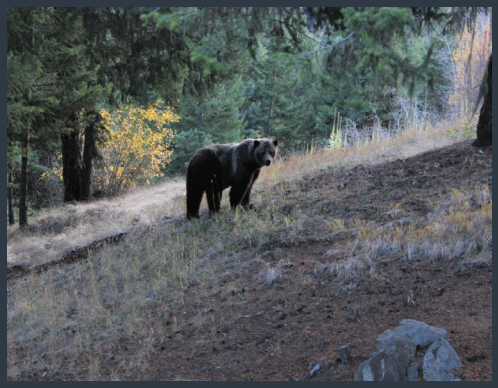
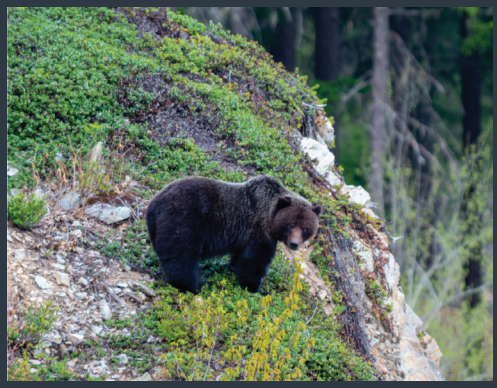
U.S. Department of the Interior
U.S. Fish and Wildlife Service
National Park Service

Grizzly Bear Restoration Plan / Environmental Impact Statement

NORTH CASCADES ECOSYSTEM





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March 2024

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE AND US FISH AND WILDLIFE SERVICE
NORTH CASCADES ECOSYSTEM
GRIZZLY BEAR RESTORATION PLAN / ENVIRONMENTAL IMPACT STATEMENT

Lead Agencies: National Park Service and US Fish and Wildlife Service, US Department of the Interior

This *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS) evaluates the impacts of a range of alternative approaches for restoring the grizzly bear to the North Cascades Ecosystem (NCE) grizzly bear recovery zone, a portion of its historical range. Upon conclusion of the plan/EIS and decision-making process, the alternative selected for implementation will become the North Cascades Ecosystem Grizzly Bear Restoration Plan. The National Park Service (NPS) and the US Fish and Wildlife Service (FWS) prepared this plan/EIS as co-lead agencies, in cooperation with the Washington Department of Fish and Wildlife (WDFW) and US Forest Service (USFS).

This plan/EIS evaluates the impacts of the no action alternative (alternative A) and two action alternatives (alternatives B and C). All action alternatives would seek to achieve a grizzly bear restoration population of 200 bears. The no action alternative (alternative A) would continue existing management practices and assumes no new management actions would be implemented. Under both action alternatives, it is anticipated that 3 to 7 grizzly bears would be released into the NCE each year over roughly 5 to 10 years, with a goal of establishing an initial population of 25 grizzly bears before switching to adaptive management.

In addition to the primary restoration actions, a number of elements would be common to both action alternatives. These elements include guidelines for addressing human-grizzly bear conflicts; capture, release and monitoring techniques; public education and involvement; access management; and habitat management. Under alternative B, grizzly bears restored to the NCE would be managed as a threatened species with the existing special rule (50 Code of Federal Regulations [CFR] 17.40(b)) under section 4(d) of the Endangered Species Act (ESA) governing the regulation of grizzly bears in the lower-48 states. Under alternative C, identified as the preferred alternative, the FWS would designate grizzly bears in the US portion of the NCE and surrounding areas as a 10(j) nonessential experimental population (NEP) under section 10 of the ESA. Designation of grizzly bears released into the US portion of the NCE, including their offspring, as a NEP would provide federal, state, and Tribal agencies with greater management flexibility should conflict situations arise. A rulemaking process is required to designate the grizzly bear population as a NEP. This EIS provides the *National Environmental Policy Act* impact analysis to assess the effects of such a rule.

This plan/EIS analyzes the potential environmental impacts on wildlife and fish (including grizzly bears), wilderness, visitor use and recreational experience, public and employee safety, socioeconomics, and ethnographic resources.

For further information, visit http://parkplanning.nps.gov/NCEGrizzly, or contact:

Don Striker, Superintendent, North Cascades National Park Service Complex, 360-854-7200
Ann Froschauer, Deputy State Supervisor, US Fish and Wildlife Service, Washington Fish and Wildlife Office, 360-753-4370

NORTH CASCADES ECOSYSTEM

GRIZZLY BEAR RESTORATION PLAN / ENVIRONMENTAL IMPACT STATEMENT

March 2024

EXECUTIVE SUMMARY

The National Park Service (NPS) and US Fish and Wildlife Service (FWS) prepared this *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS) in accordance with the *National Environmental Policy Act* of 1969 (NEPA), as amended, to determine how to restore the grizzly bear to the US portion of the North Cascades Ecosystem (NCE), a portion of its historical range. The interagency planning team, composed of representatives from the FWS and NPS identified a restoration population of 200 bears in the US portion of the NCE for the purposes of this plan/EIS after considering the NCE's carrying capacity and the professional judgment of grizzly bear experts. This restoration population is not a recovery goal for purposes of the *Endangered Species Act* (ESA). Recovery goals are determined through a separate recovery planning process. A population of 200 bears in the NCE would contribute to recovery of grizzly bears in the lower 48 states. This plan/EIS includes an assessment of the potential impacts of various alternatives for grizzly bear restoration in the US portion of the NCE to the environment, including cultural and socioeconomic resources. Each of the chapters of this plan/EIS is summarized in the following pages. The Washington Department of Fish and Wildlife (WDFW), US Forest Service (USFS), and several local counties are cooperating agencies on this plan/EIS.

BACKGROUND

The grizzly bear (*Ursus arctos horribilis*) in the lower-48 states was listed as threatened under the ESA on July 28, 1975. Following the listing, the FWS initiated a recovery effort directed at establishing viable populations in portions of four states where the grizzly bear was known or believed to exist at the time of listing. Grizzly bears in the western United States are managed within six recovery zones: the Greater Yellowstone Ecosystem (GYE) grizzly bear recovery zone in northwestern Wyoming, southwestern Montana, and southeastern Idaho; the Northern Continental Divide Ecosystem (NCDE) grizzly bear recovery zone in northwestern Montana; the Cabinet-Yaak Ecosystem (CYE) grizzly bear recovery zone in extreme northwestern Montana and northern Idaho; the Selkirk Ecosystem grizzly bear recovery zone in northern Idaho and northeastern Washington; the Bitterroot Ecosystem (BE) grizzly bear recovery zone in central Idaho and western Montana; and the NCE grizzly bear recovery zone in northwestern and north-central Washington. Grizzly bears currently occupy four of these recovery zones: the GYE, NCDE, CYE, and Selkirk Ecosystem.

The greater NCE, including its Canadian and US portions, is bounded roughly by the Fraser River on the north, the Okanogan Highlands and Columbia Plateau on the east, Snoqualmie Pass to the south, and the Puget lowlands to the west. The US and Canadian portions of the greater NCE constitute a large block of contiguous habitat that spans the international border but is isolated from grizzly bear populations in other parts of the two countries. For the purposes of this EIS, the NCE grizzly bear recovery zone within the US portion of the ecosystem is hereafter referred to as the NCE. The US portion of the ecosystem spans the crest of the Cascade Range from the temperate rainforests of the west side to the dry ponderosa pine forests and sage-steppe on the east side. Historical records indicate that grizzly bears once occurred throughout the NCE. A grizzly bear habitat evaluation was conducted from 1986 to 1991 in response to recommendations made in the 1982 FWS nationwide Grizzly Bear Recovery Plan. This habitat evaluation and a report by the Interagency Grizzly Bear Committee (IGBC) NCE Subcommittee, concluded that the US portion of the NCE contains sufficient habitat quality to maintain and recover a grizzly bear population (Servheen et al. 1991; Almack et al. 1993). Recent carrying capacity modeling suggests the most plausible carrying capacity for the US portion of the NCE, under current habitat conditions, is approximately 280 bears (Lyons et al. 2018). The Lyons et al. 2018 model was further developed to include the effects of climate change on habitat quality up to 100 years in the future, and the most plausible carrying capacity for the NCE increased to 482 to 578 bears (Ransom et al. 2023a).

Despite the historical presence of grizzly bears in the NCE and the availability of sufficient habitat to recover and maintain a viable population, there is no confirmed evidence of current grizzly bear presence within the NCE grizzly bear recovery zone in the United States (Rine et al. 2020). There has been only one confirmed detection of a grizzly bear in the greater NCE in the past 10 years, which occurred in British Columbia (IGBC NCE Subcommittee 2016; Rine et al. 2020). Since there has been no confirmed evidence of grizzly bears within the NCE in the United States since 1996, any remaining bears in the NCE would not meet the accepted definition for a population (i.e., evidence of 2 adult females with cubs or 1 adult female tracked through two litters). Therefore, the FWS considers grizzly bears to be functionally extirpated in the NCE (8 *Federal Register* [FR] 41560, June 27, 2023).

Purpose and Need

The purpose of this plan/EIS is to restore the grizzly bear to the NCE, a portion of its historical range. Action is needed at this time to:

- Restore grizzly bears to the NCE where they have been functionally extirpated from the ecosystem.
- Contribute to the restoration of biodiversity of the ecosystem to build ecological resilience and for the benefit and enjoyment of present and future generations of people.
- Enhance the probability of long-term survival of grizzly bears in the NCE and thereby contribute to overall grizzly bear recovery through redundancy in multiple populations and representation in a variety of habitats.
- Support the recovery of the grizzly bear to the point where it can be removed from the Federal List of Endangered and Threatened Wildlife.

Objectives in Taking Action

Objectives are more specific statements of purpose for comparing the effectiveness of alternatives in achieving the desired outcomes of an action (NPS 2015a). The objectives of this plan/EIS are to:

- Restore a grizzly bear population as part of the natural and cultural heritage of the North Cascades.
- Provide Pacific Northwest residents and visitors with the opportunity to again experience grizzly bears in their native habitat.
- Seek to support Tribal cultural and spiritual values related to the grizzly bear.
- Support environmental and natural resource objectives related to the grizzly bear and contribute to grizzly bear recovery in the contiguous US.
- Expand outreach efforts to inform and involve the public and build understanding about grizzly bear recovery.

Issues and Impact Topics

The agencies identified a range of issues and impact topics to evaluate in this plan/EIS to determine the potential impacts on the human environment that could result from implementation of the alternatives. Issues were analyzed in depth for the following impact topics:

- Grizzly bears

- Other wildlife and fish
- Wilderness character
- Visitor use and recreational experience
- Bear-related public and employee safety
- Socioeconomics
- Ethnographic resources

ALTERNATIVES CONSIDERED

Chapter 2 of the plan/EIS, "Alternatives," describes the various short- and long-term actions that the NPS and FWS could implement for grizzly bear restoration in the NCE. The alternatives under consideration in this plan/EIS include a required "no action" alternative plus two action alternatives that were developed by an interdisciplinary planning team and with feedback from the public, Tribes, other agencies, and the scientific community during the planning process. Upon conclusion of the plan/EIS and decision-making process, one of the alternatives, or a combination of actions from multiple alternatives, will become the grizzly bear restoration plan. The plan will guide future agency actions related to grizzly bear restoration in the NCE for the foreseeable future, until conditions necessitate that the plan be revised.

Alternative A: No Action

Under alternative A (no action), existing management practices would be followed. Under the no action alternative, options for grizzly bear restoration would be limited and rely primarily on natural recovery. Current management actions would continue, focused on improved sanitation, motorized access management, outreach, and educational programs to provide information about grizzly bears and grizzly bear recovery to the public, and research and monitoring to determine grizzly bear presence, distribution, habitat, and home ranges. Based on the Revised Code of Washington 77.12.035, described in chapter 1, alternative A is the only alternative being evaluated in detail that would allow for the full participation by WDFW. Under this alternative, any grizzly bears in the ecosystem would continue to be managed as a threatened species with the special 4(d) rule (50 Code of Federal Regulations [CFR] 17.40(b)) under section 4(d) of the ESA governing the regulation of grizzly bears in the lower-48 states and NPS regulations in 36 CFR, chapter 1, governing resource management in areas within the NPS's jurisdiction.

Elements Common to All Action Alternatives

Both action alternatives would seek to restore a population of grizzly bears by capturing individuals from areas where populations are relatively healthy and releasing them into the NCE. Both action alternatives involve the same restoration population of 200 grizzly bears, translocation strategy, education and outreach, sanitation strategy, and habitat protection, but differ substantially in management options and strategies. Under both action alternatives, the agencies would aim to release 3 to 7 grizzly bears per year for 5 to 10 years to achieve an initial population of 25 bears. Based on the projected range of mortality and emigration rates for bears released into the NCE under the primary phase of alternatives B and C, the analysis assumes that an additional 11 bears would need to be released in the NCE (for a total of 36 bears in the primary phase). This approximate timeline is intended to reestablish reproduction in the NCE. Each of these alternatives is anticipated to result in a population of 200 bears within approximately 60 to 100 years. The restoration of 200 grizzly bears is not a recovery goal for purposes of the ESA. Recovery goals are determined through a separate recovery planning process. A population of 200 bears in the NCE would contribute to recovery of grizzly bears in the lower 48 states.

The capture and release of grizzly bears would take place between June and September each year. Release site(s) would be selected based on quality of food in the release areas. Grizzly bears that would be considered ideal candidates for capture and release would be typically independent subadults between 2 and 5 years of age that had not yet reproduced and had exhibited no history of human conflict. The target sex ratio for initial releases would be approximately 60% to 80% female and 20% to 40% male. Under both action alternatives once an initial population of up to 25 grizzly bears is achieved, a transition to the adaptive management phase would occur. In this phase, additional grizzly bears could be released to address human-caused sources of mortality, genetic limitations, or to improve population distribution and sex ratio.

Alternative B: Restoration with Existing Endangered Species Act Protections

Under alternative B, grizzly bears restored to the NCE would be managed as a threatened species with the existing special rule (50 CFR 17.40(b)) under section 4(d) of the ESA governing the regulation of grizzly bears in the lower-48 states and NPS regulations in 36 CFR, chapter 1, governing resource management in areas within the NPS's jurisdiction. This rule allows grizzly bears to be taken under specific circumstances. These circumstances include defense of life; federal, state, or Tribal scientific or research activities; or removal of grizzly bears involved in conflicts by authorized federal, state, or Tribal authorities.

Alternative C: Restoration with Endangered Species Act Section 10(j) Designation (Preferred Alternative)

Under alternative C, the FWS would designate grizzly bears in the US portion of the NCE and surrounding areas as a nonessential experimental population (NEP) under section 10(j) of the ESA. An experimental population is a group of translocated plants or animals (inclusive of their progeny) that is geographically separate from other nonexperimental populations of the species. In designating populations as experimental, the FWS must determine whether they are "essential" or "nonessential" to the survival of the species as a whole and must consider the relative effects of establishing an experimental population on the species' recovery. Section 10(j) provides for the management of experimental populations under special regulations. These regulations specify what "take" of the species is allowed or not allowed under the ESA within the experimental population area.

Designation of grizzly bears released into the US portion of the NCE as a 10(j) NEP would provide authorized agencies with greater management flexibility should conflict situations arise. Any management actions would be consistent with the overall goal of establishing and conserving the NEP while promoting social tolerance and human safety. The designation allows for the advancement of recovery objectives by providing an opportunity to reestablish a population within the ecosystem. The proposed geographic extent for the grizzly bear NEP includes all of Washington state except an exclusion area around the Selkirk Ecosystem grizzly bear recovery where a population of bears currently exists. Three Management Areas are described in chapter 2. Alternative C would address the situations in which "take" of grizzly bears in the NEP area could occur. In addition to the management tools provided under alternative B, alternative C could authorize deterrence, incidental take, expanded preemptive relocation options to prevent a conflict that appears imminent or in attempt to break habituated behavior of bears lingering near human-occupied areas, and additional allowance of authorized conditioned lethal take. The specific situations and approvals that would be required in each Management Area are summarized in chapter 2 and are further detailed in the FWS's 10(j) rule published separately in the *Federal Register*.

Under alternative C, consultation with FWS under section 7(a)(2) of the ESA for grizzly bears within the NEP would only be required for actions on national park system or national wildlife refuge system lands. When NEPs are located outside a unit of the national park system or national wildlife refuge system, for

the purposes of section 7, FWS administratively treats the population as proposed for listing, and only sections 7(a)(1) (50 CFR 17.83) and 7(a)(4) (50 CFR 402.10) of the ESA apply (50 CFR 17.83). Accordingly, the USFS would not be required to consult under section 7(a)(2) about impacts to the NEP when authorizing activities under USFS permits, such as for grazing, mining, and timber harvest activities, including permits for road hauling that may include travel on non-federal lands. Rather, section 7(a)(4) of the ESA would require federal agencies to confer (rather than consult) with the FWS on actions that are likely to jeopardize the continued existence of the species. Because a NEP is, by definition, not essential to the survival of the species, conferencing is unlikely to be required within the NEP.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 of the plan/EIS describes the affected environment in the NCE as it pertains to the consequences of the alternatives for each impact topic considered and analyzes the potential environmental consequences of the actions associated with the alternatives on these impact topics. The following provides a summary of the affected environment and the environmental consequences of the alternatives.

Grizzly Bears

The FWS has determined there is no viable grizzly bear population currently present in the NCE (FWS 2022). The nearest populations to the east are in the Kettle-Granby Grizzly Bear Population Unit (GBPU) in British Columbia and the Selkirk Mountains in Washington, Idaho, and British Columbia. Grizzly bears inhabit the remote areas east of the Okanogan River and west of the Kettle-Granby Mountains, but the very limited number of detections indicate that the populations are probably limited to a very small number of animals. The nearest population to the north is composed of a small number of individuals in the Stein-Nahatlatch GBPU in British Columbia (Proctor et al. 2012). Farther to the west, grizzly bears in the Squamish-Lillooet and Garibaldi-Pitt GBPUs are likewise not at a population density that would facilitate range expansion into the NCE through dispersal across the major barriers created by the Fraser River, the TransCanada Highway, two national railroads, and the high levels of human influence along that corridor (Braaten et al. 2013). Due to the highly fragmented landscape between these areas, as well as the distance between these ecosystems, which is beyond the average female dispersal distance of 6.1–8.9 miles (McLellan and Hovey 2001; Proctor et al. 2004), it is unlikely grizzly bears would move into the NCE from existing populations. Few confirmed sightings of grizzly bears have been made in recent decades in the NCE on either side of the international border. The most recent confirmed observation within the US portion of the NCE was in 1996, south of Glacier Peak. There has been no verified evidence of grizzly reproduction in the NCE for at least 30 years.

Under alternative A (no action alternative), current management would continue, and the proposed restoration population of 200 grizzly bears in the US portion of the NCE would not be achieved because no grizzly bear population is currently present in the NCE, and grizzly bears are not expected to recover to a sustainable population in the NCE on their own.

Alternative B would release up to 7 grizzly bears per year for 5 to 10 years until an initial population of 25 grizzly bears in the US portion of the NCE is reached. In subsequent years, additional bears could be released as needed to help meet restoration objectives. Once an initial population of 25 grizzly bears is reached, a restoration population of 200 bears in the NCE would likely be achieved in approximately 60 to 100 years. Grizzly bears released into the NCE would benefit in the long term from the large block of high-quality habitat that would help further the conservation of the species. The release of grizzly bears into the NCE would require their capture and transport from other areas, and some level of mortality may occur. However, every effort would be taken to minimize capture and transport-related mortalities. The

North Cascades Grizzly Bear Recovery Team (2004) estimates that approximately 2% of the grizzly bear population in the NCE would be lost to human-caused mortality each year, including mortalities associated with restoration activities. Although the removal of grizzly bears from source populations in interior British Columbia, Montana, or Wyoming would effectively count as mortality to those populations, the viability of source populations would not be affected. Overall, alternative B would result in beneficial impacts on grizzly bears by restoring them to areas of high-quality habitat and furthering conservation of the species.

Alternative C differs from alternative B only in the implementation of an ESA section 10(j) designation for grizzly bears. Impacts on grizzly bears from capture, release, and monitoring, as well as impacts on source populations would be the same as described under alternative B. Under alternative C, there would be increased options for grizzly bear management, with specific rules applying to the different Management Areas, as described in chapter 2. Using the ESA 10(j) designation would provide additional management flexibility to effectively manage the grizzly bear population in and around the NCE, including deterrence, expanded preemptive relocation options to prevent conflicts, and additional allowance of authorized conditioned lethal take by an individual, if necessary. Without management tools to sufficiently address conflicts between grizzly bears and humans, the escalation of conflict situations is likely to erode social tolerance for grizzly bear restoration among some groups. Therefore, despite allowing additional lethal take in limited circumstances, the 10(j) designation is expected to improve social tolerance of grizzly bears and, in turn, improve the chances of establishing and maintaining a grizzly bear population in NCE.

Other Wildlife and Fish

The NCE is home to a high diversity of other wildlife and fish that have adapted to a range of diverse habitats. Grizzly bear restoration actions could affect other species from the use of aircraft or other vehicles during the release and monitoring of grizzly bears. Wildlife and fish species such as elk and deer, black bear, and salmonids could be affected in terms of grizzly bear predation or competition for resources.

Under alternative A, the no action alternative, current management would continue, and no grizzly bears would be released into the US portion of the NCE; therefore, there would be no additional predator-prey interactions, or competition for resources with other wildlife as a result of US agency actions.

Under alternative B, the use of helicopters near active wildlife dens or nests during the initial release of grizzly bears into the NCE could disturb denning mammals or nesting birds; however, this disturbance is expected to be limited to approximately 144 flights over a 5-to-10-year period and would be limited to 3 to 7 days per year from June through September. Staging and release sites have been identified to avoid suitable habitats for the federally and state-listed marbled murrelet and northern spotted owl, and measures would be taken to avoid disturbance to any nesting individuals (e.g., flying helicopters at least 500 feet above ground level and avoiding, when possible, low-level flight paths in the vicinity of nesting habitat during the nesting season [February 1–September 15]). There would be small increased incidence of grizzly predation on ungulates during the primary phase of establishing an initial population of 25 grizzly bears. After 60 to 100 years, with a population of 200 grizzly bears, ungulate predation could be proportionately greater but is not expected to have significant population-wide impacts. Potential adverse impacts on population dynamics of other wildlife from interspecific competition is expected to be limited to interactions between individual bears and are not expected to affect gray wolf, coyote, wolverine, fisher, Canada lynx, cougar, bobcat, or black bears at a population level. Primary restoration activities under alternative B would not involve any disturbance of fish habitat. Fish are not expected to be a primary food source for grizzly bears. While there is the potential for increased adverse impacts with a restored grizzly bear population of 200 bears after 60 to 100 years, the impacts would still be limited,

even if certain individual bears were to prey on fish when seasonably abundant. Restoring grizzly bears in the NCE would contribute to restoring missing ecological interactions that help to shape fish and wildlife habitat through seed dispersal, increasing nutrient availability, and regulation of prey populations.

Under alternative C, potential impacts on other wildlife and fish due to predator-prey interactions and interspecific competition with grizzly bears would be the same as those described for alternative B. The addition of management flexibility to minimize human-bear conflicts would have a negligible effect on the anticipated level of potential impacts to other wildlife from helicopter use and human activities for grizzly bear management.

Wilderness Character

The North Cascades National Park Service Complex (park complex), adjacent national forest wilderness areas, and other national forest wilderness not contiguous with the park complex comprise more than 2.6 million acres of federally designated wilderness within the NCE. Federally designated wilderness is typically characterized in terms of five different wilderness character qualities: untrammeled, natural, undeveloped, providing opportunities for solitude or primitive and unconfined recreation, and other features of value. All of these wilderness qualities are reasonably intact within the NCE. Grizzly bear restoration activities could affect wilderness character and values in both adverse and beneficial ways.

Under alternative A, the no action alternative, current management would continue, and grizzly bears would not be released into the NCE, resulting in no new impacts on wilderness character.

The implementation of alternative B would result in adverse and beneficial impacts on wilderness character. This alternative would release 25 grizzly bears over a 5-to-10-year period. The duration of impacts on the qualities of wilderness character would likely be short, only occurring during releases which would occur over 3 to 7 days each year. There would also be intermittent and localized adverse impacts from monitoring grizzly bears or additional translocations of grizzly bears to address issues with mortality, population trends, genetic limitations, distribution, or the sex ratio. Nonetheless, the restoration of grizzly bears would benefit the natural value of wilderness because the native species is currently extirpated from the NCE. The limited adverse impacts from alternative B would be offset by restoring a native species, a beneficial impact.

Alternative C would result in impacts on wilderness character in the NCE similar to those described for alternative B. All designated wilderness in the NCE is located within 10(j) Management Area A, which would authorize fewer management options than in areas B or C. Additional management measures could include deterrence or incidental take of grizzly bears, as described in chapter 2. These management measures could result in additional human intervention and manipulation of the behavior or lives of autonomous animals compared to alternative B if the actions occurred in designated wilderness.

Visitor Use and Recreational Experience

The park complex and the national forests within the NCE provide a diverse array of recreational opportunities, including hiking, backpacking, camping, climbing, fishing, horseback riding, bicycling, boating, winter sports, and wildlife viewing. Opportunities for hunting are available in the NPS national recreation areas and on the national forests, and off-road vehicle use is permitted on the national forests. The park complex offers a variety of educational and interpretive programs, visitor facilities, and lodging facilities. The restoration of grizzly bears to the NCE could increase visitation and recreational use of the park and national forests as visitors seek to experience grizzly bears in their native habitat. Restoration actions that result in an increased grizzly bear population could also affect recreational opportunities for visitors who do not wish to encounter grizzly bears.

Under alternative A, the no action alternative, current management would continue, and grizzly bear restoration activities would not occur in the NCE. As a result, no new impacts on visitor use and recreational experience are expected.

Under alternative B, the primary phase of grizzly bear restoration would occur over 5 to 10 years, with helicopter flights into remote areas. These flights could temporarily disrupt visitor use and recreational experiences if visitors are in the flight path or in areas between the staging areas and release sites. These impacts would be very short, lasting only minutes per occurrence. Other adverse impacts could occur if restoration activities require temporary closures; however, based on experience in other ecosystems, closures are only expected to last a few hours up to a few days. The potential for conflicts to occur is expected to remain low during the primary phase because the number and density of grizzly bears on the landscape would remain small, limiting the probability that visitors would encounter them. However, as grizzly bear populations are restored and numbers increase, the likelihood for an encounter with a grizzly bear would also increase. Alternative B would provide lasting benefits regarding visitors' experience of nature through the reestablishment of a native species that has not had a viable population in the NCE for decades.

