permitted visitors staying in them. Unpermitted hikers "crashing" permitted hikers camps has a negative impact on opportunities for solitude.

The sight and sound of the helicopter, chainsaws, and any other motorized tools have short-term negative effects on opportunities for solitude for any visitors in the area at the time of use.

Opportunities for solitude will be maintained by rerouting Brush Creek Trail and with the trail and camp system maintained because users are able to travel in predictable timeframes from camp to camp thus preventing overcrowding in campsites and often on the trails. In short, this condition allows for the efficacy of the backcountry permit system. For that subset of more self-reliant users seeking a primitive and unconfined type of recreation maintenance of the trails adversely affects their experience. However, these users have ample opportunities if they get off the maintained trail system and travel cross-country in the wildlands of the North Cascades.

Other Features of Value

Effects to cultural resources that contribute to this quality are outlined in the Cultural Resources section above.

Cumulative Effects

The only potential additional impacts from the nearby projects outlined in the EA (pp. 20-21; Section 2.4) are to opportunities for solitude. As long as there are no wildfires or aerial searches/rescues in the area, the flyover of additional helicopters from projects adds a few minutes of some distant motorized noise to the project area. However, as is evident from the helicopter activity primarily associated with the Chilliwack Complex Fire this can necessitate well over a hundred landings/longline deliveries and tens of hours of helicopter traffic over head. Additional traffic on the trail and presence of the trail crew doing maintenance on the trails and at camps would likely not be noticeable to most users of the trail. However, the maintenance work prolongs the period in which chainsaws are used and visitors will be subject to the sight and sound of them. There will be a similar cumulative impact on the undeveloped quality.

Conclusion

The NPS has determined that implementation of the selected alternative will not constitute impairment of the resources of the park. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA,

comments provided by the public and others, and the professional judgment of the decision maker guided by the direction in NPS Management Policies 2006.

Appendix D: Selected Alternative Mitigation Measures

PREFERRED DESIGN FEATURES (PDFs) FOR STEPHEN MATHER WILDERNESS CAMPS

These PDFs may also be used for backcountry camps outside of wilderness though they don't have the same privacy standards to preserve outstanding opportunities for solitude.

- Sited away from dynamic geologic processes and landforms that may disrupt the camp or endanger visitors (floodplains, debris cones, and rockfall areas)
- Does not occupy suitable or sensitive wildlife habitat (northern spotted owl and/or marbled murrelet suitable nesting habitat, grizzly or black bear, other species as applicable).
- Does not occupy rare plant habitat.
- Does not occupy sensitive archeological sites.
- If in forest, sited so that hazard tree risks are minimized and will be for the foreseeable future this should include clustering tent pads to minimize the area where hazard tree would need to be cut.
- Camp at least 100 feet away from a water body
 - Personal experiences and social science show that visitors want to camp as close as possible to waterbodies. Depending on the local conditions (soils, vegetation, wildlife, and visitor use patterns), campsites could be located closer to water but would require a site-specific evaluation and containment strategy (see Marion, Wimpey, and Lawhorn 2018).
- Cooking areas are not so far away from a water source as to be inconvenient to the user (5 min walk max?)
- Toilet is at least 200 feet away from a water body
- The cooking and food storage area are combined and is at least 100 feet away from tent pads/sleeping area to reduce risks of human bear conflict. Other national parks with grizzly bears use a 100-foot to a 100-yard standard distance for this separation and the maximum will be achieved according to site conditions.
 - Cooking and food storage areas may be communal for multiple campsites, or each individual site may have its own area. A rule of thumb could be 1 cook site for a large group camp and 1 cook site for every 2 small group campsites within the same camp area.
 - A concerted effort is needed to provide guidance to public to show where the proper cook/food storage area is.
 - A cooking area should be sited to allow people to observe approaching bears.
- Meets privacy standards: out of sight of both the main trail and other campsites.
- Camp areas are:
 - Located on terrain or in a vegetation type that resists the formation of barren ground (e.g., sidehill campsites); or
 - Contained by iceberged rocks and strategically placed logs to contain trampling impacts in flat areas.

- As appropriate and applicable may have the following installations for visitor use mitigation:
 - Fire rings – Rock fire rings where fires are allowed.
 - Food storage – Depending on the site the NPS will provide either a wire suspended between trees in forested areas or a metal wildlife resistant storage box or will require use of a bear resistant food container.
 - Toilet (Wallowa or Composter):
 - Large group camps should have separate toilets from small group camps in the same area.
 - Simple signs indicating trails to toilet, tent pads, or food storage as needed.
 - Thoughtfully laid out trails between cook areas, food storage areas, tent pads, water source, and the main trail.
- Stock Users have some different needs and Stock Camps need to have some different PDFs:
 - Need <20% slopes as stock don't navigate steep slopes as well as people.
 - Needs generally larger area to accommodate animals
 - Not too far from water so watering is not overly time consuming (for example if animals need to be led singly to water).
 - Needs well-constructed trail to water access
 - Need a tent pad next to the hitchrails for the packer(s).
- Administrative camps have a few different standards:
 - Admin camps can have Knaack boxes
 - Some ranger camps have wood platforms (Pelton Basin and Boston Basin)
 - New camps will ideally be an extension of existing camps to concentrate all human camping impacts in a locale.

Best Management Practices for Trail Maintenance Activities

The best management practices (BMPs) below have been identified to protect natural and cultural resources and adhere to relevant law and policy. These are in addition to standards, construction methods, and trails work best practices are covered in NOCA's Trails Handbook or best practices since evolved and instituted.

Concern	BMP or Mitigation	Timeline
Project Planning		
Planning and Operations	<p>Each year, the trails foreman will notify NOCA's Interdisciplinary Team (IDT) of the annual workplan before operations commence.</p> <p>At that time, a wildlife biologist will advise of any actions to be taken in order to ensure that Gray Wolf, Canada Lynx, Marbled Murrelet, Northern Spotted Owl are not impacted by the work. Information from the rest of the team regarding mitigations and updates to best management practices will be shared and updated as necessary and appropriate.</p> <p>Potential cumulative impacts will be evaluated during this time to ensure cyclic maintenance and project activities avoid excessive impacts to vegetation, streams, wildlife, natural soundscapes/solitude, etc.</p>	Prior to project activities
Training	At the beginning of the season Trail Crew will receive training on the best management practices outlined below and the reasons behind them (protecting listed species, water quality, wilderness character, etc.)	Prior to
Vegetation: Invasive Species	Weed prevention and control will be incorporated in annual plans for activities that include ground or vegetation-disturbing activities. Project-specific risks of invasive plant introduction and spread and project-specific prevention practices will be identified. Needs and treatments will be identified at the onset of project planning.	Prior to
Visitor Use	Trails maintenance and project activities will be communicated to affected staff and visitors. Any potential for trail closures must be communicated to the Wilderness Information Center Supervisor and Skagit and Stehekin District Interpreters.	Prior to
General Trail Maintenance and Ground Disturbing Activities		
Wildlife	At any time of year, a wildlife biologist may notify the trails foreman if any sensitive dens or nests are discovered and advise specific mitigations for that site.	Prior to or Concurrent
Compliance & Wilderness	Trails will be maintained to the standards outlined in the NOCA Trails Handbook and the NOCA Wilderness Management Plan. Structures and trails will be designed and located to have minimal impacts on the resources, use less precious natural resources, be long lasting, and appropriate for a wilderness location.	Concurrent
Wilderness	Power tools will be permitted only after non-power tools have been considered and found to be ineffective, inappropriate, or unsafe. Considerations will be type of work, safety, weather, distance, amount of work to be accomplished, number of visitors using the area, and the effect on wildlife. Acceptable power tools are chain saws, power winches, handheld rock drills, and hand-held power brushers. If available, all power tools will be equipped with a modified muffler that reduces the decibel level.	Concurrent
Health and Safety	Chainsaws will be used in accordance with the NOCA Chainsaw Operations Program. Only certified chainsaw operators will use power saws.	Concurrent
Wilderness	Power saw use will be kept to a minimum and if possible, not used when visitors are present.	Concurrent
Wilderness	Generator/electric roto-hammers will be used in place of gas-powered roto-hammers if their output is comparable, if they are reliable, if they reduce employee exposure to rock dust, vibration, injury; and if they result in less total impact.	Concurrent
Aquatic Resources	Minimize brushing lateral clearance at small stream and seep crossings to protect bank stability and maintain cover and shading of waterbodies.	Concurrent
Wildlife: T&E Species	Adherence to the trail brushing standards without exceeding them is required in critical lynx habitat in order to provide optimal snowshoe hare and red squirrel habitat.	Concurrent

Concern	BMP or Mitigation	Timeline
Vegetation: Invasive Species	Construction and restoration materials, such as boulders, soil, sand, gravel, rock, road base, straw, and silt and erosion control materials, will be free of invasive weed seeds or other propagative plant parts.	Prior to
Vegetation: Invasive Species	Staff will avoid moving weeds from infested areas into un-infested areas. Prior to entering the backcountry, all workers will check boots, backpacks, and tools for weed seeds, mud that could harbor weed seeds, and plant parts to prevent the spread and introduction of non-native plants. In addition, before any equipment is brought into the park, it will be pressure or steam washed to remove seed-containing soil. Staff will wash equipment that has been off-road or working in an infested site at the Marblemount wash rack facility or with a power washer in Stehekin before moving it from place to place within the park.	Prior to and Concurrent
Vegetation & Cultural Resources	Staff will avoid creating soil conditions that promote weed establishment (e.g. unnecessary disturbance) and avoid impacts to unknown archeological resources by minimizing/eliminating ground disturbance, particularly outside of immediate trail corridor.	Concurrent
Wildlife: T&E Species	If wolves, lynx, grizzly bear, fisher, NSO, MaMu are or signs such as a kill site, den, or nest are seen frequently in an area, trail crew will stop work and a NOCA wildlife biologist shall be notified immediately, who will survey the area to investigate if there is a den or nest in the vicinity. If a den or rendezvous site is found in the area, then park biologists will establish a wildlife closure of appropriate dimension and duration of time. (see Appendix B for harassment threshold distances).	Concurrent
Aquatic Resources	Discourage access to high stream/riverbanks of erodible sediment, which might be prone to excessive erosion. This applies to trail reroutes and when creating barriers to discourage use of social trails.	Concurrent
Aquatic Resources	Short trail relocations shall be built 50 feet or more away from threatened fish species critical habitat. See maps from Aquatic Ecologist.	Concurrent
Aquatic Resources	<p>Ford Maintenance: This type of work may result in the mobilization of a small amount sediment for a short duration which is not expected to exceed background turbidity levels. Stream fords in the Complex overlap with bull trout critical habitat and fish accessible tributaries to critical habitat at a number of locations. In addition, there is some overlap with steelhead and Chinook occupied habitat (not in designated critical habitat) in the Chilliwack River basin.</p> <ul style="list-style-type: none"> When maintaining stream fords in BT critical habitat or fish accessible tributaries to this habitat, in water work will be completed outside of the September 15 – November 15 period of BT spawning. When maintaining fords in the Chilliwack River basin or fish accessible tributaries to this habitat, in addition to the BT work window, in water work will be conducted outside of the March 15 to June 15 spawning period of winter steelhead. If BT Chinook or Steelhead redds are observed within 50 feet of a ford, maintenance will be deferred and conducted in consultation with an NPS Aquatic Ecologist. 	
Cultural Resources	Park Archeologist will be consulted prior to minor trail relocation work (less than 200 feet). Trail relocations greater than 200 feet require additional NOCA IDT compliance.	Prior to
Cultural Resources	If barriers to social trails need to be buried beyond the depth of the trail's disturbance, additional consultation with park Archeologist is required.	Prior to
Cultural Resources	If archeological resources are discovered during trail work, all work in the immediate vicinity (100 feet) of the discovery shall be halted. The find shall be protected, and the Park Archeologist immediately notified.	Concurrent
Vegetation	Minimize vegetation disturbance during construction by staging on existing trail alignments.	Concurrent
Vegetation	Plant salvage is required as appropriate to minimize bare disturbed areas. In areas disturbed, salvage and stage plants nearby in the same manner for replacement over the same locations. Additional information can be obtained from the park Plant Ecologist.	Concurrent
Drainage Structures and Erosion Control		
Wilderness	Project sites will be kept orderly and rehabbed well at the conclusion of the project.	Concurrent
Aquatic Resources	Where appropriate in front country areas, use erosion control measures. Divert surface water around worksite, isolate sediment laden water from stream, use ditches, add duff or mulch to	Prior to & Concurrent