Under alternative C, impacts on visitor use and recreational experiences would be the same as those described for alternative B with the addition of a 10(j) designation, which would allow for greater wildlife management flexibility in the event of human-bear conflicts. Under alternative C, the FWS would authorize an additional allowance of conditioned lethal take by an individual under specific situations in Management Area C when deemed necessary for human safety or to protect property. As a result, the potential for adverse impacts from human-bear conflicts under alternative C likely would be somewhat lower than alternative B.

Bear-Related Public and Employee Safety

Negative encounters between humans and grizzly bears, while rare, do occur. Every situation is dynamic, and a grizzly bear's reaction depends on a variety of factors, including the proximity between a bear and a human, the type of encounter (i.e., whether the bear is behaving in a defensive or offensive manner), and whether cubs or a valuable food resource are involved, among other considerations. The restoration of grizzly bears in the NCE has raised concerns about safety risks to backcountry recreational visitors and residents of the NCE because of the potential for human-grizzly bear conflicts. In addition, the capture, release, and monitoring of grizzly bears could affect employee safety given the dangerous nature of the activity.

Under the no action alternative, the continuation of management activities in grizzly bear habitat, currently in place to also address black bears, would continue to benefit public safety from improved sanitation, education, and public outreach efforts.

Alternative B could result in adverse impacts on employee safety given the inherent risk of injury during restoration activities in both the primary and adaptive management phases, related to helicopter operations and capture and handling of grizzly bears. Grizzly bears released into the NCE would be monitored for habitat use, mortality, and incidences of human conflict. Increased outreach efforts, including public notification of the potential presence of a grizzly bear within a general geographic area, are expected to provide further mitigation by increasing visitor and resident awareness and allowing visitors and residents the option of avoiding an area where a grizzly bear may be present. Alternative B would result in adverse impacts on public safety because of the increased potential for human-grizzly bear conflicts because of the restoration of grizzly bears in the ecosystem. Grizzly bear awareness and safety education, sanitation measures, backcountry/wilderness use permitting requirements, and other grizzly bear safety measures are expected to mitigate safety risks under alternative B.

Under alternative C, impacts on public safety related to the capture, transport, and releases of grizzly bears during the primary phase would be the same as those described for alternative B. Under alternative C, however, additional management measures would be available to authorized agencies to reduce impacts from grizzly bears that move outside NCE or to mitigate human-grizzly bear conflicts, including those associated with public safety. Under a 10(j) designation, authorized agencies could implement all actions available under alternative B, but they could also authorize additional allowance of conditioned lethal take in Management Area C to protect public safety, livestock, or property. Like alternative B, members of the public would retain the ability to take a grizzly in defense of life. The additional management actions available under alternative C could further reduce the potential for human-bear conflicts and would contribute to a reduced potential for adverse impacts on visitor and employee safety when compared to alternative B.

Socioeconomics

The NCE consists of an expansive and largely undeveloped wildland area that spans the crest of the Cascade Range, extending from the more populated, industrialized, urban areas of the Puget Sound region to the more rural, agricultural, and natural resource-based economies of the Okanogan Highlands and Columbia Plateau. The restoration of grizzly bears in the NCE has raised concerns about economic impacts on natural resource-based industries such as mining and logging. Impacts related to depredation of livestock or agriculture, such as fruit orchards, could also result. In addition, grizzly bear restoration could affect revenue to local businesses positively or negatively from changes in tourism. Representatives of county governments within the NCE expressed concerns about potential impacts on local communities, including public safety, economic development, recreational opportunities, and the overall livelihood of rural communities. In addition to human-bear conflict, the counties' public safety concerns include human safety during grizzly bear viewing (i.e., bear jams) and limited emergency response resources in many locations.

Under the no action alternative, no socioeconomic impacts would occur because grizzly bears would not be restored into the NCE.

Alternative B would contribute adverse impacts on employment, agriculture, livestock grazing, tourism, timber harvesting, and mining as the result of the restoration of grizzly bears into the NCE over 5 to 10 years. Tourism could also be beneficially affected because grizzly bears may draw more tourists to the area. Adverse impacts on tourism could occur because some areas may be closed temporarily and intermittently to tourists, and some visitors may choose to avoid the NCE due to the presence of grizzly bears. More NPS, FWS, and USFS staff time would likely be needed during the primary phase to assist with project implementation and to educate the public. Once grizzly bears are restored to the NCE, the WDFW would be involved in managing the population.

The extent of livestock depredation would be most influenced by the extent that livestock overlap with grizzly bears, the size of the grazing operation, and the presence of attractants. Adverse impacts on agriculture and livestock grazing as a result of depredation would therefore be limited compared to the number of livestock present in or adjacent to the NCE. The 1997 no net loss interim agreement, further described in chapter 1, requires continued maintenance of the core grizzly bear habitat area and limits net gain of the road network for timber harvest within the NCE, which has the potential to adversely impact harvest operations by timber companies under alternative B. Mining and agricultural operations could experience similar adverse impacts. Under alternative B, agriculture and livestock grazing operations, timber harvest, and mining operations on federal lands would also be subject to ESA consultation requirements under section 7(a)(2), which requires avoiding jeopardizing the continued existence of a listed species like the grizzly bear. As a result of the consultation process, efforts to minimize or avoid those adverse effects may be required, which has the potential to adversely affect these operations.

Under alternative C, impacts on employment, agriculture, cattle grazing, tourism, timber harvesting, and mining would be similar to those impacts described under alternative B. Impacts on agriculture and livestock grazing under alternative C would be similar to those described for alternative B because the same number of bears would be released in both alternatives. Under alternative C, impacts would differ in that the 10(j) designation would allow for authorization of additional management measures for lethal and nonlethal actions to minimize and prevent human-grizzly bear conflicts. In addition, the FWS may authorize conditioned lethal take to individuals if the FWS or an authorized agency determines both of the following: grizzly bears present a demonstrable and ongoing threat to human safety or to lawfully present livestock, domestic animals, crops, beehives, or other property; and it is not reasonably possible to otherwise eliminate the threat through nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed. Also in Management Area C, any individual may take (injure or kill) a grizzly bear in the act of attacking livestock, including working dogs on private land under certain conditions. These additional management tools should reduce the potential for long-term, adverse socioeconomic impacts. Additionally, the 10(j) designation under alternative C would eliminate the requirement for federal agencies to consult under section 7(a)(2) of the ESA for livestock grazing, timber harvest, and mining operations on federal lands except on national park system or national wildlife refuge system lands. Under the 10(j) rule, incidental take of grizzly bear could occur on national forest system (national forest) lands within the NEP area under certain circumstances. As a result, implementation of the 10(j) designation for grizzly bears would reduce the potential costs and the operational constraints that may have temporarily affected regular business operations for businesses such as ranches from the presence of grizzly bears. This would reduce the potential for an adverse socioeconomic impact on human uses of the NCE and its surrounding areas, including agriculture and grazing compared to alternative B.

Ethnographic Resources

Ethnographic resources are defined as landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life. The lands now considered the NCE have been occupied and stewarded by Indigenous peoples since time immemorial. NPS archeological evidence from the North Cascades has documented use as far back as 9,600 years ago. The traditional inhabitants of the North Cascades were well adapted to the greater ecosystem and used the landscape through seasonal rounds and established permanent villages. The archeological record in the Okanogan-Wenatchee National Forest supplements this with more than 2,500 documented heritage resources within the forest boundaries. These resources include seasonal hunting, gathering, and fishing camps as well as large permanent villages associated with Indigenous peoples. The archaeological record within the national forests substantiates the use of the Cascades as far back as 9,000 years ago with permanent villages being established 2,000–3,000 years ago. Archeological sites have been documented that contain grizzly bear remains that could indicate human cultural use. These include sites that date from 10,300 to 8,000 years before present.

The most important sources of information on ethnographic resources are the Indigenous peoples themselves. Under alternative A, current management would continue, and there would be no new direct or indirect impacts to ethnographic resources. The presence of ethnographic resources and the potential impacts of the proposed alternatives on those resources are determined by the Indigenous communities that continue to use the area. Indigenous communities hold the right to define what is an ethnographic resource to them, and they may or may not wish to share some of that information outside their nation. Impacts on ethnographic resources rely on traditional ecological knowledge and consultation with each Indigenous community to understand how the grizzly bear is connected to the oral histories, ceremonies, and sacred areas of the Indigenous communities. The release of grizzly bears may affect the ability of some Indigenous communities to use areas important for hunting and gathering or ceremonial use under both action alternatives. The potential for restricted access to some areas could lead to adverse impacts on other ethnographic resources. The NPS and FWS have initiated outreach to Indigenous communities

regarding this project, and consultation is ongoing and will continue to be ongoing. Because the potential impacts from the proposed action vary and would be unique to each Indigenous community, the potential impacts are ongoing and would be developed through the consultation process, which is described under the "Tribal Consultation" header in chapter 4. The potential safety impacts on Indigenous community members hunting or gathering within the NCE are considered the same as those for other visitors and are addressed in the "Bear-related Public and Employee Safety" section. It is anticipated that, while grizzly bears would impact some specific plant and animal ethnographic resources, such as huckleberries and salmon, the impacts would not be so large as to reduce the availability of these resources for Indigenous groups, especially while the grizzly bear population is small. Competition has the potential to increase, however, as the grizzly bear population grows over time. The specific impacts on salmon, ungulates, and other wildlife are discussed under "Other Wildlife and Fish," above.

CONSULTATION AND COORDINATION

The Scoping Process and Public Participation

Regulations implementing NEPA require an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR § 1501.9(a)). To determine the scope of issues to be analyzed in depth in this plan/EIS, the NPS and FWS conducted internal and agency scoping and formal public scoping. The NPS and FWS used the scoping process to inform the development of alternatives and to identify the issues and impact topics carried forward for analysis in this plan/EIS. A previous EIS process began in 2014. In 2020, the Department of the Interior terminated the process after release of a draft EIS. This plan is part of a new evaluation process. Comments that were provided during the previous EIS process, however, have informed this new EIS and the development of alternatives.

Public scoping was conducted in November and December 2022. The publication of a Notice of Intent to prepare the plan/EIS appeared in the *Federal Register* on November 14, 2022 (80 FR 68190) and marked the start of the public scoping period. In addition to the Notice of Intent, the NPS and FWS issued a press release to media outlets announcing the dates, times, and format of public scoping meetings. This press release was also posted on the park complex's website and shared on social media. Notifications were also sent to Tribes, county commissions and councils, and Congressional offices. These announcements notified the public of public scoping meetings and of the opportunity to provide comments on the proposed action.

The public scoping comment period was open for 34 days between November 10, 2022, and December 14, 2022. Four virtual meetings were held during this time. Approximately 212 people attended the four meetings, with each meeting ranging from 29 to 85 attendees. During the scoping period, 6,207 pieces of correspondence were received. Following the public scoping period, the NPS reviewed all public comments and developed a Comment Analysis Report to compile and correlate similar public comments into a format usable by the decision-makers and the interagency planning team. The Comment Analysis Report contributes to organizing, clarifying, and addressing technical information pursuant to NEPA regulations and in identifying the topics and issues to be evaluated and considered throughout the planning process. All scoping comments were considered important and useful guidance in the plan/EIS process.

The public comment period on the draft plan/EIS was open for 45 days from September 28 to November 13, 2023. During this time, one virtual public meeting and four in-person public meetings were held at different locations near the NCE, and more than 12,000 pieces of correspondence were received. The NPS and FWS hosted the four in-person public meetings in Okanogan, Newhalem, Darrington, and Winthrop, Washington. The virtual meeting was held on the Microsoft Teams Live platform.

In addition to the Notice of Availability for the draft plan/EIS, the NPS and FWS issued a press release to media outlets announcing the dates, times, and format of the public meetings. Press releases were also posted on park complex's website and shared on social media. Notifications were sent to Tribes, county councils and commissions, and Congressional offices. These announcements notified the public of public meetings and of the opportunity to provide comments on the draft EIS and proposed 10(j) rule.

Tribal Consultation

The NPS and FWS recognize that the Tribes' and First Nations' relationship to lands in the NCE have endured since time immemorial, and NPS and FWS staff continue to work with Tribes to ensure that sites of traditional importance are preserved and protected. NPS and FWS staff strive to create and maintain positive, productive, government-to-government relationships with these Tribes (NPS 2015b).

At the start of scoping in November 2022, a joint letter inviting consultation on the EIS process and grizzly bear recovery was sent to the 29 federally recognized Tribes in Washington state and to the Nez Perce Tribe of Idaho. A second letter was sent in February 2023 to federally recognized Tribes in Washington state inviting consultation specifically on the topic of a 10(j) NEP designation.

Also in February 2023, a joint letter inviting consultation on the EIS process was sent to Tribes in FWS Region 6 (Mountain-Prairie Region), near possible source populations of grizzly bears and including the states of Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming.

Coinciding with the release of the draft EIS and proposed 10(j) rule in September 2023, letters inviting consultation were sent to all federally recognized Tribes in Washington state, Idaho, and FWS Region 6 (Mountain-Prairie Region).

Over the course of the EIS process, staff meetings or briefings took place with representatives from: Confederated Salish and Kootenai Tribes, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Nlaka'pamux Nation Tribal Council, Okanagan Nation Alliance (Syilx), Pawnee Nation, Swinomish Indian Tribal Community, Upper Skagit Indian Tribe, Yakama Nation, and the Northwest Indian Fisheries Commission.

Responses or comment letters were received during the EIS process from: the Confederated Tribes of the Colville Reservation, Lummi Nation, Nlaka'pamux Nation Tribal Council, Sauk-Suiattle Indian Tribe, Snoqualmie Tribe, Upper Skagit Indian Tribe, and Yakama Nation. Tribal consultation will be an important and ongoing discussion over the course of the NEPA process and will continue into implementation, should an action alternative be selected.

Consultation with Federal and State Legislative Officials

The NPS and FWS sent notification of the start of the EIS process in November 2022 to Washington's two senators and ten Congressional representatives, as well as Washington State legislative officials, including members of the Senate Agriculture, Water, Natural Resources and Parks Committee, and the House Rural Development, Agriculture, and Natural Resources Committee. Notification of the release of the draft EIS and proposed 10(j) rule was sent to the same entities in September 2023.

A briefing open to Washington's congressional delegation was held in January 2023. In attendance were staff from the offices of Representatives DelBene, Larsen, Schrier, and Newhouse, and Senators Cantwell and Murray. A briefing for staff for Representative Newhouse and the Western Caucus was held in October 2023.

Local Government Consultation

The NPS and FWS initiated outreach to county governments coinciding with the publication of the Notice of Intent in November 2022. Notification was sent via email to county officials in Chelan, King, Kittitas, Skagit, Snohomish, Okanogan, and Whatcom Counties and to officials in cities and towns in the ecosystem. Notification of the release of the draft EIS and proposed 10(j) rule was sent to county and local entities in September 2023.

In April 2023, the FWS sent letters to county officials around the NCE offering informational presentations on the EIS process and 10(j) rules. Meetings took place with county councils or boards of commissioners in five different counties: Chelan, Skagit, Snohomish, Okanogan, and Whatcom.

In May 2023, Chelan, Skagit, Snohomish, Okanogan, and Whatcom Counties requested cooperating agency status for the EIS. These counties participated in a January 2024 meeting related to comments received on the socioeconomic effects of the proposed action and the development of responses for the final EIS.

Consultation will continue to build on efforts from the previous EIS process, during which the NPS and FWS conducted briefings about the EIS with county and local government officials on more than 13 separate occasions. The NPS and FWS will conduct further outreach in advance of the publication of this draft plan/EIS.

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ACRONYMS

AUM	animal unit month
BE	Bitterroot Ecosystem
BMU	Bear Management Unit
°C	degrees Celsius
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CYE	Cabinet-Yaak Ecosystem
dBA	A-weighted decibels
DNR	Washington State Department of Natural Resources
EIS	environmental impact statement
ESA	Endangered Species Act
°F	degrees Fahrenheit
FR	*Federal Register*
FWS	US Fish and Wildlife Service
GBPU	grizzly bear population unit
GIS	geographic information system
GMP	general management plan
GPS	global positioning system
GYE	Greater Yellowstone Ecosystem
IGBC	Interagency Grizzly Bear Committee
IUCN/SSC	International Union of for Conservation of Nature Species Survival Commission
MFLNRO	(British Columbia) Ministry of Forest, Lands and Natural Resource Operations
mph	miles per hour
NCDE	Northern Continental Divide Ecosystem
NCE	North Cascades Ecosystem
NEP	nonessential experimental population
NEPA	National Environmental Policy Act
NNLA	1997 no net loss interim agreement
NPS	National Park Service
park complex	North Cascades National Park Service Complex

PCB	polychlorinated biphenyl
PEPC	(NPS) Planning, Environment and Public Comment
plan/EIS	*North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement*
ROI	region of influence
USC	United States Code
USDA	US Department of Agriculture
USFS	US Forest Service
WDFW	Washington Department of Fish and Wildlife

CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

INTRODUCTION

The grizzly bear (*Ursus arctos horribilis*) in the lower-48 states was listed as threatened under the *Endangered Species Act* (ESA) on July 28, 1975. Following the listing, the US Fish and Wildlife Service (FWS) initiated a recovery effort directed at establishing viable populations in portions of four states where the grizzly bear was known or believed to exist at the time of listing. Grizzly bears in the western United States are managed within six recovery zones: the Greater Yellowstone Ecosystem (GYE) grizzly bear recovery zone in northwestern Wyoming, southwestern Montana, and southeastern Idaho; the Northern Continental Divide Ecosystem (NCDE) grizzly bear recovery zone in northwestern Montana; the Cabinet-Yaak Ecosystem (CYE) grizzly bear recovery zone in extreme northwestern Montana and northern Idaho; the Selkirk Ecosystem grizzly bear recovery zone in northern Idaho and northeastern Washington; the Bitterroot Ecosystem (BE) grizzly bear recovery zone in central Idaho and western Montana; and the North Cascades Ecosystem (NCE) grizzly bear recovery zone of northwestern and north-central Washington (FWS 1993a).

The greater NCE, including its Canadian and US portions, is bounded roughly by the Fraser River on the north, the Okanogan Highlands and Columbia Plateau on the east, Snoqualmie Pass to the south, and the Puget lowlands to the west. The US and Canadian portions of the greater NCE constitute a large block of contiguous habitat that spans the international border but is isolated from grizzly bear populations in other parts of the two countries.

The North Cascades Ecosystem grizzly bear recovery zone comprises one of the most intact wildlands in the lower-48 United States (Servheen et al. 1991).

The NCE spans the crest of the Cascade Range from the temperate rainforests of the west side to the dry ponderosa pine forests and sage-steppe on the east side. This landscape encompasses more than 10,000 feet of vertical relief, resulting in a high level of variation in climate and topography and a high diversity of species adapted to a wide spectrum of habitats. The area includes extensive tracts of low-elevation old growth forest, subalpine meadows, and alpine environments (NPS 2012a). The overall population status of the grizzly bear in the greater NCE is unknown; however, it is likely that the grizzly bear population in the NCE is functionally extirpated (8 *Federal Register* [FR] 41560, June 27, 2023). Only one grizzly bear detection has been confirmed in the greater NCE in the past 10 years (Rine et al. 2018, 2020). The confirmed sighting was in British Columbia, within 20 miles of the international border. Since there has been no confirmed evidence of grizzly bears within the NCE in the United States since 1996, any remaining bears in the NCE do not meet the accepted definition for a population (i.e., evidence of 2 adult females with cubs or 1 adult female tracked through two litters). There has been no verified evidence of grizzly reproduction in the NCE for at least 30 years. For the purposes of this EIS, the NCE grizzly bear recovery zone within the US portion of the ecosystem is hereafter referred to as the NCE. It comprises one of the most intact wildlands in the lower-48 states (figure 1) (Servheen et al. 1991).

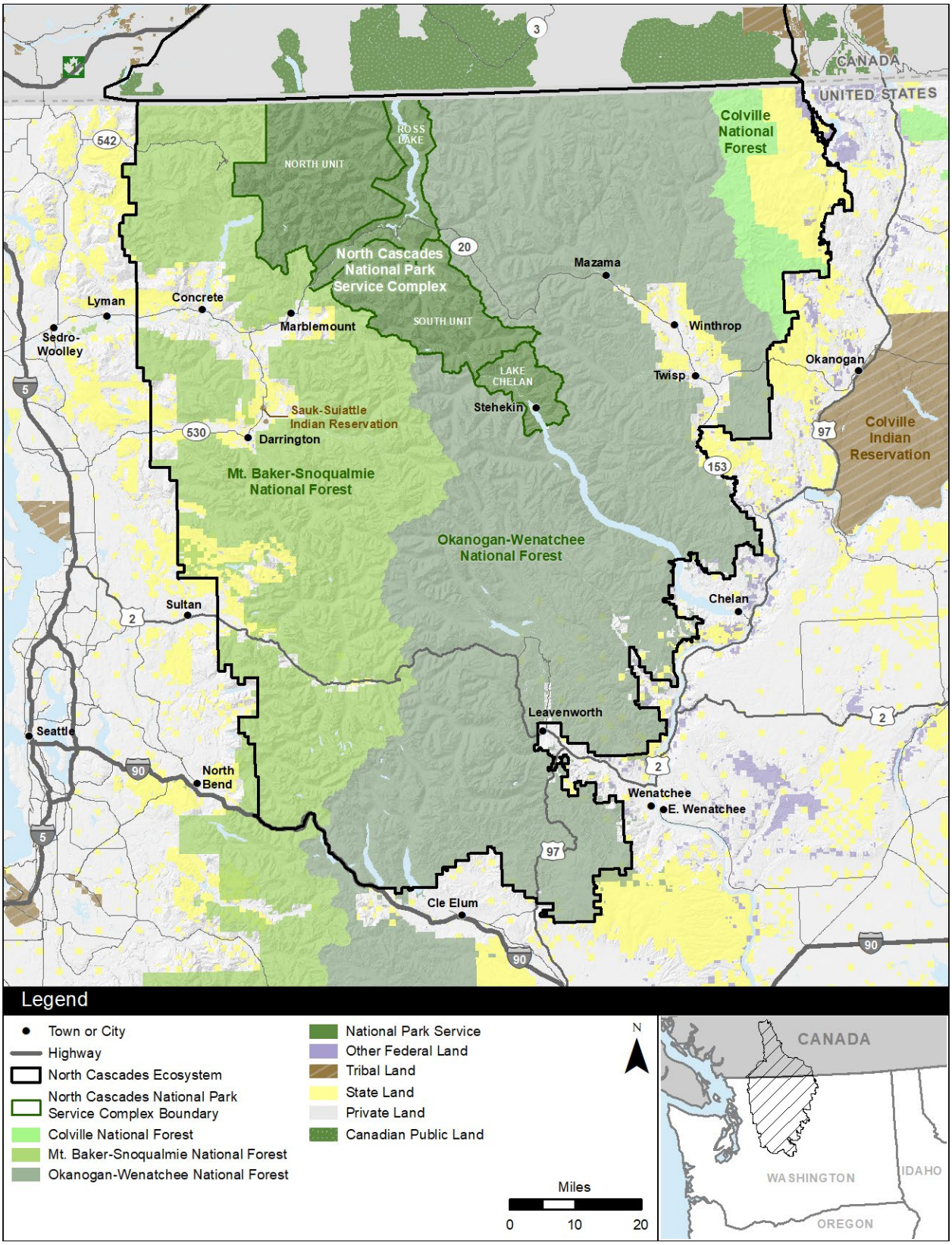


FIGURE 1. NORTH CASCADES ECOSYSTEM

This *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS) evaluates the effects of alternatives for grizzly bear restoration, including potential impacts on wildlife and fish (including grizzly bears), wilderness, visitor use and recreational experience, socioeconomics, public and employee safety, and ethnographic resources. Upon conclusion of the *National Environmental Policy Act* (NEPA) process, an alternative, or a combination of actions described under multiple alternatives, will be selected in a record of decision.

PURPOSE OF AND NEED FOR ACTION

Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] 1502.13) require that the federal agency responsible for preparing an environmental impact statement (EIS) provide a brief description of its purpose and need. The US Department of the Interior's regulations for implementing NEPA define purpose and need as follows:

- Purpose may refer to the goal or objective that the agency is trying to achieve and should be stated in terms of the desired outcome, to the extent possible (43 CFR 46.420(a)).
- The need for action may be described as the underlying problem or opportunity to which the agency is responding with the action (43 CFR 46.420(a)).

Purpose of the Plan / Environmental Impact Statement

The purpose of this plan/EIS is to restore the grizzly bear to the NCE, a portion of its historical range.

Need for Action

Action is needed at this time to:

- Restore grizzly bears to the NCE where they have been functionally extirpated from the ecosystem.
- Contribute to the restoration of biodiversity of the ecosystem to build ecological resilience and for the benefit and enjoyment of present and future generations of people.
- Enhance the probability of long-term survival of grizzly bears in the NCE and thereby contribute to overall grizzly bear recovery through redundancy in multiple populations and representation in a variety of habitats.
- Support the recovery of the grizzly bear to the point where it can be removed from the Federal List of Endangered and Threatened Wildlife.

Objectives in Taking Action

Objectives are more specific statements of purpose that provide additional bases for comparing the effectiveness of alternatives in achieving the desired outcomes of an action (NPS 2015a). The objectives of this plan/EIS are to

- Restore a grizzly bear population as part of the natural and cultural heritage of the North Cascades.
- Provide Pacific Northwest residents and visitors with the opportunity to again experience grizzly bears in their native habitat.
- Seek to support Tribal cultural and spiritual values related to the grizzly bear.

- Support environmental and natural resource objectives related to the grizzly bear and contribute to grizzly bear recovery in the contiguous US.
- Expand outreach efforts to inform and involve the public and build understanding about grizzly bear recovery.

DESCRIPTION OF THE NORTH CASCADES ECOSYSTEM

The area of analysis for this plan/EIS is centered on the NCE grizzly bear recovery zone but extends to those areas outside the NCE where grizzly bears may go in the future (see chapter 3). All proposed releases would occur in the NCE recovery zone, which covers portions of Chelan, King, Kittitas, Okanogan, Skagit, Snohomish, and Whatcom Counties in Washington state (table 1).

The area of analysis for this plan/EIS is centered on the NCE grizzly bear recovery zone, which is comparable in size to the state of Vermont, encompassing approximately 9,800 square miles, or 6.1 million acres, within the state of Washington (FWS 1997).