Concern	BMP or Mitigation	Timeline
	bare soils, mulch, silt fences or wattles as necessary and appropriate. Once work is completed, diversions will be removed to restore flow.	
Aquatic Resources	When possible, avoid the use of culverts and instead use dips, step-over open drains (with rock or log border), and short puncheon bridges. Replacement culverts shall be open bottomed or oversized and countersunk. Any replacement shall be lined with sediment in the bottom. If a drainage structure is in need of replacement in these waters, as with stream fords, this work would be done within the work windows for Bull Trout (September 15 to November 15) and Steelhead (March 15 to June 15). There are no plans for 2019 to conduct this work for structures in the vicinity of waters listed as Chinook Critical Habitat.	Concurrent
Aquatic Resources	Repair of bridge footings/abutments will be performed during low water. This programmatic CE does not cover work below ordinary high-water mark. Such work must be reviewed by an NPS Aquatic Ecologist.	Concurrent
Aquatic Resources	No paint or pressure treated wood will be allowed to enter water.	Concurrent
Aquatic Resources	Culverts, water bars, and other water passage features will be used frequently to avoid drainage piracy. The frequent passage of water across the trail prevents flows from becoming concentrated. Concentrated flows frequently lead to increased erosion.	Prior to & Concurrent
Aquatic Resources	Structure location will be improved whenever possible to reduce future erosion.	Prior to & Concurrent
Aquatic Resources	Excess soil shall be dispersed on site at a location where sediments are not likely to be mobilized during a rain event, ideally this is 100 feet or more from a waterbody.	Concurrent
Aesthetics	Replacement or rebuilding of any trail feature will be done with in-kind materials, and any new materials used or placed should be sympathetic to the original trail construction style. For example, if original materials had rounded corners, then new material should also have rounded corners.	Prior to and concurrent
Vegetation: Invasive Species	After completing construction, bare areas will be revegetated, or bare soil will be covered with local litter and duff mulch as soon as possible. Mulch will provide a source of seeds to reestablish native vegetation and reduce the risk of non-native seeds germinating. Ideally, the litter and duff should be collected from the construction zone prior to disturbance. Otherwise, the material will be collected from surrounding areas, without denuding the collection area (>50% of the material will remain in place; vegetation will not be disturbed).	Concurrent with and after
Harvesting Native Materials		
Aquatic Resources	Native materials used in trails construction must be obtained outside the stream riparian area or more than 100 feet from stream channel, whichever is greater. Native materials include: <ul style="list-style-type: none"> o Rock and gravel o Standing and downed trees and shrubs 	Prior to & Concurrent
Wildlife: Species of Special Status	Staff will avoid falling live or dead trees >18" DBH within potential spotted owl habitat (see Map C-3 in Appendix C). If larger trees are proposed to be felled this should be brought to IDT.	Prior to & Concurrent
Cultural Resources	Staff will avoid excavating large holes into mineral soil for materials.	Concurrent
Vegetation: Invasive Species	Staff will avoid creating canopy conditions that promote weed establishment (i.e. natural levels of canopy closure will be maintained whenever possible).	Concurrent
Vegetation	Hazard trees and those procured for trail construction will be flush cut as close to the ground as practical.	Concurrent
Vegetation: Invasive Species	Fresh shot rock will be utilized when available and applicable.	Prior to & Concurrent
Vegetation: Invasive Species	Staff will avoid stockpiling or will bin/contain/treat stockpiles and cover between uses.	Concurrent

Concern	BMP or Mitigation	Timeline
Vegetation: Invasive Species	When native material is not available, vegetation management staff will inspect proposed quarries or source sites for presence of invasive plants annually and provide evaluations and recommendations for sources to maintenance staff, park contracting officers, and contractors. In cases of emergency reconstruction (e.g., floods and other stochastic events) materials will be acquired from pre-approved (by Vegetation Management staff) vendors and pits.	Prior to
Camp Work		
Cultural Resources	Park Archeologist shall be consulted prior to re-digging a hole for an existing pit toilet unless the camp is listed on the pre-approved list. If urgent the park archeologist could be contacted via park radio and Comm Center. Pit toilets in new camps must go through additional NOCA IDT compliance.	Prior to
Aquatic Resources	Pit toilets, campfire structures (tent pads and fire rings), and stock hitch rails will be sited 200' or further from any type of waterbody.	Prior to or Concurrent
Cultural Resources	Park Archeologist will be consulted if trail and campground structural elements such as tent pads, signs, hitch rails, and fire pits are proposed to move to new locations.	Prior to
Aquatic Resources	Trail locations shall be built 50 feet or more away from threatened fish species critical habitat (when practicable). If requires a reroute of greater than 200 feet, then the project must be reviewed separately for additional compliance. (See Bull Trout Critical Habitat Map (C-6) in Appendix C)	Concurrent
Hazard Tree Management		
Vegetation	Trails staff will record the trees felled by date, location, species, DBH, and whether the tree was a suitable nest tree for MaMu or NSO. This data will be sent to the park Plant Ecologist (Mignonne) and Marblemount Environmental Protection Specialist (Rob).	Concurrent
Wildlife: T&E Species	Before felling a hazard tree in MaMu or NSO suitable habitat, it will be inspected for suitable nest tree (SNT) characteristics. Nearby trees that lie within the fall-line will also be inspected for signs of use and trees will be directionally felled to minimize damage to adjacent trees. The most up to date definition of SNTs provided by USFWS will be used by NPS staff (Appendix D). <ul style="list-style-type: none"> If identified as a MaMu SNT then it would be felled before April 1 or after September 4. If the tree poses an imminent danger and the target cannot be easily closed, then a wildlife biologist shall be notified to explore options for a course of action (see Map C-4 and 5 in Appendix C for MaMu suitable habitat). If identified as a NSO SNT it will also be inspected for signs of use. If there are no signs of use the tree would be felled. Otherwise, apply practices as noted above for stopping work and notifying a wildlife biologist. 	Prior to & Concurrent
Aquatic Resources	Whenever possible, hazard trees will be felled toward water to provide for potential recruitment of large woody debris. If trees are to be felled directly into a waterbody the potential impact zone of the tree will be inspected for spawning fish, fish redds or other wildlife. If spawning fish or fish redds are observed within 50 feet (17 yards) of the hazard tree impact zone the tree will not be dropped at that location and if necessary, alternate arrangements would be made (e.g. closing the target).	Concurrent
Vegetation	Hazard trees will be flush cut as close to the ground as practical or otherwise be made as unobtrusive as practical.	Concurrent
Vegetation	If an abundance of hazard trees is located within an established campsite the Plant Ecologist should be notified about an appropriate action for the site which may include closure until the site is safe, establishing the site in a new location or removal of the hazard trees.	

Concern	BMP or Mitigation	Timeline
Stock Operations		
Vegetation: Invasive Species	The use of weed-free feed is required 24 hours prior to entering the park with stock.	Prior to
Vegetation: Invasive Species	Weed-free feed will be used for all stock use within the park (day use and overnight stays).	Concurrent w/project activities
Vegetation: Invasive Species	Horses and pack animals will be brushed thoroughly and will have their hooves cleaned before entering the park.	Prior to project activities
Vegetation: Invasive Species	Park packers will be trained in identification of common invasive plants and will communicate sightings to Vegetation Management staff.	Prior to project activities
Blasting		
Health and Safety	<p>All blasting activities will follow guidelines in NPS Director's Order 65: "Explosives Use and Blasting Safety" and the "National Park Service Handbook for the Storage, Transportation, and Use of Explosives". In order to provide for public safety, trails will be temporarily closed by trail crews for the duration of blasting operations (visitors will be kept off the segment of trail impacted by blasting activities). The crew will alert dispatch at the beginning and the end of all blasting operations.</p> <p>The potential for trail closures must be communicated to the Wilderness Information Center Supervisor and Skagit and Stehekin District Interpreters.</p>	Prior to and concurrent
Aquatic Resources	The Park Aquatic Ecologist will be consulted prior to any blasting that would occur within 100 feet of a stream.	Prior to project activities

Best Management Practices for Aircraft Use at North Cascades National Park Service Complex

These BMPs were identified as part of trails maintenance environmental compliance review, which includes Section 7 Endangered Species Act consultation with the US Fish and Wildlife Service. They are broadly applicable to all aviation activities in the Complex and should be followed except when contravened by matters of life and safety.

Best Management Practice
All proposed use of helicopters landing or making longline deliveries in Wilderness will be subject to review through a Minimum Requirement Analysis. One should be completed and signed by the Wilderness Coordinator and Superintendent before the flight(s) occurs. Use outside of wilderness should be part of a project approved by the Superintendent
In Wilderness "aircraft may only be used if stock use is not permitted on trails, trail conditions prevent stock use, or it is impractical to use stock and there is no other practical way to accomplish the work." (1989 NOCA Wilderness Management Plan).
Helicopter use will be limited to during the week to avoid high visitor use times. If ground conditions permit (snow), aircraft will be scheduled before 4th of July weekend or after Labor Day weekend to avoid the high use visitor season.
Only the smallest, quietest available helicopters should be used to accomplish the task efficiently and safely. This mitigation is limited by the reality of procurement procedures and the availability of smaller helicopters at the time of project implementation.
Helicopters will fly at a minimum altitude of 2,000 feet above the ground surface within the wilderness boundary, except during takeoffs and landings or when visibility conditions do not allow.
Whenever possible and applicable choose flight routes that follow the Highway 20 corridor or other routes that avoid the most remote parts of the Wilderness.
Whenever possible helicopters should fly a minimum of 400 feet above treetops with suitable habitat to avoid potential disturbance to MaMus* and NSOs*. This 400-foot minimum particularly applies during the NSO sensitive early nesting season, which is between March 1 and July 15, and the MaMu nesting season between April 1 and September 4. See Map 1 below for NSO suitable habitat and Maps 2 and 3 below for MaMu suitable habitat.
Hovering of a small helicopter shall not occur within 330 feet of a known NSO activity center at any time during the nesting season between March 1 and September 30.
Hovering of a small helicopter shall not occur within 330 feet of MaMu suitable habitat during the nesting season between April 1 and September 4 (see MaMu suitable habitat Maps 2 and 3 below).
Near MaMu suitable habitat, helicopter flight operations should be restricted to occur from 2 hours after sunrise and 2 hours before sunset, to avoid disturbance during critical daily feeding periods.
Helicopter nets will be inspected for weed seeds. They will be bundled and stored in a weed free environment. Weeds and weed seed will be minimized in proximity to helipads with standard weed control practices, such as mowing, pulling, covering with weed cloth, treating with herbicides, etc.
Advance notice will be given to the public about helicopter flights over Stephen Mather Wilderness during May-October.
* MaMu = Marbled Murrelet; NSO = Northern Spotted Owl