The NCE itself, is comparable in size to the state of Vermont, encompassing approximately 9,800 square miles, or 6.1 million acres, within the state of Washington (FWS 1997). Situated in the core of the area of analysis is the 680,855-acre North Cascades National Park Service Complex (park complex). The park complex includes North Cascades National Park and Ross Lake and Lake Chelan National Recreation Areas and makes up approximately 11% of the NCE grizzly bear recovery zone. The 642,340-acre Stephen Mather Wilderness composes approximately 94% of the park complex. The park complex is bounded on the east, west, and south by national forest lands. These lands include portions of the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests, including nearly 2 million acres of wilderness, and make up roughly 74% of the NCE grizzly bear recovery zone (for a total of 85% of federally managed land in the NCE). Approximately 8% of the NCE grizzly bear recovery zone is made up of state and local lands including state parks and Department of Natural Resources lands, and 7% is made up of private lands (USGS 2022).

TABLE 1. COUNTIES WITHIN THE NCE GRIZZLY BEAR RECOVERY ZONE

County	NCE Recovery Zone Area (Acres)	County Area (Acres)	Percent of County Within NCE Recovery Zone
Chelan County	1,612,304	1,916,200	84.1%
Okanogan County	1,566,094	3,400,600	46.1%
Whatcom County	833,590	1,601,900	55.2%
Snohomish County	797,357	1,405,400	56.7%
Skagit County	715,216	1,228,800	58.2%
Kittitas County	355,694	1,493,100	23.8%
King County	312,907	1,476,500	21.2%

Source: DNR (2017a)

Combined, the park complex and national forest wilderness areas within the NCE total more than 2.6 million acres of federally designated wilderness. Adjoining the NCE grizzly bear recovery zone to the north are protected lands in British Columbia, Canada, including approximately 442,300 acres of provincial park land within the Canadian portion of the NCE. By virtue of sheer size and protected status, this international wilderness ecosystem is one of the few places where wolves, wolverines, lynx, and other

carnivores still roam. Research indicates it is capable of supporting a grizzly bear population (Servheen et al. 1991; Almack et al. 1993; Lyons et al. 2018; Ransom et al. 2023a).

BACKGROUND

The following section includes background information on grizzly bears in the western United States, discusses background information and management concerns related to grizzly bears in the NCE, and summarizes the status of grizzly bear recovery in other ecosystems.

Grizzly Bears in the Lower-48 States

The grizzly bear has a broad range of habitat tolerance and once existed throughout western North America, including northern Mexico. Contiguous, relatively undisturbed, mountainous habitat with a high level of topographic and vegetative diversity characterizes most of the areas where populations of grizzly bears remain. The Lewis and Clark Expedition first encountered grizzly bears in the northern Great Plains after departing St. Louis, Missouri, in 1804. The estimated 19th-century population of 50,000 grizzly bears was reduced to fewer than 500 by the 1930s. Mattson and Merrill (2002) found that grizzly bear persistence in the lower-48 states between 1920 and 2000 was negatively associated with human and livestock densities. As human population density increases, the frequency of encounters between humans and grizzly bears also increases, resulting in more human-caused grizzly bear mortalities because of a perceived or real threat to human life or property.

Because of the continuing decline of the species, grizzly bears in the lower-48 states were listed as threatened under the ESA in 1975 (40 FR 31734; July 28, 1975). FWS identified direct killing, habitat destruction, habitat modification, and range curtailment as major contributing factors that led to the decline of the species (FWS 1993a). The FWS's overarching vision for recovery of grizzly bears in the lower-48 states is to recover and delist the species through a focus on conservation of bears in each of the recovery zone ecosystems. Today, populations in the lower-48 states exist in four of the six designated recovery zones (FWS 1993a), totaling at least 1,913 to as many as 2,320 grizzly bears (FWS 2021a, 2022). The State of Idaho recently petitioned the FWS to delist the grizzly bear in the lower-48 states. In February 2023, the FWS found the petition did not present the substantial scientific or commercial information to indicate that the petitioned action was warranted (88 FR 7658).

Grizzly Bears in the North Cascades Ecosystem

Last photographed grizzly bear from the US portion of the NCE (1967)

Historical records indicate that grizzly bears once occurred throughout the NCE grizzly bear recovery zone (Bjorklund 1980; Sullivan 1983; Almack et al. 1993; Rine et al. 2018, 2020). A grizzly bear habitat evaluation of the NCE was conducted from 1986 to 1991 (Almack et al. 1993; Gaines et al. 1994) in response to recommendations made in the 1982 FWS nationwide *Grizzly Bear Recovery Plan*, discussed below. This habitat evaluation and a report by the Interagency Grizzly Bear Committee (IGBC) NCE Subcommittee (Servheen et al. 1991) concluded that the US portion of the NCE contains sufficient habitat quality to recover and maintain a grizzly bear population, and FWS added a chapter specific to the NCE to the nationwide *Grizzly Bear Recovery Plan*. In the chapter, the FWS estimates that a grizzly bear population would be considered viable within the NCE when monitoring indicates that the population is self-sustaining and large enough to offset some amount of human-induced mortality, and reproducing female grizzly bears are distributed throughout the recovery area (FWS 1997). Based on the initial qualitative assessment by the IGBC technical committee review team, habitat within the NCE was considered of sufficient quality and quantity to support a population of 200 to 400 grizzly bears (Servheen et al. 1991). Recent modeling suggests a carrying capacity for the NCE under current habitat conditions is approximately 280 bears (Lyons et al. 2018). The Lyons et al. (2018) model was further developed to include the effects of climate change on habitat quality up to 100 years in the future, and the most plausible carrying capacity estimate for the NCE increased to 482 to 578 bears at that time (Ransom et al. 2023a).

The interagency planning team, with representatives from the FWS and National Park Service (NPS), established a restoration population of 200 bears in the NCE for the purposes of this plan/EIS after considering the NCE's estimated carrying capacity and the professional judgment of grizzly bear experts. Restoring a population of this size would likely take many decades. This 200-bear population level is not a recovery goal for purposes of the ESA. Recovery goals are determined through a separate recovery planning process. This restoration population of 200 bears does, however, provide a substantive benchmark with which to analyze the proposed restoration action, using the best available science.

Despite the historical presence of grizzly bears in the NCE and the availability of sufficient habitat to recover and maintain a viable population, there is no confirmed evidence of current grizzly bear presence within the NCE grizzly bear recovery zone in the United States (Rine et al. 2020). The Ministry of Forest, Lands and Natural Resource Operations (MFLNRO) estimated the population in the adjacent British Columbia portion of the NCE to be about six grizzly bears over a decade ago (MFLNRO 2012). Only one confirmed grizzly bear sighting has been documented within the greater NCE during the past decade (IGBC NCE Subcommittee 2016; Rine et al. 2020). The confirmed sighting was in British Columbia. A 2010 photograph of a bear in the park complex on the Sahale Arm Trail was widely reported in the media as a grizzly bear. The silhouette appeared to feature characteristics of a grizzly bear, and a panel of grizzly bear experts agreed it appeared to be a grizzly bear. However, it was later classified as "unknown" after another park visitor presented photos of a large bear in the same general area at almost the same time that was clearly a black bear with a pronounced shoulder hump. Further investigation into the historical evidence of grizzly bears in the NCE was completed during 2018 and published in a report titled *A*

Synthesis of Historical and Recent Reports of Grizzly Bears (Ursus arctos) in the North Cascades Region (Rine et al. 2018). This report provides documentation of grizzly bear presence from multiple sources, including observations from in and around the NCE from 1859 to 2015. Grizzly bears in the British Columbia portion of the NCE are also considered threatened by the British Columbia government. This area, highly fragmented by roads, is surrounded to the west, north, and east by grizzly bear population units (GBPUs) where bears are either threatened or extirpated (see figure 2). Therefore, it is unlikely that grizzly bears from areas within British Columbia would naturally emigrate to the NCE (British Columbia Ministry of Environment, Hamilton pers. comm. 2016a).

Any grizzly bear found in the NCE would be treated as a threatened species under the ESA. Since 1990, the FWS has received and reviewed five petitions requesting a change in status to endangered for the North Cascades grizzly bear population (55 FR 32103, August 7, 1990; 56 FR 33892, July 24, 1991; 57 FR 14372, April 20, 1992; 58 FR 43856, August 18, 1993; and 63 FR 30453, June 4, 1998). In response to these petitions, the FWS determined that grizzly bears in the NCE warrant a change to endangered status. In 2016, the FWS continued to find that reclassifying grizzly bears in this ecosystem as endangered is warranted but precluded by higher-priority listing actions. However, the FWS also acknowledged there is no longer a population present in the ecosystem, and restoration efforts (possibly including designation of an experimental population under section 10(j) of the ESA) may be used to reestablish a viable population in this recovery zone (FWS 2022).

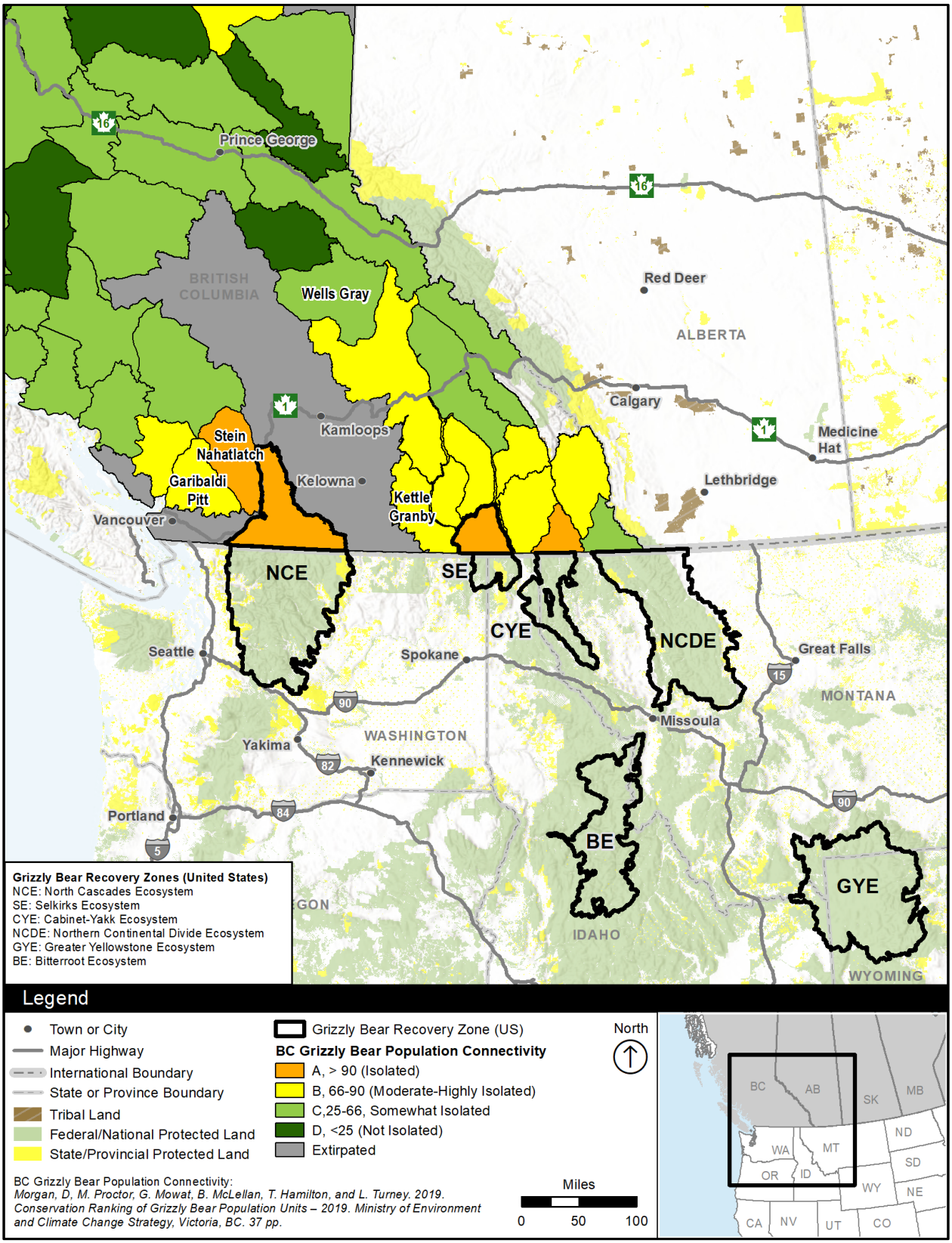


FIGURE 2. POPULATION CONNECTIVITY OF BRITISH COLUMBIA GRIZZLY BEAR RECOVERY ZONES

Status of Grizzly Bears in Other US Ecosystems

Greater Yellowstone Ecosystem. The GYE encompasses parts of Montana, Wyoming, and eastern Idaho, covering 9,200 square miles, although grizzly bears inhabit more than 22,500 square miles in the Yellowstone area. At the time of the grizzly bear listing under the ESA, the southernmost—and most isolated—population was in the GYE, where 136 grizzly bears were thought to live in the mid-1970s. The estimated GYE grizzly bear population increased from as few as 136 in 1975 to a 2022 estimate of approximately 965 individuals within the Demographic Monitoring Area (FWS 2023a), and the grizzly bears have gradually expanded their occupied habitat by more than 100% (NPS 2023a). Grizzly bears have tripled the extent of their occupied range in the GYE since the early 1980s (FWS 1982; Bjornlie and Haroldson 2021). The Interagency Grizzly Bear Study Team, an interdisciplinary group of scientists and biologists responsible for the long-term monitoring and research efforts on grizzly bears in the GYE, developed criteria for determining population recovery within the GYE. These criteria include estimated population size, distribution of females with cubs, and mortality limits as outlined in the 1993 *Grizzly Bear Recovery Plan* (FWS 1993a). The number of females producing cubs has remained relatively stable since 1996, suggesting that the ecosystem may be at or near ecological carrying capacity for grizzly bears (NPS 2016a). The population had stabilized during the 2002–2014 period, and the mean model-averaged population estimate over that period was 674 grizzly bears. In June 2017, the FWS issued a final rule to remove the GYE population of grizzly bears from the federal list of endangered and threatened wildlife (82 FR 30502, June 30, 2017). This final rule was challenged in court, ultimately resulting in the GYE delisting being vacated and remanded to the FWS. The state of Wyoming petitioned to delist the GYE population in January 2022. In February 2023, the FWS announced that it will initiate a comprehensive status review of GYE population based on the best available data, to inform a 12-month finding on whether the removal of ESA protections for grizzly bears in the GYE is warranted (88 FR 7658).

Northern Continental Divide Ecosystem. The NCDE grizzly bear recovery zone includes approximately 9,600 square miles within and around the Bob Marshall Wilderness Complex and Glacier National Park in northwestern Montana. The NCDE holds the largest population of grizzly bears in the lower-48 states and is contiguous with a Canadian population. The most recent analysis in 2022 indicates the NCDE grizzly bear population has increased over the past two decades at approximately 2.3% annually (FWS 2023a). The population estimate in this ecosystem was 1,163 individual bears in 2023 and continues to grow each year (Costello and Roberts 2022). Similar to the GYE, the FWS *Grizzly Bear Recovery Plan* sets forth criteria for grizzly bear recovery actions in the NCDE and establishes benchmarks by which to gauge species recovery, including population size, sex ratio, number of females with cubs, mortality limits, and geographical distribution within the NCDE (FWS 1993a).

The *Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem* describes management and monitoring programs that would be put into place if the NCDE population were delisted from the ESA (NCDE Subcommittee 2021). These measures are designed to maintain a recovered grizzly bear population in the NCDE. From 2014 to 2016, work continued on other efforts related to the management of NCDE grizzly bears and their habitat, including a *Habitat-based Recovery Criteria for the Northern Continental Divide Ecosystem* (FWS 2017). These habitat-based recovery criteria, which are now a supplement to the G*rizzly Bear Recovery Plan* (FWS 1993a, 1997), were developed to align with the habitat management and monitoring objectives for grizzly bears in the NCDE that are contained in the *NCDE Grizzly Bear Conservation Strategy*. The state of Montana petitioned to delist the NCDE population in December 2021. In February 2023, the FWS announced that it will initiate a comprehensive status review of the grizzly bear in the NCDE based on the best available data available to inform a 12-month finding on whether the removal of ESA protections for grizzly bears in the NCDE are warranted (88 FR 7658).

Selkirk Ecosystem. The Selkirk Ecosystem includes approximately 2,200 square miles of northeastern Washington, northern Idaho, and southern British Columbia, Canada. Approximately 1,040 square miles of this area is within British Columbia (IGBC 2015a). Similar to other grizzly bear recovery zones, the FWS *Grizzly Bear Recovery Plan* establishes specific recovery targets and guidelines for the US portion of the ecosystem (FWS 1993a). The current grizzly bear population in the Selkirk Ecosystem was previously estimated at approximately 90 to 100 grizzly bears (Proctor et al. 2012, 2022; FWS, Kasworm pers. comm. 2023b). Based on known fates of radio-collared individuals and reproductive outputs, the population of grizzly bears in the Selkirk Ecosystem, including Canada, is currently increasing, with an annual growth rate of 2.6% between 1983 and 2022 (FWS 2023a; Kasworm et al. 2023).

Cabinet-Yaak Ecosystem. The CYE encompasses approximately 1,000 square miles in the Yaak River drainage and 1,620 square miles in the Cabinet Mountains of northwestern Montana and northern Idaho. The ecosystem is bisected by the Kootenai River, with the Cabinet Mountains to the south and the Yaak River area to the north, and is contiguous with grizzly bear habitat in Canada (IGBC 2015b).

Grizzly bear research was conducted in the Cabinet Mountains from 1983 to 1988 to determine habitat use and the status of the population. The study concludes that the probability of the loss of this population, which at the time numbered 15 grizzly bears, within the following few decades was high (Kasworm and Manley 1988). In 1990, the FWS initiated the NEPA process to analyze alternatives for testing recovery techniques for the grizzly bear population in the Cabinet Mountains. The short-term objective of the proposal was to test techniques for augmenting the existing grizzly bear population, while the long-term objective was to recover the grizzly bear population in the CYE. The alternative selected as part of this process was to place 2 subadult female grizzly bears from southeastern British Columbia into the Cabinet Mountains in 1990, followed by 2 additional grizzly bears in 1991 (FWS 1990). Between 1990 and 1994, 4 female grizzly bears were relocated to the Cabinet Mountains from southeastern British Columbia as the initial test of the augmentation program. Through DNA monitoring by the FWS, it was determined that the grizzly bear augmented to the Cabinet Mountains in 1993 remained in the Cabinet Mountain Range, successfully reproduced, and her first generation offspring had also reproduced (Kasworm et al. 2007). Based on the success of initial augmentation efforts, 14 additional female grizzly bears and 8 male grizzly bears were moved from southeastern British Columbia to the Cabinet Mountains from 2005 through 2022 (Kasworm et al. 2022a). The current grizzly bear population in the CYE is estimated at approximately 60 to 65 animals (FWS 2023a). In its *2015-2017 Selkirk and Cabinet-Yaak Grizzly Bear Ecosystems Plan*, the IGBC recommended continuation of the Cabinet Mountains augmentation with at least one additional subadult female grizzly bear per year, if available, and also called for development of a conservation strategy to manage and maintain a recovered grizzly bear population in this ecosystem (IGBC 2015b).

Bitterroot Ecosystem. The BE is one of the largest contiguous blocks of public land remaining in the lower-48 states, comprising 5,800 square miles on the Montana-Idaho border. The core of the ecosystem contains three designated wilderness areas, which make up the largest block of wilderness habitat in the Rocky Mountains south of Canada. Of the remaining unoccupied grizzly bear habitat in the lower-48 states, this area is considered to have the best potential for grizzly bear recovery, primarily due to the large core of designated wilderness. However, grizzly bears do not currently occupy the BE. The last verified grizzly bear in the BE was in 2007, when a black bear hunter mistakenly shot a young male grizzly bear. Through DNA analysis, the grizzly bear was documented to be from the Selkirk Ecosystem (FWS, Servheen pers. comm. 2015a). There have been multiple confirmed individuals in the area immediately surrounding the BE recovery zone since 2007, including a collared male grizzly bear that dispersed from the CYE in 2019 and subsequently returned to the CYE to den, a male grizzly bear that dispersed from the Selkirk Ecosystem documented in 2019, a male grizzly bear that dispersed from the NCDE documented in 2018 that was subsequently trapped and returned to the NCDE, and multiple verified sightings of unknown sex from 2017 to 2020 (FWS 2022). FWS determined that the BE is

currently unoccupied because there were not two or more reproductive females or one female reproducing during two separate years (FWS 2022).

In 2000 the FWS proposed to reintroduce a nonessential experimental (NEP) population of 25 grizzly bears to the BE (65 FR 69644–69649) and issued a 10(j) rule in support of that proposed reintroduction. The FWS subsequently reevaluated the decision to reintroduce grizzly bears and published a proposal to rescind the 10(j) rule (66 FR 33620, June 22, 2001). The FWS did not subsequently rescind the 10(j) rule and did not reintroduce grizzly bears to the BE. In April 2023, following a legal challenge, the FWS committed to undertaking a new NEPA process and preparing an environmental impact statement to address the restoration of grizzly bear to the BE, which the court subsequently ordered, with a completion date in November 2026. The FWS has announced its intent to prepare an EIS to reevaluate a range of options to restore the grizzly bear to the BE (89 FR 3411, January 18, 2024).

ISSUES AND IMPACT TOPICS RETAINED FOR DETAILED ANALYSIS

NEPA regulations require an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues …" (40 CFR 1501.9(a)). An issue can be a problem, concern, conflict, obstacle, or benefit that would result if the proposed action or alternatives, including the no action alternative, were implemented. With respect to grizzly bear restoration in the NCE, the NPS, FWS, cooperators, and the public identified issues related to the following resources or values: wildlife and fish, wilderness character, visitor use and recreational experience, socioeconomics, public and employee safety, and ethnographic resources. Impact topics are headings that correspond to affected resources and allow the reader to track the issues, current condition, and potential impacts related to a specific resource through the various chapters of this plan/EIS.

Grizzly Bears

Despite the historical presence of grizzly bears in the NCE and the availability of sufficient habitat to recover and maintain a viable population, there is no confirmed evidence of current grizzly bear presence within the NCE grizzly bear recovery zone in the United States (Rine et al. 2020). Restoring grizzly bears to the NCE would affect grizzly bears in the NCE and their source populations. Therefore, this impact topic was retained for analysis.

Other Wildlife and Fish

The NCE is characterized by a high level of variation in climate and topography, resulting in a wide spectrum of habitats ranging from dense, mixed-conifer forests to subalpine meadows to shrub steppe. The NCE is thus home to a diverse population of fish, birds, and other wildlife that have adapted to these habitats. Wildlife could be affected by noise and human-related disturbance associated with the capture and release of grizzly bears. Wildlife or fish species such as elk and deer, black bear, and salmonids could be affected in terms of grizzly bear predation or competition for resources. Therefore, this impact topic was retained for analysis.

Wilderness Character

Together, the park complex and surrounding national forest wilderness areas protect over 2.6 million acres of federally designated wilderness within the NCE. Grizzly bear restoration activities could affect wilderness character and values in both adverse and beneficial ways. If grizzly bears are released and monitored in the NCE, the use of aircraft in designated wilderness areas could adversely affect the undeveloped qualities and opportunities for solitude or primitive and unconfined recreational qualities of wilderness character. These impacts would be temporary in nature and variable in quantity and duration,

since initial restoration activities would require a greater number and frequency of helicopter flights and associated landings, relative to the longer-term adaptive management phase. Tracking reintroduced bears with the use of radio collars would also adversely affect the undeveloped quality of wilderness because the collars would be a visible indicator of human manipulation of the environment. Restoration of grizzly bears would increase the overall biodiversity present in wilderness areas and reestablish the role of a large omnivore in the food web resulting in long-lasting benefits to the natural quality of wilderness character and other features of value. To achieve this goal, active manipulation through translocation could occur over a period of 5 to 10 years, negatively affecting the untrammeled quality. Because grizzly bear restoration actions could result in varying effects on wilderness, this impact topic was retained for analysis.

Visitor Use and Recreational Experience

The park complex, national forests, and state lands within the NCE provide a diverse array of recreational opportunities including hiking, backpacking, camping, climbing, fishing, horseback riding, bicycling, boating, winter sports, and wildlife viewing. Opportunities for hunting are available in the NPS national recreation areas and on the national forests and state-owned lands, and off-road vehicle use is permitted on portions of the national forests (USFS 2016a,b). The park complex offers a variety of educational and interpretive programs, visitor facilities, and lodging facilities (NPS 2012b).

Photo credit: A. Braaten

A visitor hiking in North Cascades National Park

The restoration of grizzly bears to the NCE could increase visitation and recreational use of the NCE as visitors seek to experience grizzly bears in their native habitat. Restoration actions that result in an increased grizzly bear population could also affect recreational opportunities for visitors who do not wish to encounter grizzly bears. Therefore, this topic was retained for analysis.

Bear-related Public and Employee Safety

Negative encounters between humans and grizzly bears, while rare, do occur. Every situation is dynamic, and a grizzly bear's reaction depends on a variety of factors including the proximity between a bear and a human, the type of encounter (i.e., whether the bear is behaving in a defensive or offensive manner), and whether cubs or a valuable food resource are involved, among other considerations (Herrero 2002).

The restoration of grizzly bears in the NCE has raised concerns about safety risks to residents living in and adjacent to the NCE, as well as backcountry recreationists and other visitors because of the potential for human-grizzly bear conflicts. Although rare, human injuries from grizzly bears can and have occurred in other ecosystems. For example, in the CYE and Selkirk Ecosystem, where there are low-density recovering populations of grizzly bears (55–60 and 90–100 bears, respectively), two human injuries

caused by grizzly bears have been recorded in the last 42 years (FWS, Kasworm pers. comms. 2016a, 2023b; IGBC 2018, FWS 2021a). In addition, the capture, release, and monitoring of grizzly bears could affect employee safety because of the dangerous nature of the activity—one of the two reported injuries listed above was to a FWS bear biologist monitoring the population (IGBC 2018). Therefore, this impact topic was carried forward for analysis.

Socioeconomics

The NCE consists of an expansive and largely undeveloped wildland area that spans the crest of the Cascade Range from the more populated, industrialized, urban areas of the Puget Sound region to the more rural, agricultural, and natural resource-based economies of the Okanogan Highlands and Columbia Plateau.

The restoration of grizzly bears in the NCE has raised concerns about economic impacts on natural resource-based industries such as mining and logging, specifically regarding the potential for motorized access and road development restrictions in core grizzly bear habitat. Concerns about depredation of livestock or agriculture, such as fruit orchards, have also been raised. In addition, local business and hunting revenues may be affected due to changes in tourism and hunting revenue because of grizzly bear restoration. Therefore, this topic was retained for analysis.