Figure 2. Map showing the trail system and potential habitat for Northern Spotted owl in North Cascades National Park Service Complex.

SUITABLE MARBLED MURRELETT HABITAT

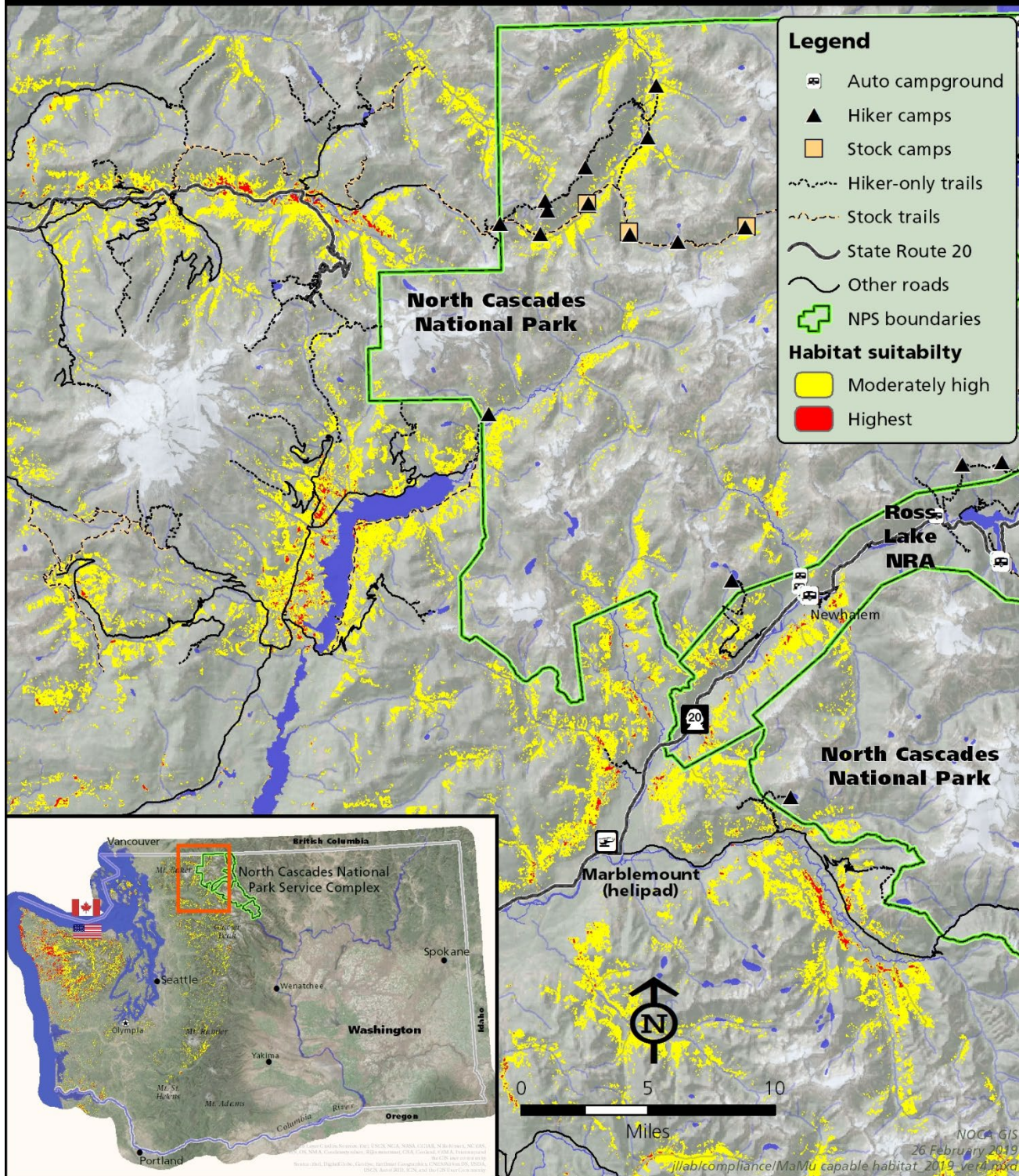


Figure 3. A map showing Marbled Murrelet suitable habitat in the vicinity of the Complex.

Appendix E:

Minimum Requirements Analysis

Step 1: Determination

Description of the Situation

Recent changes in environmental and social factors have forced the NPS to consider changes in locations of a trail segment and campsites in Brush Creek and configuration of Six Mile Camp in Bridge Creek:

- The existing Brush Creek Trail was washed out by floods in 2003, 2006, and 2017. The upper three miles of this trail is now inaccessible to stock, which is problematic because the NPS has committed to keeping this trail passable for stock users. This is also important for trail maintenance as NOCA's Packer relies on this trail to bring in equipment and supplies with stock animals.
- Graybeal Hiker and Stock Camps have suffered repeated damage due to flooding events coming from Brush Creek in 2003, 2006, and 2017. Additionally, Brush Creek is aggrading near the current Graybeal Hiker and Stock Camps. This means sediment is being moved down the river's floodplain during high water events and it has the effect of raising the elevation of the floodplain. This makes both campsites more susceptible to flooding in the future, which increases the need for action. Effects of the Chilliwack Complex Fire in 2022 will exacerbate these issues as a large portion of the Brush Creek drainage burned in the Brush Creek 2 Fire.
- Patterns of erosion and sand deposition have forced the layout of the hiker camp into a confusing web of trails, tent pads, and cook areas that do not meet the preferred design features of camps in Stephen Mather Wilderness. Both NPS staff and visitors have commented on the poor condition and layout of this camp. Moving the campsites out of the floodplain zone will prevent further damage, ease maintenance requirements, reduce costs, and allow natural processes to occur unhindered.
- In recent years there has been high demand and crowding in some designated campsites from overnight users and difficulty in issuing NPS permits to long-distance PCT hikers for camps along the Pacific Crest Trail in North Cascades National Park (Bridge Creek Trail).
- Some camp locations are not adequately designed to reduce risks of human-bear conflict.

Rationale for the Necessity of Action in Wilderness

Action cannot be taken outside of wilderness because the situation is central to managing visitor use in wilderness and inextricably linked to the public purposes of wilderness.

Visitor use management in the project areas must be addressed in North Cascades National Park Service Complex and the Stephen Mather Wilderness to prevent impairment as stipulated in the NPS Organic Act ((PL 39-535, Section 1):

The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

Some action is necessary to preserve components of the natural quality of wilderness character by addressing visitor use impacts. Such components may include water quality, fish, wildlife, and/or habitat. Strategies for visitor use management are designed to address and minimize potential impacts to these resources. Proactively addressing the flood damaged trail is necessary so that an intentional solution to the problem is devised instead of more reactive short-term solutions.

Some action is necessary to address visitor use impacts on outstanding opportunities for solitude and a primitive and unconfined type of recreation. Strategies for visitor use management are designed to address and minimize potential impacts to these values. Overnight camping in this area is an established use and under the current system of designated campsites and permits, maintaining these opportunities helps preserve visitor opportunities for solitude and primitive and unconfined recreation.

Some action is necessary to address visitor use impacts on cultural resources, which are considered other features of value in the Stephen Mather Wilderness. Strategies for visitor use management are designed to address and minimize potential impacts to these resources.

In summary, action is necessary to manage visitor use with measures that will preserve wilderness character, which encompasses natural and cultural resources and providing outstanding opportunities for solitude and a primitive and unconfined type of recreation. Proactively addressing the flood damaged trail is necessary so that an intentional solution to the problem is devised instead of more reactive short-term solutions. Overnight camping in these areas is an established use and under the current system of designated campsites and permits, maintaining these opportunities helps preserve visitor opportunities for solitude and primitive and unconfined recreation.

Step 2: Determine the Minimum Activity

Describe Other Direction

The minimum activity for action in the project areas in Brush Creek and Bridge Creek (Six Mile Camp) is guided by the following:

2006 NPS Management Policies, 6.3.5 Minimum Requirement

When determining minimum requirements, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience. If a compromise of wilderness resources or character is

unavoidable, only those actions that preserve wilderness character and/or have localized, short-term adverse impacts will be acceptable."

Administrative use of motorized equipment or mechanical transport will be authorized only

** if determined by the superintendent to be the minimum requirement needed by management to achieve the purposes of the area, including the preservation of wilderness character and values, in accordance with the Wilderness Act; or*

** in emergency situations (for example, search and rescue, homeland security, law enforcement) involving the health or safety of persons actually within the area.*

Such management activities will also be conducted in accordance with all applicable regulations, policies, and guidelines and, where practicable, will be scheduled to avoid creating adverse resource impacts or conflicts with visitor use."

North Cascades National Park Trail Standards

The Park Complex's trail system has a history of recreational use predating both park and wilderness designation. The trail system and NPS established standards for the trail system in 1982 that predate wilderness designation define the baseline for wilderness character at the time of designation in 1988.

2006 NPS Management Policies, 6.3.10.2 Trails in Wilderness:

Trails will be maintained at levels and conditions identified within the approved wilderness management plan or other planning document.

Management standards in the Wilderness Management Plan for North Cascades National Park Service Complex (1989):

- *"Trails are to be maintained to standards as specified in the Wilderness Trails Standards."*
- *"390 miles of trail are maintained annually in North Cascades National Park Service Complex" (page 15)*
- *"Non-power tools will be preferred. The Wilderness District Ranger will have final approval for the use of power tools. All contracts will consider the use of non-power tools. Any use of power tools will be limited as far as possible to before the 4th of July and after Labor Day. ...Power tools will be limited to chain saw, brushers, rock drills, chain saw winches, and explosives. Contractors will be required to meet these standards" (page 16).*
- *"Aircraft may only be used if stock use is not permitted on trails, trail conditions prevent stock use, or it is impractical to use stock and there is no other practical way to accomplish the work. Aircraft use will be confined to Monday through Thursday and as much as possible to before the 4th of July and after Memorial Day. Emergency operations are exempt. All helicopter operations will comply with NCNPSC's Helicopter Use Management Plan" (page 16).*
- *"In Day Use...and Trail/Camp Areas, the use of power tools is permitted when the Trails Supervisor has considered non-power tools and found them to be ineffective,*

inappropriate, unsafe, or when it would be impossible to complete the work load or maintain the standards outlined in this plan” (page 17).