Ethnographic Resources

Ethnographic resources are defined as “landscapes, objects, plants and animals, or sites and structures that are important to a people’s sense of purpose or way of life” (NPS 2022a). These types of resources are also present within US Forest Service (USFS) lands, but the USFS does not use the same terminology; instead, they are documented as heritage resources or traditional cultural properties. Previous research indicates that other ethnographic resources, such as traditional gathering, hunting and fishing areas, or areas of spiritual or ceremonial use, are also likely present within the Northern Cascades (Ford 1993; Boxberger 1996).

The grizzly bear is an important part of Indigenous culture and history to many, but not all, Indigenous groups in the Northwest. The continued absence or restoration of grizzly bears is likely to affect ethnographic resources in various ways. However, the restoration of grizzly bears could affect access to traditional hunting or gathering sites, adversely affecting other ethnographic resources important to other Indigenous groups. Therefore, this resource topic was retained for analysis.

Possible Conflicts with Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

NEPA requires that an EIS consider the possible conflicts of the proposed action and the objectives of federal, regional, state, and local land use plans, policies, and controls for the area concerned (40 CFR 1502.16(a)(5)). The regulations state that an EIS should discuss any inconsistencies with any approved state or local plan or law and the extent the agency would reconcile the proposed action (40 CFR 1506.2(d)). The EIS considers Washington law and its implications in relation to the NPS and FWS requirements under the ESA (see below). The EIS also assesses whether the proposed action would be consistent with USFS land and resource management plans for the affected national forests (see appendix B). Public comments from potentially affected counties suggested that the plan/EIS and the proposed action and alternatives were inconsistent with local land use plans. Therefore, this issue is included in the plan/EIS analysis.

Climate Change

Climate change, specifically how a changing climate is expected to affect grizzly bears and grizzly bear restoration efforts over time, is addressed in the individual impact topics where it is relevant. The project is not expected to result in impacts on climate, but climate change occurring because of other factors could have pronounced impacts on certain resources such as wildlife and fish. According to the US Environmental Protection Agency, the climate of the Pacific Northwest is changing. Over the last century, the average annual temperature has risen by approximately 1.5 degrees Fahrenheit (°F) in the region (Climate Impacts Group 2009; River Management Joint Operating Committee 2018). The North Cascadia Adaptation Partnership is a collaborative group with members from the USFS, NPS, and University of Washington that was established in 2010. The objective of the group is to educate the public about the impacts of climate change in the NCE, evaluate the vulnerability of the NCE to climate change, and develop adaptation strategies to climate change based on sound science (Littell and Raymond 2014). The USFS analyzed historical climate data in conjunction with global climate models to project what changes in the climate are likely to occur in the Pacific Northwest. In addition, the Climate Impacts Group at the University of Washington developed data sets of downscaled climate and hydrologic projections to support the vulnerability assessments, which estimated an average regional temperature increase of 2.1 degrees Celsius (°C) by 2040 and 3.8°C by 2080. The highest relative increases in temperature are projected to occur during summer months (Littell et al. 2011). While a change in precipitation was predicted, magnitude and direction varied between models. Declines in snowpack and streamflow have been observed throughout the Cascade Range in recent decades. In Washington, record low snowpack values were measured in April 2015 and in 74% of long-term monitoring stations (USEPA 2016), although subsequent years have been near average (Office of the Washington State Climatologist 2023). By the 2050s, the April 1 snow water equivalents are projected to decrease 10% to 60% in the Cascade Mountains and decrease 90% by the 2080s (River Management Joint Operating Committee 2018). Future climate change impacts would likely be compounded by pressures related to the region's rapidly growing human population. These changes may affect management decisions in the ecosystem for many resources, including grizzly bears.

ISSUES AND IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

The following issues and impact topics were dismissed from detailed consideration in this plan/EIS.

Air Quality

The NCE lies in the path of prevailing westerly winds blowing over urban, industrial, and agricultural areas in Puget Sound. Pollutants such as particulate matter, ozone, acid deposition, mercury, and pesticides have been detected within the park complex. Park managers are cooperatively involved with the US Geological Survey, the NPS Air Resources Division, and others to assess air pollution impacts and protect air quality related resources. The air resources management program at North Cascades includes monitoring, research, and data dissemination (NPS 2019). Some of the activities associated with grizzly bear restoration may result in fossil fuel consumption, such as the use of vehicles and helicopters to carry out prescribed management activities. However, the increase in emissions from these activities would be minimal and short term, resulting in only slight impacts on regional air quality relative to existing conditions. This topic was therefore dismissed from further analysis.

Greenhouse Gas Emissions

There is strong evidence linking global climate change to human activities, especially greenhouse gas emissions associated with the burning of fossil fuels (International Panel on Climate Change 2022). Some of the activities that could be associated with grizzly bear restoration may result in fossil fuel consumption, such as the use of vehicles and helicopters to carry out prescribed management activities. However, greenhouse gas emissions associated with the plan would be negligible because of the small number of vehicle and helicopter trips that are anticipated and the lack of any other sources of greenhouse gases resulting from grizzly bear restoration. Therefore, the issue of the contribution of grizzly bear restoration activities to climate change through greenhouse gas emissions was dismissed from further analysis. As noted in the discussion of issues, any anticipated effects of climate change on the resources studied in this plan/EIS are discussed in the affected environment and environmental consequences for each resource.

Vegetation

Grizzly bear restoration activities could result in very limited vegetation removal or management associated with creating safe landing zones and release areas or treating invasive plants. A number of measures, as described in chapter 2, would be implemented to minimize the impacts that could occur. No impacts on federal or state-listed plant species are expected.

Grizzly bears in ecosystems with similar food economies to the NCE have been shown to rely heavily on herbaceous vegetation, graminoids, forbs, berries, and roots, depending on the season (McLellan and Hovey 1995; Munro et al. 2006). Grizzly bears have also been shown to act as important vectors for dispersal of seeds for numerous plant species that produce fleshy fruits (Willson and Gende 2004). While the restoration of grizzly bears would result in impacts on native vegetation in the NCE, the expected population of grizzly bears on the landscape is not expected to result in any impacts on native vegetation species at a population level. Further, the effects of grizzly bear foraging on vegetation would represent a native ecological process in the NCE. Because any impacts on native vegetation are expected to be minimal, this topic was dismissed from further analysis.

Federally and State-listed Species

The agencies evaluated the potential impacts on species listed as threatened, endangered, or proposed for listing under the ESA, or by the state of Washington to determine whether potential impacts warranted full analysis. Appendix A provides a list of the potentially affected federal and state-listed species and their designations, including federally designated critical habitat. The following species are carried forward for analysis in the "Other Wildlife and Fish" section: Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), wolverine (*Gulo gulo luscus*), northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), fisher (*Pekania pennanti*), and federally listed salmonids. All other federally and state-listed species have been dismissed from detailed analysis.

Geology and Soils

Grizzly bear restoration activities are not expected to result in any permanent ground disturbance. Researchers in Glacier National Park have documented that grizzly bears can affect plant community composition and mineral nitrogen availability when they forage by digging for the bulbs of glacier lilies in subalpine meadows (Tardiff and Stanford 1998). Although this impact of grizzly bear foraging can have important localized effects on certain plant communities, the impacts would be minimal in relation to the overall NCE ecosystem. Given the anticipated nature, scope, and scale of grizzly bear restoration

activities, no impacts on geology or soil resources are anticipated; therefore, this topic was dismissed from further analysis.

Cultural and Historical Resources (Excluding Ethnographic Resources)

Indigenous peoples have lived in the NCE since time immemorial, and innumerable cultural resources exist in and on the landscape. Given the large scale of the project area, historic property surveys within the NCE are not comprehensive. Existing inventories on federal lands were primarily conducted for baseline documentation in the park complex and national forests. Grizzly bear restoration is unlikely to impact archeological sites, historic structures, and other historic properties within the NCE. While no ground disturbance would be associated with the project, staging locations would see the most activity. A review of the Washington Information System for Architectural and Archaeological Records Data was undertaken to determine whether historic properties are present at any of the staging areas. One historic era archeological site, 45WH897, is located in the vicinity of staging area B; however, the archeological site is entirely subsurface in the location of an established development in the town of Diablo, Washington. The activities associated with staging and release of bears are unlikely to affect this site or other unidentified archeological sites, historic structures, and other historic properties because the project's activities would be temporary, would use existing infrastructure, and would not require any alterations to the locations. While there are likely additional cultural resources not disclosed to the agencies within the NCE, *National Historic Preservation Act* section 106 consultation with Tribes, First Nations, and the State Historic Preservation Office did not identify additional historic properties. As a result, no known cultural, historic, or archeological resources within the NCE would be significantly impacted because of actions related to grizzly bear restoration. Therefore, these topics were dismissed from further analysis.

Visual Resources

Grizzly bear restoration activities are not expected to affect visual resources. Any visual impacts that may result from the presence of vehicles, equipment, and personnel during the implementation of grizzly bear restoration activities would be analyzed within the context of recreational use and experience and wilderness. Therefore, this topic was dismissed from further analysis.

Soundscapes

Acoustic monitoring conducted in 2008 in wilderness areas of North Cascades National Park, and again from 2009 to 2011 in both frontcountry and backcountry areas of the park complex, identified a number of sources of human-caused noise within the park complex that affect the ambient soundscape. Human-caused noises in wilderness areas were found to be relatively infrequent, though the natural ambient sound levels in the park are inherently high due to the presence of flowing water and wind. A wide variety of human-caused noise sources are audible in frontcountry areas, and the contribution of human-caused noise to ambient sound levels in frontcountry areas is greater (NPS 2008, 2013). Helicopter flights associated with grizzly bear restoration would take place during a total of 3 to 7 days annually. In addition, fixed-wing aircraft at altitudes above 500 feet above ground level would be used during spring and fall to monitor for reproduction and respond to mortalities. The number and duration of flights would vary based on the number of bears being monitored but would likely be limited to a couple of days per year. Noise impacts related to the use of helicopters and fixed-wing aircraft during grizzly bear restoration activities are addressed within the context of the analysis of impacts on wildlife and fish, wilderness, and recreational use and experience. No long-term changes to the soundscape are expected. As a result, this topic was dismissed from further analysis.

Invasive Species

The implementation of grizzly bear restoration activities could contribute to the spread of invasive species such as diffuse knapweed (*Centaurea diffusa*) or reed canary grass (*Phalaris arundinacea*) within the NCE. Given the anticipated nature, scope, and scale of restoration activities, it is expected that avoidance of areas with known invasive plant infestations and mitigation measures such as the proper cleaning of vehicles, equipment, uniforms, and footwear would be sufficient to prevent the spread of invasive species. The agencies would locate and use weed-free project staging areas. In addition, they would avoid or minimize all types of travel through weed-infested areas or restrict travel to those periods when spread of seed or propagules are least likely. Based on these conditions, this topic was dismissed from further analysis.

Environmental Justice

Environmental justice is associated with Executive Order 12898, published on February 11, 1994. This executive order requires all federal agencies to incorporate environmental justice into their mission by "identifying and addressing … disproportionately high and adverse human health or environmental effects of [their] programs, policies and activities on minority and low-income populations in the United States" (Executive Order 12898; 59 FR 7629, 1994). The Justice40 Initiative, associated with Executive Order 14008, was also considered in relation to environmental and climate justice. The Justice40 Initiative seeks to direct certain federal investments to benefit overburdened and underserved communities. Covered programs and investments under the Justice40 Initiative include "clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of critical clean water infrastructure" (Executive Order 12898; 86 FR 7619, 2021). The grizzly bear restoration does not meet the criteria of a covered program or investment under the Justice40 Initiative.

Census data for communities adjacent to the NCE grizzly bear recovery zone were analyzed to determine whether these communities may be populations for consideration under environmental justice principles (e.g., minority and/or low-income populations), and whether they would be disproportionately affected by grizzly bear restoration (US Census Bureau 2019). Census blocks were evaluated in the following counties to determine whether such populations were present: Chelan, Douglas, Grant, King, Kittitas, Okanogan, Skagit, and Snohomish. It was determined that while a small number of communities adjacent to the NCE grizzly bear recovery zone may qualify as minority and/or low-income populations, these communities would not be disproportionately affected by grizzly bear restoration because restoration activities would not be focused in these areas. Therefore, this topic was dismissed from further analysis.

Energy Requirements and Conservation Potential

The NPS and FWS must consider the energy requirements and conservation potential of the various alternatives (40 CFR 1502.16(a)(6)). None of the alternatives include long-term energy requirements. As a result, this issue was dismissed from further analysis.

AGENCY COORDINATION

Formal interagency coordination on grizzly bear recovery has been ongoing since formation of the IGBC in 1983. The IGBC was formed to help ensure the recovery of viable grizzly bear populations in the lower-48 states through interagency coordination of policy, planning, management, and research. The IGBC consists of representatives from the FWS, NPS, USFS, Bureau of Land Management, US Geological Survey, and the state wildlife agencies of Washington, Idaho, Wyoming, and Montana. At the ecosystem level, Native American Tribes and First Nations that manage grizzly bears and/or their

habitat, US county governments, and Canadian provincial agencies have the opportunity to participate. If Canadian entities move forward with grizzly bear restoration in British Columbia, the NPS and FWS would coordinate with First Nations and the British Columbia government, should an action alternative be selected for implementation.

CEQ regulations regarding the designation of lead agencies state that more than one agency may act as joint lead agencies to prepare an EIS (40 CFR 1501.7). The NPS and FWS are preparing this plan/EIS as co-lead agencies. Lead agency designation is based on the magnitude of an agency's involvement, project approval/disapproval authority, expertise concerning environmental effects of the action, duration of agency involvement, and sequence of agency involvement.

CEQ regulations also state that any agency (federal, state, local, or Tribal government) that has special expertise with respect to any environmental issue that should be addressed in an EIS may be a cooperating agency upon request of the lead agency (40 CFR 1501.8). Although lands managed by the USFS make up a large proportion of the area of the NCE being considered in this EIS, due to other agency priorities, the USFS was not able to engage as a cooperating agency for the draft EIS. Information about effects to USFS-managed resources was obtained from available information, including input the USFS provided early in this process and during the previous EIS process. Beginning in October 2023, the USFS was able to participate as a formal cooperating agency for development of the final EIS. The Washington Department of Fish and Wildlife (WDFW) has special expertise with regard to managing wildlife across the state and on national forest lands and is participating in a formal cooperating agency role for this plan/EIS.

Washington State law introduces a unique component to the interagency coordination process. Revised Code of Washington 77.12.035, *Protection of grizzly bears — Limitation on transplantation or introduction — Negotiations with federal and state agencies*, prohibits any agent of the state of Washington from transplanting or introducing grizzly bears into Washington from outside the state:

> The commission shall protect grizzly bears and develop management programs on publicly owned lands that will encourage the natural regeneration of grizzly bears in areas with suitable habitat. Grizzly bears shall not be transplanted or introduced into the state. Only grizzly bears that are native to Washington State may be utilized by the department for management programs. The department is directed to fully participate in all discussions and negotiations with federal and state agencies relating to grizzly bear management and shall fully communicate, support, and implement the policies of this section.

While the law prohibits the WDFW from reintroducing grizzly bears from outside Washington, it directs the WDFW to participate fully in all discussions and negotiations with federal and state agencies relating to grizzly bear management.

Ultimately, the action selected for implementation as a result of this plan/EIS will provide the basis for a long-term, interagency approach to restoring grizzly bears within the NCE. This strategy will seek to integrate the separate responsibilities and activities of the FWS and NPS, and other interested agencies such as WDFW, the USFS, and Tribes, as desired.

COUNTY COORDINATION

The NPS and FWS initiated outreach to county governments coinciding with the publication of the Notice of Intent in November 2022 and offered briefings and presentation to counties in the NCE.

In May 2023, Chelan, Skagit, Snohomish, Okanogan, and Whatcom Counties requested cooperating agency status for the EIS. These counties were invited to participate in a January 2024 meeting related to comments received on the socioeconomic effects of the proposed action and the development of responses for the final EIS.

DECISIONS TO BE MADE

The NPS and FWS decision-makers will ultimately select an alternative for implementation. The agencies have identified alternative C, which includes the designation of a 10(j) NEP, as their preferred alternative. In support of that preferred alternative, the FWS proposed a 10(j) regulation, through notice and comment rulemaking procedures, see Docket No. FWS-R1-ES-2023-0074.

If the preferred alternative is selected, and if release sites on USFS-managed national forests were used, the USFS would have to separately comply with applicable federal laws prior to authorizing any actions on national forest lands, which could include issuing temporary closures around staging and release areas as needed per 36 CFR 261 Subpart B, "Prohibitions in Areas Designated by Order." Therefore, the responsible officials for the USFS will decide through their own process whether to authorize any needed actions on their respective forests. Specifically, the responsible officials for the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests would decide whether to authorize the NPS and FWS to transport grizzly bears into national forest lands and whether to authorize temporary closures associated with grizzly bear release operations and at staging areas used by the agencies. The alternative would be implemented on NPS lands only, unless and until the authorization of any staging or release of grizzly bears on national forest lands.

STATUTES, POLICIES, AND PLANS GOVERNING GRIZZLY BEAR RESTORATION

In addition to the grizzly bear-related laws, policies, and plans listed below, appendix B discusses other statutes, policies, and plans that must be considered in the NEPA process, including those that direct and guide management on the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests.

For additional discussion of statues, policies, and plans governing federal land management in the NCE, see appendix B.

Endangered Species Act of 1973, as Amended

The purposes of the ESA (16 USC 1531 et seq.) "are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved [and] to provide a program for the conservation of such endangered species and threatened species," among other purposes. The FWS and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service administer the ESA. The ESA requires the Secretary of the Interior or the Secretary of Commerce (depending on jurisdiction) to determine whether species are endangered or threatened and requires all federal agencies to consult with the secretaries on all projects and proposals having potential impacts on federally endangered or threatened plants and animals.

Section 4 of the ESA, among other things, describes the criteria by which a species may be listed or delisted, describes the endangered and threatened species lists, and provides a means to establish protective regulations for threatened species. A species listed as endangered under the ESA is any species that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or

a significant portion of its range. On July 28, 1975, the FWS listed the grizzly bear in the lower-48 states as threatened, in part, because the species was reduced to only about 2% of its former range south of Canada.

The determination of whether to list a species as threatened or endangered under the ESA is based on any of the following factors, as outlined in section 4(a)(1) of the act:

a. The present or threatened destruction, modification, or curtailment of its habitat or range;
b. Overutilization for commercial, recreational, scientific, or educational purposes;
c. Disease or predation;
d. The inadequacy of existing regulatory mechanisms; or
e. Other natural or manmade factors affecting its continued existence.

Delisting is the removal of a species from the federal lists of endangered and threatened wildlife and plants. To delist a species due to recovery, the FWS must determine that the species is no longer threatened based on an analysis of the five listing factors. This analysis may consider a number of criteria such as population size, recruitment, stability of habitat quality and quantity, and control or elimination of the threats to its continued existence. Recovering listed species to the point where they can be delisted is an essential goal of the ESA (FWS 2004).

The grizzly bear is currently listed under the ESA as threatened throughout its range in the lower-48 states. Section 4(d) of the ESA allows for the issuance of special rules for the conservation of threatened species, including applying the take provisions of section 9 of the ESA (16 USC 1533(d)). In 1975 when the grizzly bear was listed, the FWS issued a special rule that applied all of the ESA's take prohibitions except for cases of self-defense or the defense of others, removal of bears involved in conflict by authorized federal, state, or Tribal agencies, and for scientific research activities not resulting in the death or permanent injury of the animal (40 FR 31734, July 28, 1975). Bears involved in conflict are those bears that demonstrate a non-immediate threat to human safety or commit significant depredation to lawfully present livestock, crops, or beehives. These bears may be taken only if live capturing and releasing unharmed into a remote area would not reasonably eliminate the threat or depredation (50 CFR 17.40(b)). See additional discussion of "Grizzly Bears in the North Cascades Ecosystem," above.

Section 7 of the ESA provides some of the most valuable and powerful tools to conserve listed species, assist with species recovery, and help protect critical habitat. It mandates that all federal agencies determine how to use their existing authorities to further the purposes of the ESA to recover listed species, consult with the FWS on proposed federal actions that may affect a listed species, and address existing and potential conservation issues (FWS/NMFS 1998). Consultation is required for any threatened or endangered species that could be affected by an agency's action. Nonetheless, consultation is not required for designated 10(j) NEP populations, except where species are found on national park system and national wildlife refuge system lands.

The federal agencies would need to consult under section 7(a)(2) of the ESA for the trapping, handling, and removal of grizzly bears in the source areas (described in chapter 2) and the release of bears into the NCE. This includes impacts from release activities, such as the use of helicopters, as well as the actual release of bears and their potential impact through competition with, displacement of, or predation on other listed species found within the NCE. The impacts are described in chapter 3.

Section 9 of the ESA describes prohibited acts under the law. For endangered species, along with other prohibited acts, it is unlawful to take any endangered species (16 USC 1538(a)). The term "take" means

to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532(19)). Whenever any species is listed as threatened (e.g., grizzly bear), the FWS issues regulations under section 4(d) of the ESA that are necessary and advisable to provide for the conservation of the threatened species. The 4(d) rule is the mechanism by which take prohibitions can be applied to threatened species. Section 10(a)(1)(A) of the ESA provides exceptions to the take provisions. Under section 10, the FWS may permit acts that purposefully take threatened or endangered species so long as those actions are for scientific purposes or "to enhance the propagation or survival of the affected species." Section 10(a)(1)(B) allows the FWS to permit take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activities (16 USC 1539(a)(1)).

Section 10(j) of the ESA provides for the authorization to establish experimental populations through translocations under special regulation. Prior to the addition of section 10(j) to the ESA in 1982, the FWS had authority to reintroduce threatened and endangered species into unoccupied historical ranges, but such efforts were often met with resistance. One reason for public resistance was that the FWS could not assure private landowners, other federal agencies, Tribes, and state and local governments that a transplanted population would not disrupt future land management options. Amending the ESA to allow for the easing of regulatory protections for threatened and endangered species was meant to provide these assurances, while also providing the necessary protections to facilitate successful translocations. An experimental population is a group of translocated plants or animals, and their progeny, that is geographically isolated from other populations of the species and is typically considered nonessential to the survival of the species as a whole. Experimental populations are afforded additional regulatory flexibility regarding management of the species.

While not part of the ESA, Revised Code of Washington 77.12.020 authorizes the Washington Fish and Wildlife Commission to classify endangered and protected species. Washington Administrative Code (WAC) 220-610-110 outlines the process and guidelines for the classification of endangered, threatened, and sensitive wildlife species under state law. "Endangered" refers to any wildlife species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state. The grizzly bear has been listed as endangered in the state of Washington since 1980 (WDFW 2013; WAC 220-610-010). A discussion on classification and protection of endangered, threatened, and sensitive wildlife species under Washington State law is included in appendix B.

US Fish and Wildlife Service Grizzly Bear Recovery Plan (1993)

Section 4(f)(1) of the ESA states that the Secretary of the Interior "shall develop and implement plans for the conservation and survival of endangered species and threatened species …unless he finds that such a plan will not promote the conservation of the species."

The nationwide *Grizzly Bear Recovery Plan* was finalized in 1982 and updated in 1993. The plan delineates reasonable actions that are believed to be required to recover and/or protect the grizzly bear. Recovery of the grizzly bear is directed at establishing viable populations in six recovery areas in parts of four states where the grizzly bear was known or believed to exist when it was listed in 1975, including the NCE. The plan outlines a number of criteria specific to each recovery zone by which to gauge grizzly bear recovery, including population size, sex ratio, number of females with cubs, mortality limits, and geographical distribution within the recovery zone (FWS 1993a).

US Fish and Wildlife Service Grizzly Bear Recovery Plan North Cascades Ecosystem Chapter (1997)

Specific chapters of the *Grizzly Bear Recovery Plan* were initially written for four areas, and the evaluation of two other areas, the BE and the NCE, was recommended to determine whether these would

also be suitable as recovery zones. Five-year ecosystem evaluations, conducted from 1986 to 1991, were subsequently completed for the BE and NCE, and in December 1991 the IGBC designated both ecosystems as recovery areas (Servheen et al. 1991; Almack et al. 1993). In 1997, a chapter specific to the NCE recovery zone was added to the *Grizzly Bear Recovery Plan*, as initially recommended by the 1993 recovery plan (FWS 1993a). The priority actions recommended in the NCE chapter are to (1) develop a strategy for implementing the NCE recovery chapter (through reducing human-related direct and indirect mortality, improved sanitation, poaching control, access management); (2) develop an ongoing educational program to provide information about grizzly bears and grizzly bear recovery to the public; (3) conduct a research and monitoring effort to determine grizzly bear population size and distribution, habitat, and home ranges; and (4) initiate an EIS through the NEPA process to evaluate a range of alternatives for how to recover the population in the NCE (FWS 1997). When the NCE chapter was written, the determination of final recovery goals (e.g., the number of females with young, the percentage of Bear Management Units (BMUs) occupied, and the level of human-induced mortality) was not possible because of lack of information for the ecosystem (FWS 1997).

National Park Service *Management Policies 2006*

The NPS *Management Policies 2006* (NPS 2006) provides the NPS with guidance for interpreting and implementing the laws enacted by Congress that govern the management of the national park system. The fundamental basis for these management policies is in the requirements of the 1916 *Organic Act*, which requires the NPS to preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of present and future generations and establishes NPS wildlife management authority within their borders.

Chapter 4 of the NPS *Management Policies 2006* (NPS 2006), "Natural Resource Management," provides direction regarding the implementation of NPS activities to further the purposes of the ESA:

> The Service manages the natural resources of parks to maintain them in an unimpaired condition for present and future generations in accordance with … environmental laws such as the … Endangered Species Act of 1973 …

The NPS *Management Policies 2006* states that whenever possible, natural processes will be relied upon to maintain native plant and animal species and influence natural fluctuations in populations of these species; however, the NPS may intervene to manage individuals or populations to protect rare, threatened, or endangered species. Section 4.4.2.3 states the following:

> The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species.

To meet these obligations, it is NPS policy to cooperate with the FWS to

- ensure NPS actions comply with the ESA;
- undertake active management programs to inventory, monitor, restore, and maintain listed species habitats;
- manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;

- cooperate with other agencies to ensure that delineation of critical habitat, essential habitat, and/or recovery areas on park lands provides needed conservation benefits to recovery efforts being conducted by all participating agencies;
- participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;
- cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and
- conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

North Cascades National Park Service Complex General Management Plan (1988)

The *North Cascades National Park Complex General Management Plan* (GMP) (NPS 1988) describes a program for managing the park to preserve its pristine environments and keep intrusions to a minimum for the benefit of present and future visitors. The plan also recognizes the park's value, as the most protected portion of the greater NCE, for increasingly rare wildlife populations and for scientific inquiry.