- *“Power tools will be permitted when non-power tools have been considered and found to be ineffective or inappropriate for the job. Consideration will be type of work, safety, weather, distance, amount of work to be accomplished, number of visitors using the area, and the effect on wildlife...Acceptable power tools are chain saws, power winches, and handheld rocks drills, hand-held power brushers and explosives.” (page 36).*

Pacific West Region Directive PW-062, Hazard Tree Management (2015):

The park conducts a hazard tree abatement program in accordance with National Park Service Pacific West Region Directive PW-062. The objective of this directive is, *“To provide parks with a framework for a hazard tree program that will minimize threats to life and property from the failure of hazard trees within developed areas, consistent with the NPS mission of conserving parks’ natural and cultural resources.”* The directive expressly addresses designated campsites in wilderness, *“Where wilderness or backcountry campsites or other developments are designated and assigned by the NPS, e.g., permitted campsites, these areas should be identified for inclusion in the hazard tree management program, and such sites should be surveyed and hazards abated/mitigated.”*

Minimum Requirements Alternatives Analysis

The NPS conducted an analysis on the effects of three different alternatives on each of the five qualities of wilderness character (see EA pp. 63-89 and Appendix A of this FONSI for Errata). The alternatives were:

- MRA Alternative 1: Proposed Action (with prohibited uses including motorized tools and helicopters)
- MRA Alternative 2: No Action – Continue Management Under Current Circumstances
- MRA Alternative 3: Relocate and Build with No Prohibited Uses (project as proposed with no motorized tool and helicopter use).

Based on the analysis in the MRA and the EA as well as substantive comments from the public review period, the NPS adjusted the selected alternative slightly and removed the option to develop camp facilities in designated wilderness that is directly adjacent to the Bridge Creek Camps Area. In addition, this final version of the MRA clarifies how prohibited uses will be minimized and why they are selected as the minimum tool.

MRA Rationale for Selected Alternative:

Summary

The selected alternative provides the most long-term benefits to wilderness character. The analysis shows that conducting the project work clearly benefits wilderness character over continuing with no action/business as usual (MRA Alternative 2). Comparing MRA Alternatives 1 and 3 shows that doing the project work without prohibited tools results in fewer short-term negative effects than

without but allowing some prohibited uses results in more long-term benefits to wilderness character. These tradeoffs are discussed in more detail below.

Proposed Action Better Preserves Wilderness Character than No Action

In Alternative 1 the trail and camp relocations in Brush Creek and the net expansion of Six Mile Camp in Bridge Creek is a long-term negative impact on the undeveloped quality and outstanding opportunities for solitude along with short-term impacts from any helicopter or motorized tool use that may occur for the project. These negative impacts are offset by the purpose of the camps to contain and manage recreational impacts to protect the natural quality, outstanding opportunities for solitude and primitive recreation, and cultural resources (other features of value quality). The preferred locations of the trail and camps outside of the Brush Creek floodplain reduce interaction with the effects of flooding which would require additional work and disturbance in the floodplain to maintain them there. All camps will be improved to better contain expansion of bare ground from trampling impacts, minimize human-wildlife conflicts by providing separation between cooking and sleeping and providing food storage boxes along the PCT. These actions provide long-term protection of the Natural Quality. Relocating and constructing new Graybeal camps will increase opportunities for solitude for visitors staying in these camps as they'll be configured so that different groups will have better separation for solitude and privacy. The change of location of the Brush Creek Trail and Graybeal camps will likely reduce repair and maintenance needs in this area, restore the loss of stock access for the public and administrative use. Given this area's remoteness and short work season not having NPS stock access for trail maintenance lengthens repair times. These factors will provide long-term beneficial effects to opportunities for primitive recreation. Building a new PCT drop-in camp at Bridge Creek and Six Mile will provide additional camping opportunities for PCT hikers and they will be less prone to stay at the NPS permitted camps in wilderness along the PCT. Hikers in this situation in the past have "crashed" other camps with permitted visitors. Having clearly delineated and properly sized PCT drop-in camps is expected to improve opportunities for solitude. Opportunities for solitude will be maintained by rerouting Brush Creek Trail and with the trail and camp system maintained because users are able to travel in predictable timeframes from camp to camp thus preventing overcrowding in campsites and often on the trails. In short, this condition allows for the efficacy of the backcountry permit system. For that subset of more self-reliant users who are seeking a primitive and unconfined type of recreation, maintenance of the trails adversely affects their experience. However, these users have ample opportunities if they travel off the maintained trail system in the wildlands of the North Cascades.

Proposed Action Better Preserves Wilderness Character than Work Without Prohibited Uses

The Park Complex's trail system has a history of recreational use predating both park and wilderness designation. The trail system and NPS established standards for the trail system in 1982 that predate wilderness designation define the baseline for wilderness character at the time of designation in 1988. Thus, these standards are key to guiding what the minimum tools and activities are in Step 2.

In addition, the Wilderness Act specifically states 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 Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system..." (section 4(a)(3)). The standards of the trail system, maintenance standards and designated camps evolved for the use and preservation of the Stephen Mather

Wilderness. Abandoning any of these under current conditions would result in a lowering of standards for both use and preservation.

Conducting the selected alternative without motorized tools would result in fewer short-term impacts from the noise and presence of these devices to the natural and undeveloped qualities and outstanding opportunities to solitude. However, there are long-term costs to wilderness character because the time required to complete this project relates to maintaining the entire trail system in the SMW. There is no additional crew for this project, so the same crew is expected to contribute to cyclic trail maintenance in other locations. Thus, the longer this project takes the fewer trails will be able to be kept up to the Complex's trail standards. Keeping the trail system to standard prevents widespread localized impacts to soils, vegetation, and cultural resources along the trail corridor, which contributes to the long-term preservation of the natural quality of wilderness character. The additional time spent in the field by a crew with non-motorized tools means that they would be occupying camp space for additional time and displacing the public resulting in a negative impact on outstanding opportunities for primitive recreation for a good portion of a hiking season.