Regarding the management of grizzly bears, the 1988 GMP states the following:

> The North Cascades are home to several mammals that are federally or state-listed as rare or threatened. Of particular concern is the grizzly bear, currently the subject of an interagency effort to determine the viability of recovery in the North Cascades. Recent sightings indicate the grizzly bear is found in small numbers in the North Cascades ecosystem. The park will assist in the interagency effort to determine habitat quality within the ecosystem, by focusing on the habitat with the NPS complex. Recovery efforts, if initiated, will be controversial and require a public awareness program (NPS 1988).

No Net Loss Interim Agreement (1997)

In July 1997, the USFS and NPS agreed to an interim "no net loss of core area" approach for grizzly bear habitat on federal lands within the NCE. The 1997 no net loss interim agreement (NNLA) stipulated that the NPS and USFS agreed to an interim standard of no net loss of core area until the agreement is superseded. Core areas are defined as areas with the following characteristics: (1) no motorized use of roads and trails during the non-denning period; OR (2) no roads or trails that receive nonmotorized, high-intensity use (an average of 20 or more parties per week); AND (3) a minimum of 0.3 mile (500 meters) from any open motorized access route or high-use nonmotorized access route. The term "core area" was created in response to research showing that bears, notably females, avoid proximity to roads when and where possible, and therefore the presence, use and density of roads is a critical issue for management agencies to address (IGBC 1998). For more information on the USFS regulatory requirements see appendix B.

Ross Lake National Recreation Area General Management Plan (2012)

The *Ross Lake National Recreation Area General Management Plan* (Ross Lake GMP) articulates a vision and management philosophy for guiding decision-making in Ross Lake National Recreation Area for 15 to 20 years following its adoption in 2012 (NPS 2012c). This plan formalizes management direction, including access management, with respect to the core grizzly bear area for the entire park complex. On NPS lands, the plan replaces the NNLA by establishing an interim "no net loss of core area" policy for federal lands within the NCE (NPS/USFS 1997). No new roads were proposed in the Ross

Lake GMP. New trails proposed in the Ross Lake GMP would constitute reductions of less than 1% in each of four BMUs, in areas that are not high-quality grizzly bear habitat. A BMU, generally, is a defined sub-area of an ecosystem that provides a geographical context within which managers can focus efforts to effectively manage and conserve grizzly bears. The Ross Lake GMP states that the NPS will "strive to minimize, avoid or mitigate impacts on high-quality spring and fall grizzly bear habitat." The intent of the Ross Lake GMP is to retain core area ratios at a level of 70% or higher per BMU. The plan requires a habitat assessment for any proposed development within Ross Lake National Recreation Area, North Cascades National Park, or Lake Chelan National Recreation Area.

CHAPTER 2: ALTERNATIVES

INTRODUCTION

The *National Environmental Policy Act* (NEPA) requires federal agencies to explore a range of alternatives and analyze effects that any reasonable alternatives could have on the human environment. This chapter describes the various alternatives that could be implemented for grizzly bear restoration in the US portion of the North Cascades Ecosystem (NCE) grizzly bear recovery zone.

The alternatives under consideration must also include a "no action" alternative as prescribed by 40 Code of Federal Regulations (CFR) 1502.14. Alternative A in this *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS) is the "no action" alternative because it is the continuation of current management. The alternatives presented in this chapter were developed and discussed by the interagency planning team composed of representatives from the US Fish and Wildlife Service (FWS), National Park Service (NPS), the Washington Department of Fish and Wildlife (WDFW), and the US Forest Service (USFS). Feedback received during the public scoping process was also considered when developing the range of alternatives (see "Chapter 4: Consultation and Coordination"). For a discussion of the potential costs associated with each alternative, see appendix C.

Action alternatives carried forward for detailed analysis must meet the purpose of and need for taking action described in "Chapter 1: Purpose of and Need for Action." Action alternatives are considered reasonable if they are technically and economically feasible and show evidence of common sense (CEQ 1986). Other alternatives were dismissed from detailed consideration because they would not satisfy the purpose and need for this action or would not be technically feasible. "Chapter 3: Affected Environment and Environmental Consequences" of this plan/EIS presents the results of the impact analysis for each alternative. Alternatives considered but dismissed from detailed consideration are discussed later in this chapter and include the following:

- Restoration from Washington Sources Only
- Delayed Implementation of Washington-Only Restoration
- Natural Recovery
- Ecosystem Restoration and Habitat Preservation Only
- Social Tolerance-Based Grizzly Bear Restoration
- Section 10(j) Population with No Grizzly Bear Restoration
- Section 10(j) Population with Citizen Management
- Capture and Release of Healthy, Young Females Only

ALTERNATIVE A: NO ACTION

The no action alternative (alternative A) would continue existing management practices. Based on the Revised Code of Washington 77.12.035, described in chapter 1, alternative A is the only alternative being evaluated in detail that would allow for the full participation by WDFW.

Under the no action alternative, options for grizzly bear restoration would be limited.

The no action alternative would be a continuation of existing management practices.

The North Cascades National Park Service Complex (park complex) and the surrounding national forests do not have independent grizzly bear restoration plans, and current NPS and USFS planning documents do not call for specific actions related to the restoration of a grizzly bear population. Guidance for grizzly bear restoration and management in the NCE is provided in the NCE chapter of the nationwide *Grizzly Bear Recovery Plan* (FWS 1997). The priority actions recommended in the NCE chapter of the recovery plan are to: develop a strategy for reducing human-related direct and indirect mortality, improved sanitation, poaching control, access management, and other methods; developing an ongoing educational program to provide information about grizzly bears and grizzly bear recovery to the public; conducting research and monitoring to determine grizzly bear population size, distribution and trend, habitat, and home ranges; and initiating an environmental impact statement (EIS) through the NEPA process to evaluate a range of alternatives for how to recover the population in the NCE (FWS 1997). Since the drafting of the NCE chapter in the Recovery Plan, the FWS has concluded that the NCE lacks a grizzly bear population (FWS 2021a).

Grizzly Immigration into the NCE

Under the no action alternative, grizzly bears would not be released into the NCE. However, grizzly bears would not be prevented from moving into the NCE from other ecosystems—the closest ecosystems from which natural immigration into the NCE may be possible include the Selkirk Ecosystem and the Kettle-Granby Grizzly Bear Population Unit (GBPU) in British Columbia (see figure 2 in chapter 1). Grizzly bears that move into the NCE would be protected as a threatened species under the *Endangered Species Act* (ESA). Any grizzly bears in the ecosystem would continue to be managed as a threatened species with the special rule (50 CFR 17.40(b)) under section 4(d) of the ESA governing the regulation of grizzly bears in the lower-48 states and NPS regulations in 36 CFR, chapter 1, governing resource management in areas within the NPS's jurisdiction. If grizzly bears were translocated into the Canada portion of the NCE by Canadian agencies or First Nations and subsequently immigrated and established in the US portion of the NCE, grizzly bears would be treated as a threatened species and managed under the 4(d) rule.

Habitat Management

The direction provided in the 1997 no net loss interim agreement (NNLA) between the NPS and USFS and formalized for the NPS in the *Ross Lake National Recreation Area General Management Plan* (Ross Lake GMP) would continue under the no action alternative. The intent of the Ross Lake GMP to retain core area ratios at a level of 70% or higher per Bear Management Unit (BMU) would continue to guide access management on NPS lands under the no action alternative. Core areas are defined as areas with the following characteristics: (1) no motorized use of roads and trails during the non-denning period; OR (2) no roads or trails that receive nonmotorized, high-intensity use (an average of 20 or more parties per week); AND (3) a minimum of 0.3 miles (500 meters) from any open motorized access route or high-use nonmotorized access route.

Most BMUs in the park complex cover areas that extend to national forest lands adjacent to the park complex, and most non-core areas within these shared BMUs are located on USFS land. Any proposal for development within the NPS portion of a shared BMU would consider the portion of the BMU on national forest lands: any loss of core area on NPS lands would affect the core ratio for the entire BMU. Any loss of core area within the park complex could require mitigation on USFS land to maintain no net

loss of core area for the BMU as a whole. The USFS would continue management under the NNLA until it is superseded.

Sanitation

Sanitation measures that can address the presence of both black bears and grizzly bears would continue to be implemented, including bear-resistant trash receptacles and bear-resistant food storage lockers in NPS and USFS campgrounds, and a bear-resistant food canister loan program (on NPS lands). Current backcountry campground design protocol separating food preparation/storage areas from tent pads on NPS lands would continue to be implemented.

The NPS and USFS have been proactively improving campground and trailhead sanitation facilities over the past 30 years (Braaten et al. 2013). In the park complex, all food and scented items must be hung (minimum 12 feet off the ground and 5 feet from any tree limb or trunk) or stored in an allowed hard-sided canister or park-provided food storage locker. As of June 1, 2013, the NPS began requiring food storage canisters at 15 backcountry areas between June 1 and November 15 every year. In early 2023, Mt. Baker-Snoqualmie signed a forest-wide, year-round food storage order that went into effect April 15, 2023, that outlines acceptable methods for storing food, garbage, scented items and any harvested animal carcasses. The Colville National food storage order has been in place since 1989, and is in effect each year from April 1 through December 1. The Okanogan-Wenatchee National Forest does not have food storage regulations but is planning to develop a food storage order in 2024. The USFS is continuing to place bear-resistant garbage containers and food storage lockers at campgrounds.

Public Education

Multi-agency public education efforts concerning grizzly bears in the NCE and the governance of ongoing grizzly bear management activities by the Interagency Grizzly Bear Committee (IGBC) would continue. Visitors would be encouraged to report grizzly bear sightings, and the NPS, USFS, and IGBC would provide opportunities for visitors to report grizzly bear sightings via interpretive media at the park as well as online tools.

Photo credit: NPS

Bear-resistant food storage locker in use

Monitoring

Past efforts to detect grizzly bears in the NCE have been unsuccessful (Rine et al. 2018; Ransom et al. 2023b). Current monitoring with remote cameras and/or hair snags[1] for other species has not detected grizzly bears. Monitoring could continue as funds allow.

[1] Hair snag corrals are composed of a strand of barbed wire strung in a "corral" among trees, with a powerful scent attractant poured onto a brush pile at its center. Animals drawn to the scent leave tufts of hair on the barbs as they investigate.

Consultation with the FWS under section 7 of the ESA would continue, and land acquisition by the NPS, USFS, and state agencies to permanently conserve wildlife habitat, including habitat that could be used by grizzly bears, would continue to be a management option.

OVERVIEW OF ACTION ALTERNATIVES

The action alternatives described in this chapter represent options for restoring grizzly bears to the NCE. As a result of the alternative development process and public scoping, the NPS and FWS have identified two action alternatives that consider different ways of restoring grizzly bears to the NCE: (1) Alternative B—restoring grizzly bears as a threatened species under the ESA, with no 10(j) experimental population designation, and (2) Alternative C—restoring grizzly bears as a 10(j) nonessential experimental (NEP) population under the ESA. Both action alternatives involve the same restoration population, translocation strategy, education and outreach, sanitation strategy, and habitat protection, but differ substantially in management options and strategies. Under both action alternatives, the agencies would aim to release 3 to 7 grizzly bears per year for 5 to 10 years to achieve an initial founder population of 25 bears, based on data collected from the CYE (see chapter 3 under "Grizzly Bears"). This approximate timeline is intended to reestablish reproduction in the NCE. Both alternatives are anticipated to result in the achievement of a restoration population of 200 bears within approximately 60 to 100 years. Under both alternatives, the NPS and FWS would follow the International Union of Conservation of Nature Guidelines for Reintroductions and Other Conservation Translocations to ensure that grizzly bear translocations have the intended conservation benefits for the species (IUCN/SSC 2013). The literature suggests that managers should consider 10 criteria described by 3 categories in determining the likely success of species translocations. The categories include (1) the necessity of the translocation, (2) risk evaluation, and (3) technical and logistic suitability (Peréz et al. 2012). The development of this plan/EIS addresses all 10 of the proposed criteria within the 3 categories. Action alternatives are described in detail below in terms of a primary phase and adaptive management phase. Table 2, at the end of this chapter, summarizes the actions proposed under each action alternative.

ELEMENTS COMMON TO BOTH ACTION ALTERNATIVES

Restoration Population

As noted in chapter 1, based on various carrying capacity studies, habitat within the NCE was considered of sufficient quality and quantity to support a population of 200 to 400 grizzly bears (Servheen et al. 1991, Lyons et al. 2018, Ransom et al. 2023a). The agencies established a restoration population of 200 bears in the NCE for the purposes of this plan/EIS after considering the NCE's carrying capacity and the professional judgment of grizzly bear experts. This restoration population of 200 grizzly bears provides a substantive benchmark with which to analyze the proposed action using the best available science. A restoration population is thus seen as a population size that can be adaptively managed for genetic viability and long-term persistence, and may or may not require active human intervention. The restoration of 200 grizzly bears is not a recovery goal for purposes of the ESA. Recovery goals are determined through a separate recovery planning process. A population of 200 bears in the NCE would contribute to recovery of grizzly bears in the lower-48 states.

Capture, Release, and Monitoring of Grizzly Bears

Food economy *refers to the dominant foods available to grizzly bears in a given area.*

Capture. Under both action alternatives, grizzly bears that do not have a history of conflicts with humans may be captured from multiple source areas. The agencies would seek to find source areas that have a healthy grizzly bear population so that removal of grizzly bears would not affect population viability since the capture and removal of grizzly bears would represent a loss for the source population. In addition, it is more likely that grizzly bears meeting the selection criteria (e.g., sex and age class) may be captured in areas with large grizzly bear populations. The entities managing the donor source area must be willing to donate bears that meet the selection criteria and allow trapping of an adequate number of grizzly bears. All regulatory requirements would be fulfilled prior to translocation of bears, including coordination with federal, state, Tribal, and Canadian entities, as necessary. In addition to having a healthy population, the agencies would prioritize source areas that are ecologically similar to the NCE (e.g., ecosystems where bears do not rely on salmon for a significant portion of their diet). The lead agencies would focus on capturing grizzly bears that share a similar ecology and food economy to potential release areas. *Food economy* refers to the dominant foods available to grizzly bears in a given area. Dominant foods in the NCE are expected to be similar to the west side of the Northern Continental Divide Ecosystem (NCDE) in northwestern Montana, some portions of the Greater Yellowstone Ecosystem (GYE), and interior British Columbia (see Ransom, Krosby, and Lyons 2018). Potential source populations in interior British Columbia could include the Robson, Columbia-Shuswap, North Selkirk and Wells Gray grizzly bear population units (see figure 7 in chapter 3). In these areas, berries are the dominant food source in late summer and fall, providing calories and ultimately fat production necessary for a grizzly bear to survive hibernation and reproduce. Areas with a berry-based food economy would be the most likely sources selected for capturing bears for release into the NCE.

Based on the FWS's experience with the Cabinet Mountains augmentation efforts, younger grizzly bears are preferable for translocation because they are more likely to remain in the target area (Kasworm et al. 2022a). However, only independent grizzly bears (i.e., post-separation from mothers) would be candidates. Additional selection criteria based on the age and sex of the captured grizzly bears are described below under "Primary Phase." The range of grizzly bear ages and sex ratios preferred for translocation are targets, and this range is anticipated to vary based on the bears captured and available for translocation. The ages or sexes of grizzly bears targeted for capture would be adjusted through the adaptive management process based on program success or failure.

Under both action alternatives, grizzly bears would be captured using culvert traps. Where permissible, helicopter support could be used for the capture and could include the use of helicopter-based capture darting. If needed, baited foot snares could also be used, but are not preferred. All persons using capture equipment, firearms, and immobilization agents during grizzly bear capture and handling activities would be properly trained, qualified, and experienced in grizzly bear capture and handling. Chemical immobilization procedures would meet minimum standards of training and qualifications for handling wildlife according to the NPS *Natural Resource Management Reference Manual #77*, chapter 5, section G (Chemical Immobilization and Sterilization Agents) and additional standards established by the Interagency Grizzly Bear Study Team for proper grizzly bear capture, handling, and immobilization techniques. Most trapping would occur in nonwilderness areas accessible by truck. The capture and release of grizzly bears would generally occur between June and September, depending on the seasonal conditions of the capture and release site(s) selected and abundance of food in the release areas.

Release. Under all action alternatives, grizzly bears would be transported from capture locations to staging areas by truck and trailer (figure 3). Staging areas would be located in previously disturbed, nonwilderness areas large enough for the safe landing of a helicopter, parking for a fuel truck, and any other grizzly bear transport and handling needs.

Photo credit: FWS

Grizzly bear being released from culvert trap

Grizzly bears would be transported from the staging area as soon as possible by helicopter and would likely remain at the staging areas for only a few hours, depending on weather and helicopter availability.

The NPS and FWS would prioritize use of release sites on NPS lands. National forest lands are also included as potential release sites if unforeseen circumstances prevent access to release sites on NPS lands (e.g., poor weather or aircraft issues) that could jeopardize human and bear safety.

Grizzly bears would be released in remote areas on NPS or USFS lands (pending additional compliance as needed), including areas within the Stephen Mather, Pasayten, and Glacier Peak Wilderness Areas. Release sites would be chosen from within three release areas, shown in figure 3. Release areas would represent prime grizzly bear habitat, while the release sites would be based on selected habitat criteria, connectivity to other areas, and the need to have grizzly bears close to one another to facilitate interaction and ultimately breeding.

Additional criteria for acceptable release sites would include the following:

- The area would largely consist of high-quality seasonal habitat; such as readily available berry-producing plants that are known grizzly bear foods.
- The area would be largely roadless, an adequate distance from points of high visitor use and open motorized areas, and have low human use at the time of release.
- BMUs with a high amount of core area would be prioritized.
- The area would have a suitable helicopter landing site.

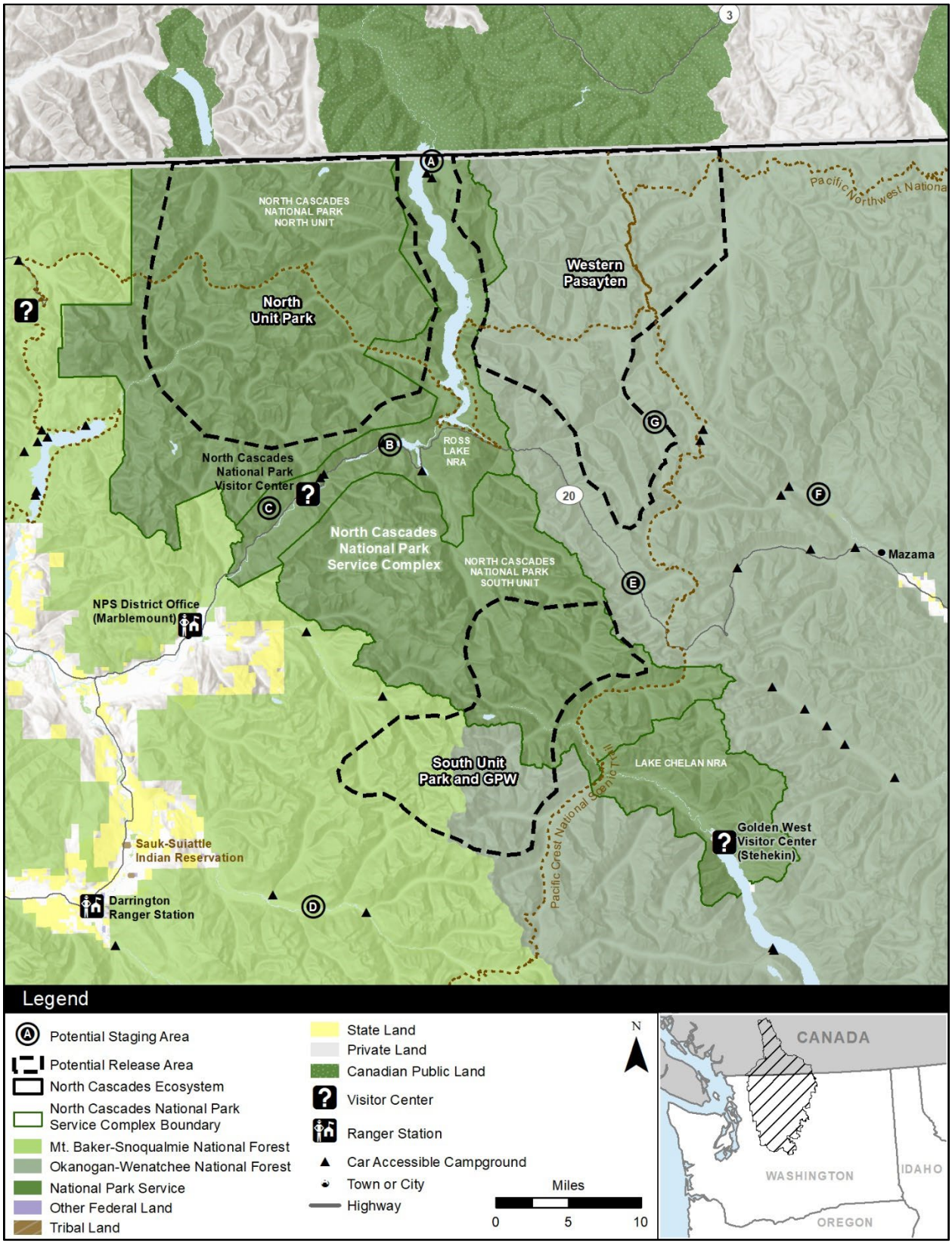


FIGURE 3. GRIZZLY BEAR STAGING AND RELEASE AREAS

Monitoring of grizzly bears previously released into the ecosystem would inform the selection of subsequent release sites. The agencies would also seek to find a suitable release area accessible by vehicle, where bears could be released during weather conditions unsuitable for safe helicopter operation. The agencies would seek road-based release sites that do not terminate at maintained trailheads, are gated, lack the presence of permitted livestock, and occur near high-quality bear habitat. Area closures would be in place during operations at the staging area, which are expected to last only a few hours. Agencies would conduct reconnaissance prior to selecting a release site to ensure no people are nearby. Closures are not expected to be needed at release sites because remote areas without people would be preferred. However, the duration of any necessary closure would be temporary and last until the bear has moved away from the release site.

Each release could take up to 8 hours (1 day) depending on the distance between staging and release areas, potentially resulting in 3 to 7 days of helicopter use per year for releases. Helicopters would make up to four round-trip flights (approximately 144 total flights), traveling at least 500 feet above the ground, and up to four landings in wilderness per grizzly bear for 36 bears (which includes up to 11 additional bears released to address mortality or emigration). NPS or FWS staff would conduct an initial release site reconnaissance flight to determine suitability for the release and check nearby areas for active camping or other human activity. If human presence or activity were identified, agency staff would identify a different release area to target and conduct a reconnaissance flight there. Upon examination of a suitable release site, agency staff would determine if there is the potential to impact other sensitive resources during the release operation. Once the release site is confirmed for use, the grizzly bear would be ferried in by helicopter and released. Additional flights may be needed for the drop-off and retrieval of staff and the culvert trap. All operations would be conducted during daylight hours.

Based on FWS experience with successful translocations in other areas, grizzly bear mortality rates are expected to be low during both translocation and after release. Should mortality occur during either period, protocols would be reassessed and adjusted as necessary to minimize mortalities due to grizzly bear capture and handling.

Monitoring. Under all action alternatives, monitoring of grizzly bears in the NCE would use an adaptive management approach. Adaptive management—a process of monitoring outcomes and adjusting management techniques over time—is based on the assumption that the current understanding of natural resources is sometimes incomplete, scientific knowledge is limited, and some level of uncertainty exists. An adaptive management approach attempts to apply available resources and knowledge and adjust management techniques as new information is revealed (Williams and Brown 2012). US Department of the Interior regulations define adaptive management as "a system of management practices based on clearly identified outcomes and monitoring to determine whether management actions are meeting desired outcomes; and, if not, facilitating management changes that will best ensure that outcomes are met or re-evaluated" (43 CFR 46.30). US Department of the Interior regulations for implementing NEPA suggest that adaptive management should be used "in circumstances where long-term impacts may be uncertain and future monitoring will be needed to make adjustments in subsequent implementation decisions" (43 CFR 46.145).

Key uncertainties associated with the implementation of this plan include accurately predicting grizzly bear behavior, habitat utilization, and movements once released; reproductive success; genetic limitations; and source and rate of mortality. Therefore, the best way to ensure the success of the restoration effort in the NCE is to monitor various population and habitat parameters and respond with adaptive management actions when new data or scientific information require appropriate management responses (Walters and Holling 1990). Elements to measure or monitor during the adaptive management phase would include habitat selection, instances of conflicts between humans and grizzly bears, reproductive success and rate of population growth, grizzly bear mortality and mortality sources, and genetic composition of the population.

Adaptive management*—applying flexible management interventions, monitoring outcomes, and modifying future management actions to achieve grizzly bear restoration objectives and maximize social tolerance.*

Under all action alternatives, grizzly bears released into the NCE would be fitted with global positioning system (GPS) collars prior to release to monitor habitat use and spatial distribution, and tissue samples would be collected prior to release for genetic monitoring purposes. Sites for subsequent releases of grizzly bears during the adaptive management phase of the restoration process would be selected based on the criteria listed above. Recapture of grizzly bears may be conducted periodically to maintain a GPS-collared sample of the population; however, not all released bears would be re-collared once their initial collar is released, and bears born into the ecosystem would not necessarily be radio-collared in the future. Agency staff would seek to retrieve dropped GPS collars or respond to bear mortality on foot, although helicopter use could be considered in less accessible areas.

Under the *Wilderness Act of 1964* (16 United States Code [USC] 1131 et seq.), both the NPS and USFS would complete separate minimum requirements analyses to evaluate the necessity and impacts for all flights that require landing in designated wilderness lands under their management. Alternative tools and access would be used when possible to avoid impacting wilderness.

New GPS radio collars use the satellite phone system to periodically upload data from collars and send it back to biologists on the ground. These collars reduce the need for aerial monitoring, limiting the use of fixed-wing aircraft to capture operations, observations of reproductive success, locating malfunctioning collars, etc. Radio collar data would be downloaded approximately every 2 days. Real-time data can be unreliable in difficult terrain and steep topography with vegetative cover; it can also reduce the useful life of the collar. Conversely, receiving data every 2 days would suffice to provide general trend information regarding bear movement. Monitoring activities would take place from early spring to late fall and would be accomplished through cooperation between the agencies. Flights would occur periodically depending on collar status (i.e., mortality signal) and to monitor for reproductive success and population growth. Camera stations with hair snagging to collect genetic samples would be set up in remote areas to monitor grizzly bear presence and reproductive success, as described under the no action alternative.

Best Management Practices. A number of best management practices and mitigation measures have been identified to reduce the potential impacts on resources considered in this plan/EIS. The following list of mitigation and best management practices would be implemented under all action alternatives:

- Locate and use release sites that are more than 1,200 feet from suitable nesting habitat for northern spotted owls and marbled murrelets or only use the sites after the nesting period (March 1 to July 31 for northern spotted owls, and April 1 to September 23 for marbled murrelet).