In addition, use of only non-motorized tools to maintain the trail system has excessive costs. The NPS conducted a programmatic MRA for trail and designated camp maintenance in 2020 (NPS 2021) which estimated maintaining trails to standard without motorized tools would require the crew size be doubled, from roughly 20 crewmembers and 10 head of stock to 40 crewmembers and 20 head of stock. An increase in crew and stock size would require a substantial reorganization of the park staff, budget, and facilities and increase the amount of user days in the wilderness. This is not currently feasible given budget limitations, facilities, and space limitations (e.g. seasonal employee housing) outside of wilderness. In the wilderness, an increased crew size would require additional administrative camps to maintain capacity for the public, which would have long-term negative impacts on the undeveloped and natural qualities. Such impacts include a larger developed footprint for administrative use and need to abate hazard trees in these areas. Most of the trail system is in suitable habitat for northern spotted owl (NSO) and hazard trees can be suitable nest trees for this species. Minimizing the area needed for hazard tree abatement minimizes loss of suitable habitat for this federally Threatened species. While not a prohibited use, the increased trail crew presence and activity could impact visitors' opportunities for solitude at high use times and places. Maintaining the current trail system to standard with non-motorized tools would potentially have widespread localized impacts to soils, vegetation, and cultural resources along the trail corridor. In addition, very large, downed trees would be cleared with explosives, a potential disturbance to opportunities for solitude and federally Threatened bird species including NSO and marbled murrelet.

Rationales for Specific Prohibited Uses

Wooden open air pit toilet boxes, locally known as "Wallowa toilets" are able to be packed in and built on site. Pit toilets are feasible for Brush Creek because of lower visitor use. However, along the PCT, which has higher use, the Wallowa toilet holes began filling very quickly (within a couple of seasons) and at the prospect of digging new holes in archeologically sensitive areas the NPS decided to begin using above ground "composting" toilets. In this valley there is limited area available for people to continually dig new catholes. This action was deemed necessary at several camps along the PCT in a NEPA Categorical Exclusion and MRA completed in 2019. While these initially had to be flown in with helicopter, the accumulated human waste is packed out by stock animals as needed. Some kind of toilet is necessary in these areas because of the factors mentioned above. NPS provided toilets keeps sanitary and aesthetic impacts to a minimum.

Wildlife resistant food storage boxes were deemed necessary at camps along the PCT in a NEPA Categorical Exclusion and MRA completed in 2019. Black bears are commonly active in and around camps in the Bridge Creek drainage, as they use the PCT as a natural travel route. Past human-bear conflict has been focused on camps at junctions between Bridge Creek and its tributaries (e.g., Fireweed, South Fork, and North Fork, as well as at Bridge Creek Camp). Increased use of the PCT by through-hikers in particular correspondingly increases the possibility of human-bear conflict, particularly among a hiker population not given to proper food storage. Camps along this trail are often also frequently used by large groups setting out on long trips, who are unable to fit supplies into bear canisters and not always able to hang attractants properly. Likewise at Cottonwood, group size creates challenges to proper bear attractant storage. Food conditioning of black bears has been reported at times, while on other occasions bear behavior has indicated they have obtained food rewards from people - such as by bears who refuse to leave camp or follow people long distances. Given the observed maximum number of campers on any given night at Six Mile Camp two boxes are necessary to provide space for everyone's food. Only one box is currently present, and another would need to be flown in because currently available boxes that have durable and reliable latches are pre-constructed and won't fit on a pack animal.

A helicopter may be needed to move gravel from the river bar to the new Brush Creek trail tread. It is estimated that an hour or two of flight time will be required to move gravel from the river bar up to the new trail reroute where it traverses talus. Flight time will vary depending on the substrate underlying the new trail. A newly built trail through a talus slope is likely to have many gaps and holes and uneven and unstable rocks that make it easy for a horse or mule to injure its feet. Depending on the substrate of this section, additional smaller gravel may need to be placed on the trail tread to fill in holes and stabilize the rocks. Four to five cubic yards (10,000-20,000 lbs. depending on moisture content) of material is anticipated to be needed. This gravel will be sourced in the open cobble and gravel floodplain of Brush Creek, but it is unknown at this time exactly where the proper size material will be located. In addition, the trail crew may need to collect from several different areas to minimize the impacts to the floodplain. If the proper size is within a few hundred feet of the trail reroute then this may be able to be moved by hand, but further than that it becomes untenable and hazardous to workers. Stock animals are not suitable for this task because the trail reroute needs to be completed to make the area accessible to stock. Taking the animals off trail in this area is not safe as it is extremely rugged with uneven ground and many obstacles between the creek bed and the talus slope, which presents many opportunities to injure horses' and mules' feet.

Helicopter delivery of equipment and supplies to Brush Creek cannot be done with horses and mules because getting these materials to Graybeal Stock, where the crew plans to work out of, will not be possible until the trail reroute is completed and up to standard for stock. In addition, supplying the crew at Graybeal would be a full-time endeavor for the pack string, leaving the rest of the Trails program without stock support, which would keep the crew from keeping the trail system up to standard. Thus, this rationale relates back to the explanation above about the importance of keeping trail maintenance up to standards to protect wilderness character. The helicopter would need to bring up to eight sling loads in during the spring and bring out up to four sling loads in the fall.