- Fly at least 500 feet above ground level to avoid disturbing any nesting birds when departing staging areas by helicopter.
- Restrict helicopter activity within 1,000 feet of an active bald eagle nest.
- Locate and use weed-free project staging areas.
- Avoid or minimize all types of travel through weed-infested areas or restrict travel to those periods when spread of seed or propagules are least likely.
- Conduct pre-implementation staging and release site assessment and implement mitigation as necessary to avoid the presence of federally or state-listed species.
- Reduce the time that helicopters spend over camping areas or along trails by taking the most efficient routes to and from the release site.
- To the extent possible, fly (both helicopters and fixed-wing) only on weekdays.

Public Education and Outreach

Under all action alternatives, increased public education efforts would be tailored to the current stage of the restoration program. At the outset of initial restoration activities, the NPS and FWS would provide public updates as often as every week. These updates would provide generalized information on grizzly bear movements and locations. As the restoration process moves forward, these updates would take place less frequently, unless specific events with the potential to affect grizzly behavior, such as a large fire, occur. Each agency would use the NCE grizzly bear website to post the results of management actions and annual monitoring but would not disclose the exact locations of collared grizzly bears in the NCE.

Outreach to residents and visitors, including hikers and hunters, would be increased to aid them in avoiding conflicts with grizzly bears, including education about bear spray and proper storage of attractants. Ongoing public outreach by nonprofit organizations is also likely to continue, which would promote tolerance of and coexistence with grizzly bears by addressing public safety concerns and providing information about grizzly bear ecology and behavior, sanitation and safety in bear country, and policies and regulations associated with the recovery process. In 2018, the WDFW implemented a rule that requires black bear hunters to take and pass a bear identification test when hunting black bears in specific areas within grizzly bear recovery areas, with the intent of minimizing the potential for accidental killings of grizzly bears because of mistaken identification. All hunters within the NCE would be provided with additional information about grizzly bears.

Improved Sanitation on Public Lands

The majority of grizzly bear conflicts with humans involve unsecured attractants such as garbage, human foods, pet/livestock/wildlife foods, livestock carcasses, and wildlife carcasses. Under both action alternatives, sanitation measures would continue to be implemented for both black bears and grizzly bears, including bear-resistant trash receptacles and bear-resistant food storage lockers in NPS and USFS campgrounds, and a bear-resistant food canister loan program (on NPS lands). At developed campgrounds, signage would advise campers to maintain clean campsites and to not keep any food items inside tents. Current backcountry campground design protocols separating food preparation/storage areas from tent pads on NPS lands would continue to be implemented. In addition, signs would be installed in prominent locations at trailheads in the NCE warning hikers and other recreationists that they are entering bear habitat and listing measures to minimize the risks of traveling and camping in bear country. Food storage orders by the USFS, and comprehensive definitions for attractant storage in the NPS Park Compendium, would be maintained to provide federal law enforcement officers tools for reducing human-bear conflict. The WDFW would continue its efforts to educate the public about proper sanitation,

as well as other best management practices to reduce conflicts with bears and other wildlife. The NPS and FWS would work with the WDFW, like in other states with grizzly bear populations, to minimize wildlife attractants.

Replacement and Additional Releases of Grizzly Bears

Under both action alternatives, grizzly bears lost during the primary phase of restoration as a result of any source of mortality, human-caused or otherwise, would be replaced on a one-to-one basis. Likewise, grizzly bears that emigrate from the NCE or are removed because of conflict with humans would be replaced. This approach would continue until the initial population size is reached. Limited and infrequent additions to the population in subsequent years to support genetic diversity may be necessary unless genetic connectivity with other populations is established.

Access Management

Under all action alternatives, occasional short-term closures (a few hours up to a few days) could take place on a case-by-case basis, based on bear activity (e.g., a female with cubs near high human-use areas) or timing and location of a release. Short-term closures would occur at the staging areas, as described above. Closures may also occur if a bear is feeding on a carcass, consistent with current management for all large carnivores. No long-term closures or modifications to public access would be implemented because of grizzly bear restoration. The agencies do not anticipate the need for lengthy closures such as those experienced in Yellowstone National Park because no similar bear congregation areas have been identified (e.g., areas of high prey concentration). The agencies would coordinate with local Tribes to ensure that release sites and timing do not restrict access to traditional sites. Other access restrictions unrelated to the alternatives considered in this plan/EIS may occur under other implementation decisions by the agencies as part of routine management.

Habitat Management

Under all action alternatives, the NPS would strive to achieve the current approach of no net loss of core area on lands under management direction provided in the Ross Lake GMP (NPS 2012c). It is anticipated the USFS would continue to manage grizzly bear core area under the NNLA on national forest lands unless the agreement is superseded. The FWS, NPS, and USFS would update the baseline conditions with updated vegetation, trail, and road data and advance the no net loss of core area approach for federal lands within the US portion of the NCE recovery zone. These revisions would update the baseline and include metrics such as core habitat and trail data based on current conditions.

Primary Phase

During the primary phase of restoration, it is anticipated that 3 to 7 grizzly bears would be released into the NCE each year over roughly 5 to 10 years, with a goal of establishing an initial population of 25 grizzly bears. This is the likely number of grizzly bears that could feasibly be captured and released within 5 to 10 years, and serve as a small source population to help reestablish reproduction in the NCE. Based on the projected range of mortality and emigration rates for bears released into the NCE under the primary phase of alternatives B and C, the analysis assumes that an additional 11 bears would need to be released in the NCE (for a total of 36 bears in the primary phase).

The NPS and FWS would develop a detailed implementation strategy should either action alternative be selected. The implementation strategy would include more specific details on education and outreach, capture and welfare, an initial release plan, monitoring, and conflict management. Grizzly bears would be released at multiple sites in remote areas on NPS lands. Release sites on national forest lands could be

included once USFS completes its own environmental compliance. Release sites would be chosen based on the criteria described in the "Capture, Release, and Monitoring of Grizzly Bears" section, above. Release sites would be close to one another to facilitate interaction and breeding among grizzly bears released into the ecosystem.

Grizzly bears that would be considered optimal candidates for capture and release would be independent subadults between 2 and 5 years of age that had not yet reproduced and had exhibited no history of human conflict. The target sex ratio for initial releases would be approximately 60% to 80% female and 20% to 40% male. Additional grizzly bears would be released under the adaptive management phase as described below.

Adaptive Management Phase

Under alternative C, once an initial population of up to 25 grizzly bears is achieved, a transition to the adaptive management phase would occur.

Under both action alternatives once an initial population of up to 25 grizzly bears is achieved, a transition to the adaptive management phase would occur. In this phase, additional grizzly bears could be released to replace bears lost due to mortality, emigration, or bears removed from the NCE by other means (e.g., zoo placement of orphaned cubs); reduce genetic limitations; or to improve population distribution and sex ratio. Subsequent release sites would be chosen based on habitat selection and utilization data collected through monitoring during the primary phase of this alternative. Release sites may be removed from use if the NPS and FWS determine that bears released at specific sites come into conflict with humans, emigrate, or are killed more often than expected. The agencies would continue to monitor grizzly bears to measure reproductive success, survival, and habitat use during the adaptive management phase of both action alternatives. It is anticipated that the action alternatives would achieve a restoration population of 200 grizzly bears in the NCE within approximately 60 to 100 years. The expanding grizzly bear population in the NCE would be continuously monitored for its genetic diversity and its growth relative to the NCE's carrying capacity. Should Canadian entities move forward with a grizzly bear restoration strategy, the NPS and FWS would coordinate with First Nations and Canada throughout the adaptive management phase.

ALTERNATIVE B – RESTORATION WITH EXISTING ENDANGERED SPECIES ACT PROTECTIONS

Under alternative B, grizzly bears restored to the NCE would be managed as a threatened species under the existing ESA section 4(d) rule governing the management and "take" of grizzly bears in the lower-48 states (50 CFR 17.40(b)). This 4(d) rule allows grizzly bears to be taken as described below, as long as such take is reported promptly to the FWS. "Take" as defined under the ESA means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Defense of life. Persons may take grizzly bears in self-defense or in defense of others.

Federal, state, or Tribal scientific or research activities. Federal, state or Tribal authorities may take grizzly bears for scientific or research purposes, but only if such taking does not result in death or permanent injury to the bears involved.

Removal of nuisance bears. A grizzly bear constituting a demonstrable but non-immediate threat to human safety or committing significant depredations to lawfully present livestock, crops, or beehives may be taken but only if:

- It has not been reasonably possible to eliminate such threat or depredation by live capturing and releasing unharmed in a remote area the grizzly bear involved; and
- The taking is done in a humane manner by authorized federal, state, or Tribal authorities, and in accordance with current interagency guidelines covering the taking of grizzly bears involved in conflict.

National Parks. The regulations of the NPS shall govern all taking of grizzly bears in national parks in accordance with the existing ESA section 4(d) rule.

Preventing conflict situations with grizzly bears is essential to successful grizzly bear restoration (Carter and Linnell 2016). At times, however, management actions may be necessary to intervene with property damage, livestock losses, demonstrable threats to human safety, or human injury or death.

The FWS uses guidelines for managing grizzly bears under the 4(d) rule, including the 1986 IGBC *Interagency Grizzly Bear Guidelines*, which describe management direction based on grizzly bear population and habitat conditions, types of conflict situations, and potential control actions. Federal and state wildlife managers have employed such guidelines for more than 30 years in ecosystems with large populations, like the GYE and the NCDE. The guidelines specify coordinated interagency approaches to managing grizzly bears, define agency responsibilities in response to conflict situations, and provide operational guidelines for defining grizzly bear conflicts and for managing grizzly bears involved in conflicts. Depending on the type of encounter, the age and sex of the grizzly bear, and the number of encounters the grizzly bear has been involved in, the guidelines prescribe relocation of the grizzly bear, release on-site, or removal from the population (lethal control or placement into an approved captive facility).

Over the past few decades, considerable effort in recovery areas with current grizzly bear populations has been directed toward the development of nonlethal techniques for preventing human-bear conflicts and responding to them once they have occurred. State, Tribal, and federal grizzly bear management plans, including this plan/EIS, emphasize nonlethal techniques over lethal control actions to prevent conflicts from occurring (e.g., removing or securing the attractant and providing education to modify human behavior/practices; aversive conditioning or hazing with scare devices and noise and/or guard animals [Gehring, VerCauteren, and Landry 2017]; or capture and relocation). However, the agencies have learned through decades of grizzly bear management that lethal control of grizzly bears involved in conflicts is sometimes necessary to protect human life and prevent further conflicts.

Livestock depredation by grizzly bears would likely occur in the NCE. Relocations, other nonlethal deterrence, or lethal removal of depredating bears in other ecosystems have proven effective in some circumstances, and similar results are expected in the NCE. State regulations for addressing wildlife damage are authorized by state law under the Revised Code of Washington 77.36.

Under alternative B, the NPS and FWS may consider ending the releases if grizzly bears in the NCE experience unexpectedly high natural mortality or if donor bears are not available. The NPS and FWS would coordinate with other partners before making any decisions to exit the restoration program.

ALTERNATIVE C – RESTORATION WITH ENDANGERED SPECIES ACT SECTION 10(j) DESIGNATION (PREFERRED ALTERNATIVE)

Under alternative C, the FWS would designate grizzly bears in the US portion of the NCE and surrounding areas as a 10(j) NEP under section 10 of the ESA. To relieve concern that translocating ESA-protected species may result in restrictions on the use of private, Tribal, or public land, Congress

added the provision for designating experimental populations under section 10 of the ESA. An experimental population is a group of translocated plants or animals (inclusive of their progeny) that is geographically separate from other nonexperimental populations of the species. In designating populations as experimental, the FWS must determine whether they are "essential" or "nonessential" to the survival of the species as a whole and must consider the relative effects of establishing an experimental population on the species' recovery.

Section 10(j) provides for the management of experimental populations under a set of special regulations. These regulations specify what "take" of the species is allowed or not allowed under the ESA within the experimental population area. A NEP designation also modifies the federal consultation requirements for actions that may affect the ESA-listed species. Federal agencies are not required to consult with the FWS on actions that may affect NEPs, except on national park system or national wildlife refuge system lands; although federal agencies must still confer with the FWS on actions that would affect NEPs when those actions are likely to jeopardize the continued existence of the species. Federal consultation requirements remain in place for all experimental populations that occur on national park system and national wildlife refuge system lands.

Designation of grizzly bears released into the US portion of the NCE as a 10(j) NEP would provide authorized agencies with greater management flexibility should conflict situations arise. The designation allows for the advancement of recovery objectives by providing an opportunity to reestablish a population within the ecosystem. Any management actions would be consistent with the overall goal of establishing and conserving the NEP while promoting social tolerance and human safety.

Geographic Extent of the Experimental Population

FWS delineated a NEP area boundary to: (1) encompass the geographic extent of potential movement of bears restored to the NCE plus a geographic margin of management assurance beyond this extent to allow for monitoring and management of the reintroduced population under 10(j) special regulations, and (2) ensure geographic separation from extant grizzly bear populations in the lower-48 states.

Information the FWS considered to ensure individuals and their progeny would be managed under NEP special regulations included an evaluation of grizzly bear habitat in Washington (Singleton, Gaines, and Lehmkuhl 2004; FWS 2022) and grizzly bear movement data from other populations. The FWS also considered Tribal and partner input and concerns regarding the need for management tools for any grizzly bears that move outside the NCE. Finally, the FWS considered separation of the NEP from other nonexperimental populations of grizzly bears within the lower-48 states as necessary under FWS regulations (50 CFR 17.80). This separation of experimental and nonexperimental populations helps ensure that extant populations retain their protections under the ESA and that the regulations that apply to each population are clearly defined. The NEP boundary and the Selkirk Ecosystem are separated by more than 100 miles, and the area in between contains significant portions of human-altered landscape that reinforces continued geographic separation. Additionally, the closest verified observation of a grizzly bear in the area between the NEP boundary and the Selkirk Ecosystem was 75 miles outside the NEP (Proctor et al. 2012).

For management purposes, the geographic extent for the grizzly bear NEP includes all of Washington state except an area around the Selkirk Mountains grizzly bear recovery area in the northeastern part of the state where a population of bears currently exists. The northeastern boundary of the NEP is defined by the Kettle River from the international border with Canada, downstream to the Columbia River to its confluence with the Spokane River, then upstream on the Spokane River to the Washington-Idaho border (figure 4). Grizzly bears restored to the NCE would be separated from the area defined above (the nearest grizzly bear population in the lower-48 states) by at least 100 miles. In addition, the area between the

NCE and the Selkirk Ecosystem contains significant portions of human-altered landscape (e.g., major roads, agricultural lands, rural/urban development) or major natural landscape features (e.g., Columbia River). Natural recolonization is unlikely because of the highly fragmented landscape between these areas, as well as the distance between these ecosystems, which is beyond the average female dispersal distance (McLellan and Hovey 2001; Proctor et al. 2004).

Under alternative C, the FWS anticipates retaining the experimental population designation until grizzly bears have been delisted due to recovery, regardless of whether the boundaries of the listed entity change. However, similar to alternative B, the NPS and FWS may consider ending the releases if grizzly bears of the NEP experience unexpectedly high natural mortality or if donor bears are not available. This would be done only after coordination with partners before making any decisions to suspend the restoration program.

Management Areas

Three management areas, based on suitability for occupancy by grizzly bears and the likelihood of human-bear conflicts, have been identified within the NEP area (figure 4).

Management Area A includes the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests north of Interstate 90 and west of Washington State Route 97, as well as the park complex. Management Area A would be the primary area for the restoration of grizzly bears and would serve as core habitat for survival, reproduction, and dispersal. The NNLA applies to lands within Management Area A only.

Management Area B includes the Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest south of Interstate 90, Gifford Pinchot National Forest, and Mt Rainier National Park. Management Area B also includes the Colville National Forest and Okanogan-Wenatchee National Forest lands east of Washington State Route 97 within the NEP boundary. Management Area B is meant to accommodate natural movement or dispersal by grizzly bears.

Management Area C comprises all other lands not contained within Management Areas A and B within the NEP boundary. Management Area C contains large areas that may be incompatible with grizzly bear presence due to high levels of private land ownership and associated development and/or potential for bears to become involved in conflicts and resultant bear mortality; although, some areas within this management area can support grizzly bears, and grizzly bears may occur in portions of this zone. The intent of Management Area C is to allow more management flexibility than the other areas to minimize impacts of grizzly bears on landowners and other members of the public.

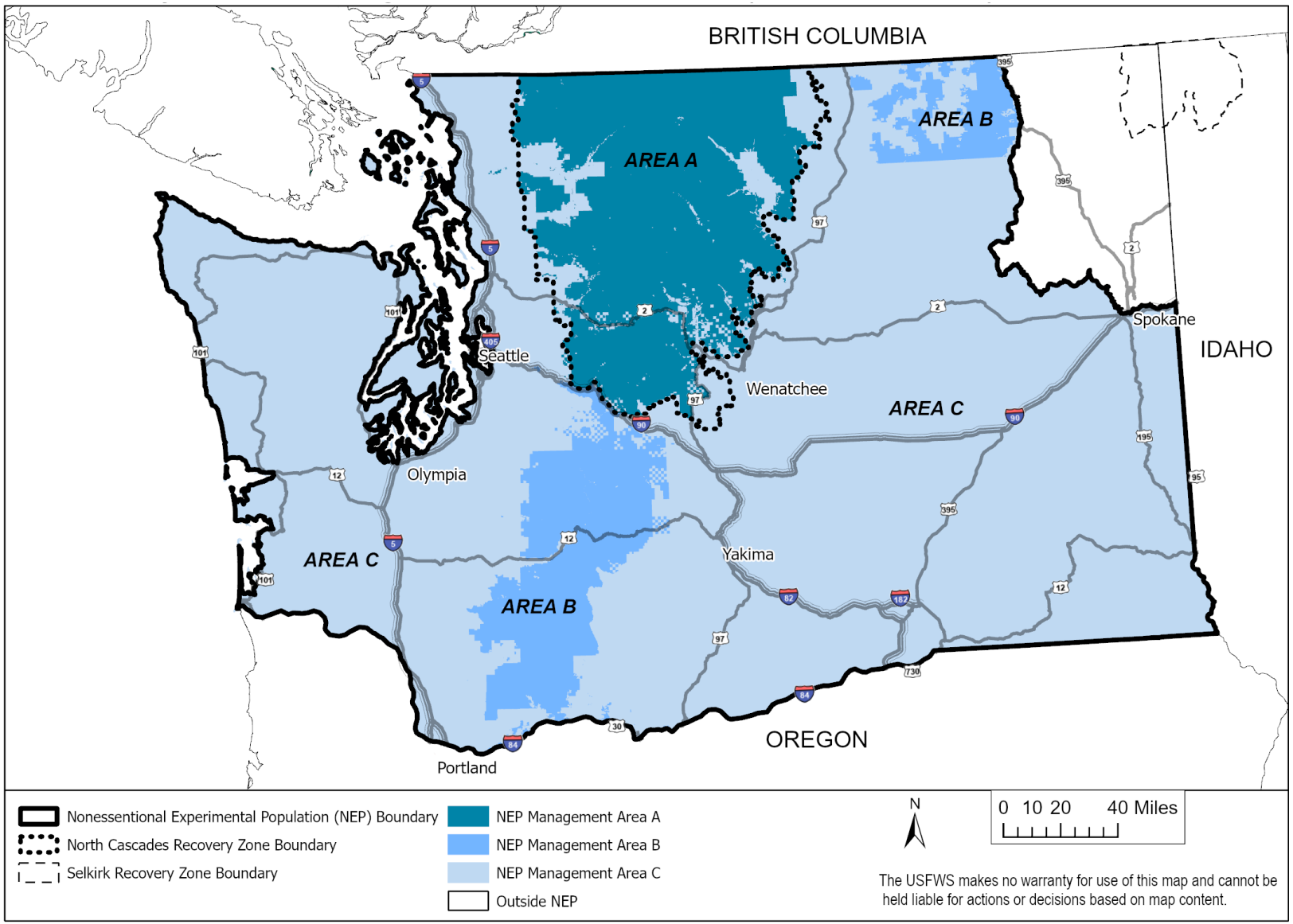


FIGURE 4. ALTERNATIVE C MANAGEMENT AREAS

Section 10(j) Regulation

The section 10(j) rule would address the situations in which "take" of grizzly bears in the NEP area could occur. The following is a general summary of the proposed management of grizzly bears for the NEP, further detailed in the FWS's 10(j) rule published separately in the *Federal Register*. Table 2 also provides further detail about the various management tools of the 10(j) rule. If necessary to provide for take within the park complex, the NPS would take any additional regulatory steps in support of the 10(j) NEP designation.

The following take of grizzly bears would be allowed in **all** management areas in the NEP area:

- Self-defense or the defense of others based on a good-faith belief that the actions taken were to protect the person from bodily harm.
- Deterrence, or an intentional, nonlethal action to haze, disrupt, or annoy a grizzly bear out of close proximity to people or property to promote human safety, prevent conflict, or protect property. Any deterrence must not cause lasting bodily injury to any grizzly bear (i.e., permanent damage or injuries that limit the bear's ability to effectively move, obtain food, or defend itself for any length of time), or death to the grizzly bear. Any person who deters a grizzly bear must use discretion and act safely and responsibly in confronting grizzly bears. The 10(j) rule provides some examples of acceptable and unacceptable deterrence techniques, and the FWS provides the most current guidelines. See FWS *Grizzly Bear Hazing Guidelines* (FWS 2020).
- Incidental take of a grizzly bear, provided such take is unintentional and not due to negligent conduct, the take is incidental to an otherwise lawful activity, the take is promptly reported to the FWS, and if the take occurs on national forest lands in Management Area A, that the USFS has maintained its "no net loss" agreement and implemented food storage restrictions throughout USFS-managed lands in Management Area A.
- Research and recovery actions by authorized agencies (a federal, state, or Tribal agency designated by the FWS in a memorandum of understanding to assist in implementing the section 10(j) rule) with prior approval from the FWS if such action is necessary for scientific purposes and certain recovery actions.
- Relocation of grizzly bears with prior authorization from the FWS by authorized agencies, who may live-capture grizzly bears and release them in a remote location agreed to by the FWS, the WDFW, and the applicable land management agency for any of the following reasons: for a grizzly bear involved in conflict; to prevent unnatural use of food materials that have been reasonably secured from the bear or unnatural use of anthropogenic foods; after aggressive (not defensive) behavior toward humans results in injury to a human or constitutes a demonstrable immediate or potential threat to human safety; as a preemptive action to prevent a conflict that appears imminent or in an attempt to prevent habituation of bears; or for any other conservation purpose for the grizzly bear as determined by the FWS.
- Removal of grizzly bears involved in conflict, with prior approval of the FWS, by an authorized agency, including lethal removal, but only if: (1) it is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live capturing and releasing the grizzly bear unharmed in a remote area; and (2) the taking is done in a humane manner (with compassion and consideration for the bear and minimizing pain and distress) by a federal, state, or Tribal authority of an authorized agency.

Additional conditioned lethal take of grizzly bears could occur in Management Areas B and C at the discretion of the FWS. With prior written authorization from the FWS, individuals may lethally take a grizzly bear within 200 yards of legally present livestock if a depredation has been confirmed by the FWS or an authorized agency, the FWS or an authorized agency determines it is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live capturing and releasing the grizzly bear unharmed in a remote area, and the taking is done in a humane manner. Such authorizations would be valid for 5 days; after 5 days, the FWS may extend the authorization of lethal take an additional 5 days if there are additional grizzly bear depredations or injuries to livestock and circumstances indicate the offending bear can be identified. In Management Area C, the FWS may authorize conditioned lethal take to individuals if the FWS or an authorized agency determines both of the following: a grizzly bear presents a demonstrable and ongoing threat to human safety or to lawfully present livestock, domestic animals, crops, beehives, or other property; and it is not reasonably possible to otherwise eliminate the threat through nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed. The FWS also would only authorize conditioned lethal take if the individual requesting the written authorization is the landowner, livestock producer, or designee (e.g., an employee, or lessee); and the taking is done in a humane manner. Also in Management Area C, any individual may take (injure or kill) a grizzly bear in the act of attacking livestock (including working dogs on private land) under specified conditions, which includes the absence of excessive unsecured attractants (e.g., carcasses or bone piles), that there was no intentional feeding or baiting of the grizzly bear or wildlife, prompt reporting of the take, and the area remains undisturbed to allow for review.

Within all management areas, under the section 10(j) rule, any grizzly bear killed must be reported within 24 hours to the FWS, and the carcass and any associated collars or ear tags surrendered to the FWS. Any conditioned lethal take in Management Areas B and C would be valid for 5 days.

Section 7 Consultation

Under alternative C, consultation with the FWS under section 7(a)(2) of the ESA for grizzly bears within the NEP would only be required for actions on national park system or national wildlife refuge system lands. Section 7(a)(2) of the ESA requires that federal agencies, in consultation with the FWS, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or adversely modify its critical habitat. When NEPs are located outside national park system or national wildlife refuge system lands, for the purposes of section 7, the FWS administratively treats the population as proposed for listing, and only sections 7(a)(1) (50 CFR 17.83) and 7(a)(4) (50 CFR 402.10) of the ESA apply (50 CFR 17.83). Accordingly, the USFS would not be required to consult under section 7(a)(2) about impacts to the NEP when authorizing activities under USFS permits, such as for grazing, mining, and timber harvest activities, including permits for road hauling that may include travel on non-federal lands. Rather, section 7(a)(4) would require federal agencies to confer (rather than consult) with the FWS on actions that are likely to jeopardize the continued existence of the species. Because a NEP is, by definition, not essential to the survival of the species, conferencing is unlikely to be required within the NEP.

Table 2 summarizes the two action alternatives that are fully evaluated in this plan/EIS.

TABLE 2. SUMMARY OF ACTION ALTERNATIVE ELEMENTS

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
Restoration		
Primary Phase Restoration	3 to 7 bears per year released at multiple sites over 5 to 10 years to achieve initial population of 25 bears	Same as alternative B
Adaptive Management	Additional grizzly bears could be released to address human-caused sources of mortality, genetic limitations, to improve population distribution and sex ratio, or mitigate the potential for long-term genetic isolation.	Same as alternative B
Sex Ratio	Initially approximately 60% to 80% female and 20% to 40% male, adjusted as needed through adaptive management	Same as alternative B
Initial Population Goal	25	Same as alternative B
Number of Bears Per Year	3 to 7 bears per year, with additional bears possible to replace mortalities and emigration	Same as alternative B
Time to Reach Goal	5–10 years for 25 bears; 60–100 years for 200 bears	Same as alternative B
Total Number of Helicopter Flights	144 flights	Same as alternative B
Total Hours of Flights over Wilderness	65 hours annually (maximum)	Same as alternative B
Restoration Population	200 bears	Same as alternative B
Source of Grizzly Bears that Share Similar Ecology	Multisource	Same as alternative B
Tools for Capture of Grizzly Bears	Culvert traps would be used to capture grizzly bears in nonwilderness areas with possible helicopter support. Also potential to evaluate and use helicopter-based capture darting. Baited foot snares could also be used. Coordination with source area managers would occur.	Same as alternative B
Release Approach	Grizzly bears would be released from culvert traps ferried in by helicopter or released by truck or boat. Release sites would be remote. All release activities would be conducted by the FWS and NPS, in consultation with the WDFW and USFS, if releases occur on national forest lands.	Same as alternative B

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
Helicopters and Other Remote Access Tools	Helicopters would be used for release and possibly retrieval of collars. Fixed-wing aircraft and satellites would be used for periodic monitoring. All release activities would be conducted by the FWS and NPS, in consultation with the WDFW and USFS.	Same as alternative B
Habitat Security		
NCE Grizzly Habitat Conservation (Core Areas)	The NPS would maintain at least 70% of core areas under management direction provided in the Ross Lake GMP (NPS 2012c). USFS would maintain no net loss of core areas under the NNLA until the agreement is superseded.	Same as alternative B. The no net loss core area management would apply to Management Area A.
Management Tools[a]		
Research and Recovery Actions	Bears released as part of the restoration effort would be radio-collared and tracked for occupancy of the target area, survival, and reproduction. Ultimate reproduction by these animals may occur after bears have lost radio collars and could be determined by hair snagging for genetic information that could identify both occupancy and reproduction. Additional attempts to capture and release bears or their offspring to maintain radio collars for additional monitoring is expected. Other research needs or efforts may be identified in the future. Monitoring would be accomplished through cooperation among the FWS, NPS, WDFW, and other authorized agencies.	Same as alternative B. Under the 10(j) rule, with prior approval of the FWS, an authorized agency may take a grizzly bear if such action is necessary: (A) For scientific purposes; (B) To aid a sick or injured grizzly bear, including euthanasia if it is unlikely to survive or poses an immediate threat to human safety; (C) To salvage a dead specimen that may be useful for scientific study; (D) To dispose of a dead specimen; or (E) To aid in law enforcement investigations involving the grizzly bear.
Grizzly Bear Management	Management would be consistent with the existing ESA section 4(d) rule governing the regulation of grizzly bears in the lower-48 states. Responses, including removal/relocation of grizzly bears involved in conflicts as necessary, would be based on the 4(d) rule. Relocated grizzly bears would be moved to an agreed-upon remote site in accordance with relocation guidelines specified by the most current FWS-approved guidelines.	Management would be based on the Management Area, as described in the 10(j) rule. In Management Area A, management actions would include: • Take of bears in self-defense or defense of others; • Take resulting from otherwise lawful activities (e.g., timber harvest, road construction, recreation) and not due to negligent conduct, with the provision that take resulting from otherwise lawful USFS activities on national forest system lands in Management Area A are contingent on the USFS having maintained its “no net loss” agreement and implemented food storage restrictions throughout Management Area A;

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
		• Deterrence of bears; take associated with research and recovery actions; • Relocation or deterrence of bears by federal, state, or Tribal authorities for recovery purposes, including as a pre-emptive action to prevent conflict; and, • Lethal removal by authorized federal, state, or Tribal authorities of grizzly bears involved in conflict as defined in the 10(j) rule, including that it is not reasonably possible to eliminate the threat through nonlethal deterrence or live capturing and releasing the grizzly bear unharmed. In Management Area B, management actions would include all actions authorized for Management Area A, plus: • The ability for the FWS to issue written time-limited conditioned lethal take authorization to an individual if all the following conditions exist: a depredation of livestock has been confirmed by the FWS or authorized agency, the FWS or authorized agency determine a bear is a demonstrable and ongoing threat, and it is not reasonably possible to eliminate the threat through nonlethal deterrence or live capturing and releasing the grizzly bear unharmed. In Management Area C, management actions would include all actions authorized for Management Areas A and B, plus: • The ability for the FWS to issue written time-limited conditioned lethal take authorization to an individual to kill a bear under the following conditions: the FWS or an authorized agency identifies the bear as an ongoing threat to human safety, livestock, or other property (e.g., compost, chickens, beehives), and it is not reasonably possible to eliminate the threat through nonlethal deterrence or live capturing and releasing the grizzly bear unharmed. • An individual landowner, livestock producer, or designee (e.g., an employee or lessee), may take (injure or kill) a grizzly bear in the act of attacking livestock on private land under specified conditions, including the absence of excessive unsecured attractants (e.g., carcasses or bone piles), that there

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
		was no intentional feeding or baiting of the grizzly bear or wildlife, prompt reporting of the take, and that the area remains undisturbed to allow for review.
Deterrence	The existing ESA section 4(d) rule does not speak to deterrence; however, the FWS has provided guidance for non-injurious methods to deter a grizzly bear posing a non-immediate threat to human safety, livestock, or property; are involved in a conflict; or have become habituated and are lingering near human-occupied areas, or if a conflict appears imminent. Refer to current FWS grizzly bear hazing guidelines for appropriate methods.	Persons may haze, disrupt, or annoy a grizzly bear out of close proximity to people or property to promote human safety, prevent conflict, or protect property. Any deterrence must not cause lasting bodily injury to any grizzly bear (i.e., permanent damage or injuries that limit the bear's ability to effectively move, obtain food, or defend itself for any length of time), or death to the grizzly bear. Any person who deters a grizzly bear must use discretion and act safely and responsibly in confronting grizzly bears that are involved in conflicts. Acceptable deterrence techniques include non-projectile auditory deterrents, visual stimuli/deterrents, vehicle threat pressure, and noise-making projectiles. Unacceptable deterrence methods include screamers/whistlers, rubber bullets/batons, and bean bag and aero sock rounds. Upon request, the FWS can provide the most current approved guidelines for appropriate nonlethal deterrents. A person may not bait, stalk, or pursue a grizzly bear for the purposes of deterrence. Pursuit is defined as deterrence carried out beyond 200 meters of a human-occupied area or lawfully present livestock.
Defense of Life	Persons may take grizzly bears in self-defense or in defense of others.	Same as alternative B.
Agency Lethal Control	Grizzly bears management would occur consistent with the existing ESA section 4(d) rule. Responses, including removal/relocation of grizzly bears involved in conflicts as necessary, would be based on the 4(d) rule.	With prior approval of the FWS, a grizzly bear involved in conflict may be taken, up to and including lethal removal by an authorized agency, but only if: (A) It is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live capturing and releasing the grizzly bear unharmed in a remote area agreed to by the FWS, WDFW, and the applicable land management agency. (B) The taking is done in a humane manner by a federal, state, or Tribal authority of an authorized agency; and (C) The taking is reported within 24 hours to the FWS.
Authorization of conditioned lethal take s	Not allowed.	For livestock owners in Management Areas B and C: With prior written authorization from the FWS or authorized agency, livestock owners may lethally take a grizzly bear within 200 yards (183 meters) of legally present livestock. Such

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
		authorizations would be valid for 5 days, but the FWS may extend the authorization of lethal take an additional 5 days if there are additional grizzly bear depredations or injuries to livestock and circumstances indicate the offending bear can be identified. Such authorizations would only be issued if: (A) A depredation has been confirmed by the FWS or authorized agency; (B) The FWS or an authorized agency determines it is not reasonably possible to otherwise eliminate the threat by deterrence or live capturing and releasing the grizzly bear unharmed;. (C) The taking is done in a humane manner (i.e., showing compassion and consideration for the bear and minimizing pain and distress); (D) The taking is reported to the FWS within 24 hours; and any grizzly bear that is killed by a Federal, State, or Tribal authority of an authorized agency must be reported by following the reporting instructions as described in the authorized agency's MOU, and (E) The grizzly bear carcass and any associated collars or ear tags are surrendered to the FWS. Management Area C: The FWS may issue prior written authorization allowing an individual to kill a grizzly bear in Management Area C when deemed necessary for human safety or to protect property. Such authorizations would be valid for 5 days, may be reissued by the FWS if deemed warranted, and would only be issued if: (A) The FWS or authorized agency determines that a grizzly bear presents a demonstrable and ongoing threat to human safety or to lawfully present livestock, domestic animals, crops, beehives, or other property; and that it is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live capturing and releasing the grizzly bear unharmed; (B) The individual requesting the written authorization is the landowner, livestock producer, or designee (e.g., an employee, or lessee); (C) The taking is done in a humane manner; (D) The taking is reported within 24 hours to the FWS; and

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
		(E) The carcass and any associated collars or ear tags are surrendered to the FWS. Also, in Management Area C, any individual may take (injure or kill) a grizzly bear in the act of attacking livestock on private lands (i.e., non-public lands) provided: (A) The individual is the landowner or livestock producer, or a designee (e.g., an employee or lessee); (B) Any grizzly bear taken in the act must be reported to the Service or authorized agency within 24 hours; (C) The carcass of any grizzly bear taken and the surrounding area must not be disturbed in order to preserve physical evidence of the attack; (D) The Service or authorized agency must be able to confirm that the livestock or working dog were injured or killed by a grizzly bear. The taking of any grizzly bear without such evidence may be referred to the appropriate authorities for prosecution; and (E) This exception to the prohibition on take does not apply if there is evidence of excessive unsecured attractants (e.g., carcass piles or bone yards), or of intentional feeding or baiting of grizzly bears or wildlife.

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
Incidental Take and Section 7 Consultation	Federal agency actions impacting grizzly bears would be required to consult with the FWS under 7(a)(2) of the ESA. If the impacts of the action would result in the incidental take of a grizzly bear and the FWS determines in a biological opinion that the taking would not jeopardize the species, the FWS would issue an incidental take statement and taking in compliance with the terms and conditions of that statement would not be prohibited. Persons may not intentionally take a grizzly bear, unless the take is for defense of life (see the existing ESA section 4(d) rule). Incidental take of grizzly bear would not be allowed unless authorized by the FWS through an incidental take statement to a federal agency through a section 7(a)(2) consultation, or under an ESA section 10 permit.	Under the 10(j) rule, except on national park system or national wildlife refuge system lands, there is no requirement for a federal agency (such as the USFS) to consult under 7(a)(2) of the ESA with the FWS if the federal agency action impacts grizzly bear within the NEP. Under the 10(j) rule, incidental take of grizzly bear by persons would be allowed, provided: (1) the take is incidental to, and not the purpose of, an otherwise lawful activity; (2) the take is promptly reported to the FWS; (3) if the take occurs on national forest lands within Management Area A, that the USFS has maintained its "no net loss" agreement and implemented food storage restrictions throughout Management Area A. Persons lawfully engaged in hunting and shooting activities must correctly identify their target before shooting to avoid illegally shooting a grizzly bear. The act of taking a grizzly bear that is wrongfully identified as another species is not considered incidental take and may be referred to appropriate authorities for prosecution.
Timing of Management Actions		
Primary and Adaptive Management Releases	Releases would occur from June through September depending on release site (may have more latitude based on food availability). Release timing is food source-dependent and may be limited by capture timing.	Same as alternative B
Maintenance Activities (Monitoring Activities, etc.)	Monitoring activities would take place from early spring to late fall and would be done in cooperation among the FWS, NPS, USFS, and WDFW.	Same as alternative B
Other Considerations		
Revised Code of Washington 77.12.035	Because of the Revised Code of Washington, participation in active grizzly bear restoration by the WDFW would be subject to state authorization.	Same as alternative B
Public Access Management	No long-term closures are expected. Occasional short-term (a few hours to a few days) closures for releases and public safety may occur but would be site-specific.	Same as alternative B

Element	Alternative B: Restoration With Existing ESA Protections	Alternative C: Restoration With Section 10j Designation (Preferred Alternative)
Public Outreach and Education/Information	Increased efforts related to the outcome of program would occur with regular (initially weekly) updates on grizzly bear restoration efforts; includes education and outreach that are common to the no action alternative.	Same as alternative B
Ungulate Hunting Management	Increased public outreach and education efforts for hunters to avoid grizzly bear encounters, increase use of bear spray, clean camping.	Same as alternative B
Black Bear Hunting Management	In 2018, the WDFW implemented a regulation that requires black bear hunters to take and pass a bear identification test when hunting black bears in specific areas within grizzly bear recovery zones, with the intent of minimizing the potential for accidental killings of grizzly bears because of mistaken identification. Additional grizzly bear information would be provided to all bear hunters, especially in areas within the recovery zone and areas immediately adjacent to the recovery zone that grizzly bears are likely to use (public outreach and education).	Same as alternative B

Note: Minimum requirements analysis pursuant to the *Wilderness Act* was conducted for actions that could occur in wilderness areas. See appendix D.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER DETAILED ANALYSIS

The following alternatives were considered but dismissed from further analysis for the reasons explained below.

Restoration from Washington Sources Only

As discussed in chapter 1, Washington law prohibits WDFW from transplanting or introducing grizzly bears into the state and permits the WDFW to use only grizzly bears that are native to the state of Washington for management programs. The interagency planning team assessed the feasibility of a Washington-only restoration alternative to allow for WDFW participation in translocation efforts. Under this alternative, the NPS, FWS, and WDFW would release grizzly bears into the US portion of the NCE that had been sourced from other areas within the state of Washington, such as the Washington portion of the Selkirk Ecosystem. Grizzly bears would be released at a single release site to maximize the probability that they would encounter, interact with, and breed with one another.

During the primary phase of restoration, grizzly bears would be released into the NCE annually as their availability permits, with a goal of establishing an initial population of 25 grizzly bears. Given the low grizzly bear population in other areas of Washington, it is anticipated that no more than 1 to 2 grizzly bears could be captured and released into the NCE in a given year. In some years, grizzly bears may not be available for capture. The optimal sex ratio for grizzly bears released into the NCE would be 60% to 80% female and 20% to 40% male; however, because of the limited number of grizzly bears available, grizzly bears up to 10 years old could be targeted for capture and release. As a result, it is likely that the age and sex ratio of grizzly bears that would be sourced from areas in Washington state would depart from the optimal ratio.

The US portion of the Selkirk Ecosystem represents about 1,160 square miles; of this area, only about 41% (or 475 square miles) is located in Washington with the remaining area located in Idaho. Grizzly bear monitoring efforts (hair collection, photos, captures) in the US portion of this ecosystem identified a minimum of 44 individual grizzly bears (17 female, 21 male, 6 unknown [all cubs]) alive at some point during 2020 (Kasworm et al. 2022b). Two of these bears were known dead at the end of 2020 (yearling female, human-caused, vehicle strike; subadult male, human-caused, found dead with snare around neck). Sex-age class was able to be assigned to 42 individuals detected. Pre-census sex-age class distribution consisted of 26% adult females, 24% adult males, 24% subadults, and 26% dependents in 2020. Monitoring data suggest that less than 41% of these grizzly bears use habitat in Washington, while higher densities occur in Idaho (Kasworm et al. 2022b). For assessing the feasibility of this alternative, it was assumed that 40% of the Selkirk Ecosystem grizzly bear population use habitat in Washington (possibly 17 grizzly bears). Of these 17 grizzly bears, approximately 33% (6 grizzly bears) are expected to be reproductive females (FWS 1993a). Female grizzly bears first reproduce at approximately 6 years of age and produce a litter of 2 cubs every 3 years. Assuming no adult or cub mortality, these 6 adult female grizzly bears would likely produce a total of 4 cubs every year. Assuming an even sex ratio, the 4 cubs would consist of 2 males and 2 females. If all cubs were used for restoration in the NCE, there would be no recruitment in the Washington portion of the Selkirk Ecosystem, which would result in adverse impacts on the sustainability of the Selkirk Ecosystem population. If only female cubs were used for restoration in the NCE, it would result in a lack of female recruitment and similar adverse impacts on the sustainability of the Selkirk Ecosystem population.

Given the potential impacts to the Selkirk Ecosystem population, using grizzly bears from the Washington portion of the that ecosystem for restoration of the NCE grizzly population would require

emphasizing recovery of the NCE population ahead of the Selkirk Ecosystem population. However, even if that prioritization were made, the small number of candidate grizzly bears available for capture in a given year would not yield a sufficient number of bears within a biologically relevant period to restore a grizzly bear population in the NCE. This alternative would not only adversely affect the sustainability of the Selkirk Ecosystem population but also not achieve the long-term survival of grizzly bears in the NCE and would not meet the purpose and need of this plan/EIS. Therefore, this alternative was dismissed from further analysis.

Delayed Implementation of Restoration from Washington Sources Only

The interagency planning team also considered an alternative that would release grizzly bears from the Selkirk Ecosystem into the NCE; however, these efforts would be implemented only after it had been determined that recovery of the Selkirk Ecosystem grizzly bear population had been achieved. With an estimated recovered population of 100 bears in the ecosystem, including the British Columbia portion, and an estimated growth rate of 3.1% (Kasworm et al. 2022b), there would be an estimated 3 bears available annually for NCE restoration without causing a decline in the Selkirk Ecosystem population. Of these, only 1 or 2 would come from the state of Washington. However, the *Grizzly Bear Recovery Plan* also indicates the need for the Selkirk Ecosystem population to be linked to other populations, as evidenced by documented breeding activity and improvement in genetic diversity before the population is considered fully recovered (FWS 1993a). In aggregate, the steps outlined above could take many years to complete.

Given the low population of grizzly bears in the Selkirk Ecosystem, the very slow reproductive rate of the species, genetic concerns, and other logistic constraints described above, full recovery of the Selkirk Ecosystem grizzly bear population is not likely to be sufficient to provide a reliable source of bears for restoration of the NCE. Because this alternative would not enhance the probability of long-term survival of grizzly bears in the NCE, and thus would not meet the purpose and need of this plan/EIS, it was dismissed from further analysis.

Natural Recovery

Comments received during public scoping requested that the agencies allow restoration to occur naturally by allowing grizzly bears to return to the US portion of the NCE on their own. Additional comments received during public review periods requested that the agencies consider an alternative or alternative element that would not involve the capture and release of grizzly bears into the NCE but would focus solely on ecosystem restoration and habitat preservation in an effort to facilitate more movement of grizzly bears into the US portion of the NCE from the British Columbia portion and to increase habitat use by grizzly bears in the US portion of the NCE. The US government has no jurisdiction to address habitat connectivity in Canada, the most likely source of potentially immigrating bears, and improved habitat connectivity is not likely to advance recovery in the NCE in the foreseeable future because the nearest populations are not at densities that would facilitate range expansion (see figure 1). As noted in chapter 1, although a small number of grizzly bears may still inhabit the portion of the NCE in Canada, the number of grizzly bears in the NCE does not meet the accepted definition for a population (2 adult females with cubs or 1 adult female tracked through two litters) (FWS 2022), and it is implausible that the small number of bears in the ecosystem is sufficient for a population to recover on its own. Efforts are under consideration in British Columbia to assess the feasibility of recovering grizzly bears in the Canadian portion of the NCE. First Nations have declared grizzly bears within the North Cascades GBPU as in immediate need of restoration and protection (Okanagan Nation Alliance 2014; Piikani Nation 2018). A Joint Nation grizzly bear recovery partnership has been established among First Nations in collaboration with the British Columbia government to outline population recovery objectives and strategies in a “North Cascades Grizzly Bear Stewardship Strategy.” Translocation efforts in British

Columbia have not started, and it is unclear how such an effort, if implemented, would impact the US portion of the NCE. Should reintroduction efforts occur in British Columbia, it is likely that some grizzly bears reintroduced into the Canadian portion of the ecosystem may move into the NEP area in the United States, either as a transient and return to Canada or may ultimately remain in the United States. Additionally, the ecosystem is isolated from other ecosystems in the United States and Canada, making it highly unlikely that grizzly bears could migrate in from other populations (see figure 2 in chapter 1). Notably, the US portion of the NCE has been managed for conservation of grizzly bears under the NCE chapter of the recovery plan (FWS 1997), and no natural recovery has occurred in the subsequent 27 years. Public comments also requested actively managing for grizzly bear habitat as part of natural recovery or as an element of an action alternative. As described in both chapters 1 and 2, the NPS and USFS have managed the core area of the NCE as grizzly bear habitat since 1997 and are expected to continue to do so under all alternatives. As a result, this alternative would not enhance the probability of long-term survival of grizzly bears in the NCE, and therefore would not meet the purpose and need of this plan/EIS. As a result, this alternative was dismissed from further analysis.

Social Tolerance-Based Grizzly Bear Restoration

Comments received during public scoping requested that the agencies consider an alternative that would focus on a very slow grizzly bear restoration process, based on social tolerance of grizzly bears within communities in and surrounding the NCE. This approach would involve releasing only 1 to 2 grizzly bears into the ecosystem each year. The goal of this alternative would be to allow residents of the NCE the time and opportunity to become comfortable with the notion of living with grizzly bears in the ecosystem. As discussed above under the dismissal rationale for the Washington-only restoration alternative, the release of only one to two individuals into the NCE per year would not yield a sufficient number of bears within a biologically relevant period to restore a grizzly bear population in the NCE. This alternative was eliminated from further analysis because it would not be feasible to achieve the described restoration population based on the limited number of grizzly bears released and would thus not meet the purpose and need of this plan/EIS. Instead, both action alternatives focus on releasing 3 to 7 bears each year, while still meeting the purpose of this plan. Alternatives B and C would allow residents of the NCE to become more comfortable living with grizzly bears again, with full restoration likely taking more than six decades depending on results of monitoring information and subsequent decisions.

Section 10(j) with No Grizzly Bear Restoration

The interagency planning team considered the possibility of designating a 10(j) NEP under the ESA in Washington without translocating grizzly bears into the US portion of the NCE. However, designation of a 10(j) NEP is only appropriate to translocate individuals for the purposes of establishing a population. Although proposals to establish experimental populations may include habitat improvement efforts, expansion of a species' range by habitat enhancement only is not eligible for a section 10(j) designation under the ESA (see 49 FR 33890). Additionally, this alternative does not meet this project's purpose and need. As a result, it was dismissed from further analysis.

Section 10(j) Population with Citizen Management

The interagency planning team considered an alternative that would include restoration of grizzly bears as a NEP with citizen management. Under this alternative, a Citizen Management Committee would be authorized to have management implementation responsibility for the NCE grizzly bear NEP. The Citizen Management Committee would implement the North Cascades chapter of the FWS *Grizzly Bear Recovery Plan* consistent with an ESA section 10(j) final rule for the establishment of a nonessential experimental grizzly bear population in the NCE. As discussed above, alternative C includes managing grizzly bears in the NCE under a section 10(j) rule. Alternatives that delegate management

implementation responsibility to a private citizen committee for actions that would primarily occur on lands that are under NPS management and administrative authority raise concerns because Congress has not authorized the NPS to delegate its federal authority to private actors without sufficient final reviewing authority—a level of federal review that would effectively negate the citizen-managed objective of this alternative. Although the NPS does not manage the entire proposed NEP area, an approach that would have differing standards as between NPS and other managed federal lands would be inefficient and potentially difficult to implement. Additionally, the WDFW has wildlife management authority on lands outside the NPS boundary, and the state legislature has not authorized the WDFW to transfer management authority to private citizens. As a result, this alternative was deemed not to be feasible and was dismissed from further analysis.

Capture and Release of Healthy, Young Females Only

Comments received during public scoping requested that the agencies consider an alternative that would release only healthy young female grizzly bears into the NCE. The FWS considers grizzly bears to be functionally extirpated in the NCE (8 FR 41560, June 27, 2023; FWS 2022); thus, it is not anticipated that the small number of male grizzly bears potentially present in the ecosystem is sufficient to ensure a reasonable probability of interaction and breeding with females that are released into the ecosystem. Therefore, this alternative would not meet the purpose and need of the plan/EIS and was therefore dismissed from further analysis.

PREFERRED ALTERNATIVE

The preferred alternative is the alternative that "would best accomplish the purpose and need of the proposed action while fulfilling the statutory mission and responsibilities of the agencies, giving consideration to economic, environmental, technical, and other factors" (43 CFR 46.420(d)). The preferred alternative ultimately may not be the selected alternative, and identification of the preferred alternative is not a final agency decision.

The NPS and FWS identified the proposed action—Alternative C, Restoration with 10(j) NEP designation—as the preferred alternative. In identifying the preferred alternative, the agencies considered factors such as the likelihood of successful grizzly bear restoration, public safety, long-term management, impacts on natural and socioeconomic resources, and how well the alternatives meet the purpose and need and objectives of the plan. The preferred alternative best accomplishes the purpose and need for action because it would use the management flexibilities afforded by a 10(j) NEP designation to: prevent the permanent loss of grizzly bears in the NCE and support their recovery; contribute to the restoration of biodiversity of the ecosystem for the benefit and enjoyment of present and future generations of people; support Tribal cultural and spiritual values associated with grizzly bears; and provide other Pacific Northwest residents and visitors the opportunity to experience grizzly bears in their native habitat. Because alternative C anticipates a long timeline (60 to 100 years) to achieve a restoration population of 200 grizzly bears in the NCE, it would allow the agencies and affected public to adapt to living with grizzly bears in the NCE. Alternative C would also provide the best opportunities to expand public outreach and education efforts to build an understanding about grizzly bears and grizzly bear recovery. Over the long term, it is anticipated that alternative C would best meet the purpose and need of grizzly bear restoration in the NCE.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the current and future conditions for those elements of the human environment (physical, natural, cultural, and socioeconomic) that would be affected by implementing the actions considered in this *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS). Grizzly bear restoration actions proposed in this plan/EIS would be applied within the roughly 6.1-million-acre North Cascades Ecosystem (NCE) grizzly bear recovery zone as described in the NCE chapter of the US Fish and Wildlife Service (FWS) *Grizzly Bear Recovery Plan* (FWS 1997). The recovery area comprises 85% federal land; therefore, the discussion of the affected environment primarily focuses on those resources that may be affected within the North Cascades National Park Service Complex (park complex), Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests. In addition to the NCE grizzly bear recovery zone, bears that move outside the primary restoration area could be subject to additional management depending on the regulatory provisions in the *Endangered Species Act* (ESA) section 10(j) nonessential experimental population (NEP) designation, if such a designation is finalized. It is difficult to predict where bears might move; therefore, areas outside the NCE are described generally for resources that could be affected by bear movements, behavior, or associated management actions. Additionally, grizzly bears could travel across the international border with Canada and affect transboundary resources. The *National Environmental Policy Act* (NEPA) requires that impacts on resources be assessed regardless of what side of the international boundary they occur. However, the resources that could experience effects would be the same on both sides of the border. Therefore, the types and intensity of impacts characterized within the US portion of the NCE grizzly bear recovery zone would likely be experienced in the Canadian portion of the NCE. These impacts would be limited to only those associated with additional grizzly bear presence because no release operations associated with the range of alternatives would occur in the Canadian portion of the NCE. Other impacts on Canadian resources are described in resource area analyses for capture efforts in interior British Columbia.

GENERAL METHODOLOGY FOR ASSESSING IMPACTS

This chapter is organized by impact topics, which represent specific resources. Under each impact topic, the "Affected Environment" is presented first and includes a discussion of the current state of each resource. The "Affected Environment" includes environmental trends and reasonably foreseeable actions, where appropriate. The "Environmental Consequences" section evaluates direct, indirect, and cumulative effects on the natural and human environment (i.e., physical, natural, cultural, and socioeconomic resources) from the implementation of each alternative.

Note that for most impact topics, the impacts of the no action alternative are characterized in the "Affected Environment" section because implementation of the no action alternative would result in the same impacts and trends that are currently and would continue to occur. This approach considers direction from the Council on Environmental Quality (CEQ) regulations implementing NEPA (May 20, 2022) (40 Code of Federal Regulations [CFR] 1502.15) that the affected environment include the reasonably foreseeable environmental trends and planned actions, and it be no longer than is necessary to understand the effects of the alternatives.

Assumptions

An interdisciplinary planning team reviewed a substantial body of scientific literature and studies applicable to the NCE and associated resources. This information augmented observations and documentation gathered by the NPS, FWS, US Forest Service (USFS), and Washington Department of Fish and Wildlife (WDFW) personnel to support the qualitative and quantitative statements presented for each impact topic. When available, the methodology notes other resource-specific data, observations, or studies for each impact topic. The analysis focuses on expected environmental impacts related to the implementation of grizzly bear restoration activities.

The following guiding assumptions were used to provide context for this analysis.

Analysis Period. This plan/EIS establishes goals, objectives, and specific implementation actions needed to restore grizzly bears to the NCE. For all action alternatives, the primary phase actions are expected to occur within 10 years once restoration activities begin. This plan would guide land managers into the future as the need for additional adaptive management actions arises. To understand the potential long-term impacts associated with grizzly bear restoration, the analysis considers actions over the anticipated duration of this plan/EIS and beyond, during which time impacts could continue periodically. Management may continue into the future without additional NEPA analysis as long as there no "substantial changes in the proposed action that are relevant to environmental concerns; or … significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" (40 CFR 1502.9(c)).

Analysis Area. The area of analysis is generally centered on the NCE grizzly bear recovery zone as described in the North Cascades Ecosystem Recovery Plan chapter of the FWS *Grizzly Bear Recovery Plan* (FWS 1997). The 6.1-million-acre recovery zone includes all of the park complex and most of the adjacent Okanogan-Wenatchee and Mt. Baker-Snoqualmie National Forests, a portion of the Tonasket Ranger District of the Colville National Forest, and small amounts of interspersed state and private land. The proposed geographic extent for grizzly bear management under alternative C includes the state of Washington except for an area around the Selkirk Mountains grizzly bear recovery area in the northeastern part of the state where a population of bears currently exists (figure 3). In addition, both action alternatives analyze impacts on potential grizzly bear source populations. Impacts are considered either localized (i.e., occurring in limited areas) or widespread (i.e., occurring over the entire area of analysis). The specific area of analysis varies and is further defined for each impact topic. References to "the NCE" are assumed to pertain specifically to the recovery zone as described above. Resource topics also consider impacts in areas outside the NCE related to actions or impacts that may occur if bears move beyond the NCE or to assess the potential impacts from capture of grizzly bears from source populations.

Duration and Type of Impacts. Duration describes the length of time over which an effect may occur. For example, impacts could occur over minutes, days, months, or years. The analysis includes a description of the time frame over which impacts are expected to occur. In general, for all alternatives, impacts are considered and analyzed based on whether they would take place during the primary phase of grizzly bear restoration, anticipated to last approximately 10 years, or whether they would persist beyond the primary restoration phase.

Type describes the classification of the impact as beneficial or adverse:

- **Beneficial.** A change in the condition or appearance of the resource that moves the resource toward a desired condition.

- **Adverse.** A change in the condition or appearance of the resource that moves the resource away from a desired condition or detracts from its appearance or condition.

Jurisdiction and Compliance

The NPS and FWS are the lead agencies for this planning process, whereas the USFS and WDFW are participating as cooperating agencies. The NPS has jurisdiction over NPS lands and wildlife therein; however, the NPS must also consider the impacts of its actions on adjacent lands. The FWS has jurisdiction over the implementation of the ESA, including the conservation of federally listed species such as the grizzly bear. The USFS has jurisdiction over national forest lands, and the lead agencies must coordinate with the USFS to engage in any grizzly bear restoration actions on its land. As such, compliance with all USFS laws, regulations, and policies would be required should grizzly bears be released on national forest lands (see appendix B). The WDFW manages wildlife throughout the state of Washington, with the exception of national park units and Indian trust lands. Once on the landscape, the WDFW would manage grizzly bears outside the park, in cooperation with FWS. The WDFW could be involved with grizzly bear monitoring and maintenance activities, depending on the alternative ultimately selected. The WDFW would need to comply with its laws, regulations, and policies as appropriate.

NORTH CASCADES ECOSYSTEM DESCRIPTION

The greater NCE constitutes a large block of contiguous habitat that spans the international border but is isolated from grizzly bear populations in other parts of the United States and Canada. The US portion of the ecosystem is bounded roughly by the Okanogan Highlands and Columbia Plateau on the east, Snoqualmie Pass to the south, the Puget lowlands to the west, and the Canadian border to the north (figure 1). As noted above, roughly 6.1 million acres within the NCE is designated as the NCE grizzly bear recovery zone (FWS 1997). The recovery zone encompasses the entire park complex, which makes up 11% of the recovery zone, along with most of the Okanogan-Wenatchee and Mt. Baker-Snoqualmie National Forests and a portion of the Tonasket District of the Colville National Forest, which together make up 74% of the recovery zone. Private lands account for an additional 7% of the recovery zone, while state and local lands make up the remaining 8% (figure 1). References to the NCE in this plan/EIS apply specifically to the NCE grizzly bear recovery zone unless otherwise noted.

The park complex encompasses 680,855 acres of public land within the NCE, including 501,199 acres within North Cascades National Park, 116,756 acres within Ross Lake National Recreation Area, and 62,897 acres within Lake Chelan National Recreation Area. The park and the two national recreation areas are managed jointly as the nation's only National Park Service Complex (see figure 1). Elevations within the park complex range from about 350 feet to over 9,000 feet (NPS 2007a). The landscape is characterized by rugged topography, consisting of glaciated peaks interspersed with numerous stream and riverine systems. Vegetation ranges from alpine tundra in the higher elevations to dense forest in the lower elevations.

The park complex shares boundaries with the Okanogan-Wenatchee and Mt. Baker-Snoqualmie National Forests and provincial parks and Crown lands to the north in British Columbia. Okanogan-Wenatchee National Forest, including the western portion of the Tonasket District of the Colville National Forest, encompasses 3.8 million acres on the east side of the Cascade Crest and stretches south from the Canadian border to the Goat Rocks Wilderness—a distance of about 180 miles. The eastern edge of the forest extends into the Okanogan highlands, south along the Okanogan and Columbia Rivers and to the Yakima River valley. Because of this wide geographic range, the forest is very diverse, extending from high, glaciated alpine peaks along the Cascade Crest through heavily forested areas, to arid shrub-steppe at its eastern edge. Elevations range from below 1,000 feet to over 9,000 feet (USFS 2016a). Mt. Baker-Snoqualmie National Forest encompasses 1,724,229 acres on the west side of the Cascade Crest,

extending south 140 miles from the Canadian border to the northern boundary of Mount Rainier National Park. The forest ranges from under 100 feet in elevation to over 10,000 feet, extending from glaciated alpine peaks along the Cascade Crest through alpine meadows and lakes to lower-elevation old growth mixed-conifer forest (USFS 2016b).

More than 94% of the park complex is part of the legislatively designated Stephen Mather Wilderness (NPS 2012b). To the east of the park complex, Okanogan-Wenatchee National Forest includes two wilderness areas: Pasayten Wilderness Area is located east of Ross Lake National Recreation Area and shares its western boundary with the Stephen Mather Wilderness Area. The Colville National Forest also includes a portion of the Pasayten Wilderness Area. Lake Chelan-Sawtooth Wilderness Area, which is adjacent to the eastern boundary of Lake Chelan National Recreation Area, lies to the south of the Pasayten Wilderness Area. Glacier Peak Wilderness Area, which encompasses parts of Okanogan-Wenatchee National Forest and Mt. Baker-Snoqualmie National Forest, adjoins most of the southern boundary of Lake Chelan National Recreation Area and the south unit of North Cascades National Park. Mt. Baker-Snoqualmie National Forest extends along the western boundary of the park complex and includes two other wilderness areas: Noisy-Diobsud Wilderness (situated between North Cascades National Park and Baker Lake) and Mount Baker Wilderness farther north. These two wilderness areas are adjacent to parts of the north unit of North Cascades National Park (NPS 2015b). The Henry M. Jackson and Wild Sky Wilderness Areas adjoin the Glacier Peak Wilderness on the southwest. Two other wilderness areas, Alpine Lakes Wilderness and Boulder River Wilderness, make up an additional 0.4 million acres of wilderness that are not contiguous with the areas listed above. The Stephen Mather Wilderness, in combination with adjacent USFS wilderness areas, constitutes over 2.2 million acres of contiguous wilderness. This is the largest block of designated wilderness in the state of Washington and one of the largest in the lower-48 states (NPS 2012b).

GRIZZLY BEARS

Affected Environment: Current Status and Expected Future Conditions

Population Status. The grizzly bear (*Ursus arctos horribilis*) is federally listed under the ESA as "threatened" in the NCE, although the most recent review of its status indicated that uplisting the NCE population to "endangered" was warranted but precluded by higher-priority listing actions (87 FR 26152). The most recent Species Status Assessment found that there are currently no known populations of grizzly bears in the NCE and that active restoration may be used to reestablish a population (FWS 2022). The grizzly bear is listed as "endangered" by the state of Washington. The absence of grizzly bears from the NCE identified in the *Grizzly Bear Recovery Plan* (FWS 1993a) and its North Cascades Ecosystem Recovery Plan chapter (FWS 1997) would continue, and the goals of this plan would continue to be unmet.

There have been few confirmed sightings of grizzly bears in recent decades in the NCE on either side of the international border (Rine et al. 2020). The most recent confirmed observation within the US portion of the NCE was in 1996, south of Glacier Peak (Rine et al. 2020). There has been no verified evidence of grizzly reproduction in the NCE for at least 30 years. Efforts to obtain grizzly bear hair samples during 1998 (BC Ministry of Environment, cited in Romain-Bondi et al. 2004), 1999–2000 (Romain-Bondi et al. 2004), and 2010–2012 (Long et al. 2013) detected only 1 female grizzly bear. Approximately 23% of the US portion of the NCE was sampled, along with parts of the British Columbia border parks. Surveys focused on remote sites within high-quality grizzly bear habitat. During 2010 and in 2012, a grizzly bear (most likely the same individual) was detected at a site in Manning Park, British Columbia, by a remote camera designed to lure wolverines for research purposes. This site was less than 20 miles north of the international border. Hair samples confirmed it as a male grizzly bear. During 2015, a series of photographs of a presumably male grizzly bear were taken roughly 10 miles north of the border and

approximately 19 miles east of the 2010 sighting. No accompanying hair samples were collected; therefore, it is unclear if this grizzly bear was the same individual detected in 2010 and 2012 (British Columbia Ministry of Environment, Hamilton pers. comm. 2016b). These are the only confirmed detections of grizzly bears in the NCE during the past 20 years. Based on the information gathered to date in the NCE, no evidence supports the conclusion that there is a population of grizzly bears in the ecosystem, as defined above.

Photo credit: D. Molenaar

Grizzly bear

Historical Population — The NCE historically supported a substantial grizzly bear population, according to records compiled by Bjorklund (1980), Sullivan (1983), Almack et al. (1993), Rine et al. (2020), Mattson (2021), and others. Bjorklund (1980) summarized and mapped 16 historical (prior to 1950) and 14 recent (1950–1980) grizzly bear observations in the NCE; however, he did not distinguish between confirmed and unconfirmed observations. Results that are more reliable come from Sullivan (1983), who interviewed 346 people claiming to observe grizzly bears in the NCE. He estimated that the sum of these attestations amounted to approximately 100 individual human-grizzly bear encounters spanning 130 years. Most recently, the National Park Service (NPS) published a report in 2018 on the historical evidence of grizzly bears in the NCE, titled *A Synthesis of Historical and Recent Reports of Grizzly Bears (Ursus arctos) in the North Cascades Region* (Rine et al. 2018), and subsequently published additional synthesis in the scientific journal *Ursus* (Rine et al. 2020). These reports conclude that there were 178 credible observations of grizzly bears or their signs within the NCE between 1859 and 2015 (Rine et al. 2020).

At the height of the fur trade from 1820 to 1860, the Hudson's Bay Company documented 3,788 grizzly bear hides shipped from trading posts in the North Cascades region; although there were no associated descriptions of harvest events, such as specific locations of kills and work effort, they indicated at minimum a small population in north-central Washington (Rine et al. 2020). The last documented grizzly bear killed in the area was shot in 1967 in Fisher Basin, in what is now North Cascades National Park (Sullivan 1983). In addition to records of pelts, other evidence of historical grizzly bear presence in the NCE is found in the Traditional Ecological Knowledge of Indigenous peoples, writings about Native Americans, early USFS history, and the archaeological record (Underhill 1945; Rine et al. 2018, 2020). Lastly, five Holocene archaeological sites in eastern Washington have produced grizzly bear remains that could be evidence of prehistoric grizzly populations in the nearby mountains of the NCE (Lyman 1986). These earlier accounts indicate that grizzly bears existed historically throughout the Cascade Mountains and likely inhabited the coastal regions of Washington and Oregon (Almack et al. 1993).

Current Bear Numbers — To estimate the current number of grizzly bears in the NCE, scientists have relied on statistical analyses of data obtained from a variety of field techniques. During an evaluation of the NCE from 1986–1991, Almack and others confirmed resident grizzly bears in the NCE using a combination of documented observations, live-capture surveys, and self-activated camera surveys (Almack et al. 1993). While the live-capture and self-activated camera surveys yielded no grizzly bears, the documented observations that were considered "confirmed" or "highly reliable" suggested that at the time of the study, the NCE harbored a small number of grizzly bears. However, since 1996, no confirmed

grizzly bear observations have been documented in the US portion of the NCE. The FWS has determined there is no viable population currently present in the NCE (FWS 2022).

Habitat Suitability. The first iteration of the FWS *Grizzly Bear Recovery Plan*, published in 1982, identified the need to evaluate the NCE to determine its suitability as a grizzly bear recovery area. Almack et al. (1993) initiated the 5-year ecosystem evaluation in 1986 (FWS 1993a). Five studies have evaluated portions of the NCE for grizzly bears (Agee et al. 1989; Almack et al. 1993; Gaines et al. 1994; Lyons et al. 2018; Ransom, Krosby, and Lyons 2018, Ransom et al. 2023a). These studies all conclude that the NCE has sufficient habitat essential for the maintenance of a grizzly bear population, and the current level of human activities within the NCE, notably the influence of roads, would still allow for the restoration of a viable population of grizzly bears. Ransom et al. (2023a) found that good habitat for grizzly bears is estimated to persist, and in some areas increase, through the 2080s, across several models of future climate.

Habitat Studies — Agee et al. (1989) used geographic information system (GIS) software to compare historical grizzly bear sightings to land cover types in the North Cascades to determine which land cover types that grizzly bears prefer (table 3). Their results showed that grizzly bear sightings were positively correlated with whitebark pine (*Pinus albicaulis*), subalpine larch (*Larix lyallii*), and subalpine cover types, inferring that these are the preferred habitat types of grizzly bears. However, it should be noted that these relatively open habitat types offer better visibility than most, which could have biased the sighting database. It must also be noted that whitebark pine is not a common habitat type throughout the NCE and may not be as important for grizzly bears in this ecosystem as it is in other areas where it is more prevalent (IGBC NCE Subcommittee pers. comm. 2016; Ransom, Krosby, and Lyons 2018). The Interagency Grizzly Bear Committee (IGBC) NCE Subcommittee had two separate research teams (Almack et al. 1993; Gaines et al. 1994) evaluate an area encompassing over 10,000 square miles of the NCE for grizzly bear habitat. The survey area included all of the park complex, most of Mt. Baker-Snoqualmie and Okanogan-Wenatchee National Forests, and the western portion of the Tonasket District of the Colville National Forest. Each team evaluated the survey area for viable grizzly bear habitat using common criteria, including the presence, abundance, and diversity of grizzly bear foods; habitats of seasonal importance and their distribution; and delineation of human activities (i.e., roads, habitation, timber harvest, recreation). In addition to these criteria, Almack et al. (1993) evaluated the North Cascades for grizzly bear habitat according to the seven characteristics identified by Craighead, Sumner, and Scaggs (1982): space, isolation, denning, safety, sanitation, vegetation types, and food.

The results of these surveys were presented to a technical review team, which ultimately determined based on the available data that the NCE could support a viable grizzly bear population of 200 to 400 individuals (Servheen et al. 1991). More recent work has estimated a mean carrying capacity for grizzly bears in the NCE between 250 and 300 grizzly bears using a suite of spatially explicit, individual-based population models that integrate information on habitat selection, human activities, and population dynamics (Lyons et al. 2018). Other research by Ransom et al. (2023a) predicts a carrying capacity of 482 to 578 grizzly bears by the 2080s based on models that predict high-quality grizzly bear habitat in the NCE would

Photo credit. A. Braaten

Potential grizzly bear habitat in Park Creek Valley in North Cascades National Park

increase in availability across several climate change scenarios and timelines. Changes in habitat availability resulting from climate change effects are expected to increase the carrying capacity of the NCE and result in a grizzly bear density of 20 to 22 bears per 1,000 square kilometers, an increase from previous estimates of 17 bears per 1,000 square kilometers (Ransom et al. 2023a). Table 3 shows habitat rankings recommended in the *North Cascades Ecosystem Grizzly Bear Habitat Assessment* (IGBC NCE Subcommittee 2001) for use in the evaluation of core areas in grizzly Bear Management Units (BMUs) in the NCE.

TABLE 3. RECOMMENDED HABITAT RANKINGS FOR USE IN THE EVALUATION OF CORE AREAS IN GRIZZLY BEAR MANAGEMENT UNITS IN THE NORTH CASCADES ECOSYSTEM

Ranking	Early Season	Late Season
Highest Priority	Montane meadow	Alpine/subalpine meadow[a, b]
	Shrubfield [a]	Shrubfield [a]
	Deciduous forest[a]	Wet forest open [a]
	Riparian forest[b]	Montane meadow[a]
	Wet forest opening	High elevation forest
	Dry forest	Riparian forest
	High elevation forest	Dry forest open
	High elevation forest open	Deciduous forest
	Wet forest	Wet forest
	Alpine/subalpine meadow	Dry forest
	Low elevation shrub/herb	High elevation forest open
Lowest Priority	Dry forest open	Low elevation shrub/herb

Source: IGBC NCE Subcommittee (2001)

[a] Indicates vegetation types that were used significantly more than others.

[b] Indicates vegetation types that were moved higher on the priority list based on differences between grizzly bear and black bear habitat use.

Photo credit: M. Rochetta

Grizzly bear foraging in regenerating forest

Foods and Vegetation Types — Grizzly bears are opportunistic omnivores that eat a wide diversity of plant and animal species (Jacoby et al. 1999; Gunther et al. 2014), including at least 2,668 plant and fungi species and 448 animal and insect species that have either been documented as grizzly bear diet components in other ecosystems or are possible natural food resources based on biological similarities to those confirmed foods (Ransom, Krosby, and Lyons 2018). Grizzly bear diet varies by individual as well as seasonally and geographically depending on prey and forage availability and the presence of other predators. Grizzly bear diets have been studied extensively throughout their North American range through stable isotope analysis, scat analysis, and investigation of kill sites identified using radio collars. Grizzly bears are considered generalists in their diet and will adjust what they eat throughout the year based on availability and growing conditions for vegetation (McClelland et al. 2020). The species will consume meat when available; hunting ungulates (mainly neonates) in

the spring and summer (Jacoby et al. 1999) and opportunistically depredating livestock in areas where grazing land overlaps with grizzly bear ranges (Wells et al. 2018).

Munro et al. (2006) described the general pattern of foraging by grizzly bears in west-central Alberta. Upon emergence from dens in early spring, grizzly bears dig for roots before beginning to hunt ungulates in late May and early June. Avalanche chutes, common on the west side of the Cascades, have been identified as important spring food sources for grizzly bears in a number of studies (Waller and Mace 1997; Ramcharita 2000; McLellan and Hovey 2001; Serrouya et al. 2011). Avalanche chutes provide spring and summer forage species as well as potential avalanche mortalities (carrion) in the spring (Waller and Mace 1997). As herbaceous vegetation begins to green up, the predominant food items include grass-like plants and forbs. McLelland et al. (2020) showed that, during the spring, grizzly bears will select habitat with high densities of preferred seasonal forb species, including alpine sweet-vetch (*Hedysarum alpinum*) and dandelion (*Taraxacum officiale*). Grizzly bears shift to eating berries as they become available later in the summer. At the end of the berry-producing period, grizzly bears again shift to consuming roots and ungulates prior to reentering their dens (McLellan and Hovey 2001). Salmon consumption is generally higher in coastal habitat than interior habitats like the NCE. One study of bear diets in the interior of British Columbia along the Fraser River found that diets with high proportions of salmon were constrained to coastal habitats for female grizzly bears but extended into interior habitats along major salmon watersheds for males (Adams et al. 2017).

Kasworm et al. (2021) presented grizzly bear food data from the Cabinet-Yaak Ecosystem (CYE), which has a Pacific maritime climate and may be indicative of potential grizzly bear food habits in the central and west side of the Cascade Mountains. Huckleberry (*Vaccinium* spp.) appears to be an important component of diet. Data about food habits have been collected since 1983, using both isotope analysis on hairs and blood samples, and scat analysis. Isotope analysis showed a highly variable use of meat (6% to 37% of diet). On average, adult males consumed more animal matter (22% of diet) than females (14%) and subadults (13%). Adult grizzly bears around the Yaak River drainage showed the highest variability in use of animal matter, from 6% to 80% of their diet. Across all hair samples undergoing isotope analysis, there was an increase in the proportion of animal matter in grizzly bear diets as they transitioned from summer to fall months. Scat analysis also identified the highest amount of animal matter was consumed in the fall (carrion) and in spring (40% of dry matter in April and May). Overall, mammals and shrubs (berries) constituted 64% of total dry matter annually. In another diet study of grizzly bears in several western ecosystems, researchers found that adult male grizzly bears were more carnivorous than any other age or sex class, with diets composed of around 70% meat (Jacoby et al. 1999). Other sex and age groups of grizzly bears displayed diets similar to black bears living in the same areas reflective of diets described by Kasworm et al. 2014 (Jacoby et al. 1999). Grizzly bear female diets in the interior of British Columbia were based largely on plant material (58%) and terrestrial meat (31%) (Adams et al. 2017). Male diets were similar but had a higher proportion of plants (63%) and less terrestrial meat (8%). These amounts are similar to those of the CYE where diets were largely plants (66%) and a lesser amount of terrestrial meat (26%). Across their North American range, grizzly bears' food habits shift throughout the year depending on availability of vegetation and meat sources, and an individual bear's food selection is often opportunistic.

Almack et al. (1993) and Gaines et al. (1994) used Landsat multispectral scanner imagery and field observations to produce vegetation cover maps of the North Cascades according to vegetation structure (e.g., forest, shrub, and barren rock) and community composition. The teams also identified 124 plant species known to be grizzly bear foods through an exhaustive review of sighting reports, scat analysis, and studies conducted on grizzly bears south of Alaska. Analysis of the vegetation maps indicated that 100 of the 124 identified plant species exist in the NCE, and every vegetation cover type contained some plants that were on the list. The teams also mapped ranges of wildlife prey species known to occur in the NCE. Salmonid species were more abundant in streams on the western slope of the Cascades and

ungulates were dispersed relatively evenly throughout. These results led both teams to conclude that sufficient vegetative grizzly bear foods are readily available in the NCE, and the occurrence of wildlife prey species can sustain a grizzly bear population (Almack et al. 1993; Gaines et al. 1994).

Ransom, Krosby, and Lyons (2018) completed a synthesis of all known grizzly bear foods in relation to species occurring in the NCE and found at least 2,668 plant and fungi species and 448 animal and insect species present in the NCE that have either been documented as grizzly bear diet components in other ecosystems or are possible food resources based on biological similarities to those confirmed foods. A fully annotated list of these potential food species and published references to grizzly bear use can be found in appendix A-1 of Ransom, Krosby, and Lyons (2018).

Grizzly Bear Source Populations. Basic criteria for grizzly bear source populations would prioritize populations from areas with a similar food economy to the NCE. Additionally, these populations must be large and stable enough that they would have the ability to sustain the loss of individuals. Source populations likely to supply grizzly bears for release include populations in interior British Columbia, Canada, and in the Northern Continental Divide Ecosystem (NCDE) and portions of the Greater Yellow Ecosystem (GYE) (see figure 5).

Interior British Columbia — In 2018, British Columbia was home to approximately 15,000 grizzly bears (MFLNRO 2020); grizzly bears are listed in the province as "special concern" (BC CDC n.d.). For the most part grizzly bears in the province comprise a single, connected population. However, for administrative purposes the current range of grizzly bears in British Columbia has been divided into 55 grizzly bear population units (GBPUs); these units delineate individual grizzly bear populations for management and administrative purposes and are not necessarily distinct or independent populations (MFLNRO 2020). GBPU boundaries at the edges of grizzly bear distribution in the province represent the "occupied/unoccupied" line. This line was drawn to reflect the known and predicted distribution of resident adult females. Transient males, particularly subadults, are occasionally sighted in unoccupied areas. However, these lines are the expected limits of areas regularly inhabited by grizzly bears. They are also used for setting land use priorities during strategic land use planning. Each GBPU has been assigned one of five conservation classes based on population isolation, population size, and cumulative threats (extreme concern, high concern, moderate concern, low concern, very low concern; MFLNRO 2020). The North Cascades GBPU is one of three adjacent units assessed as extreme concern, which indicates management actions would be required to improve their condition (Morgan et al. 2019).

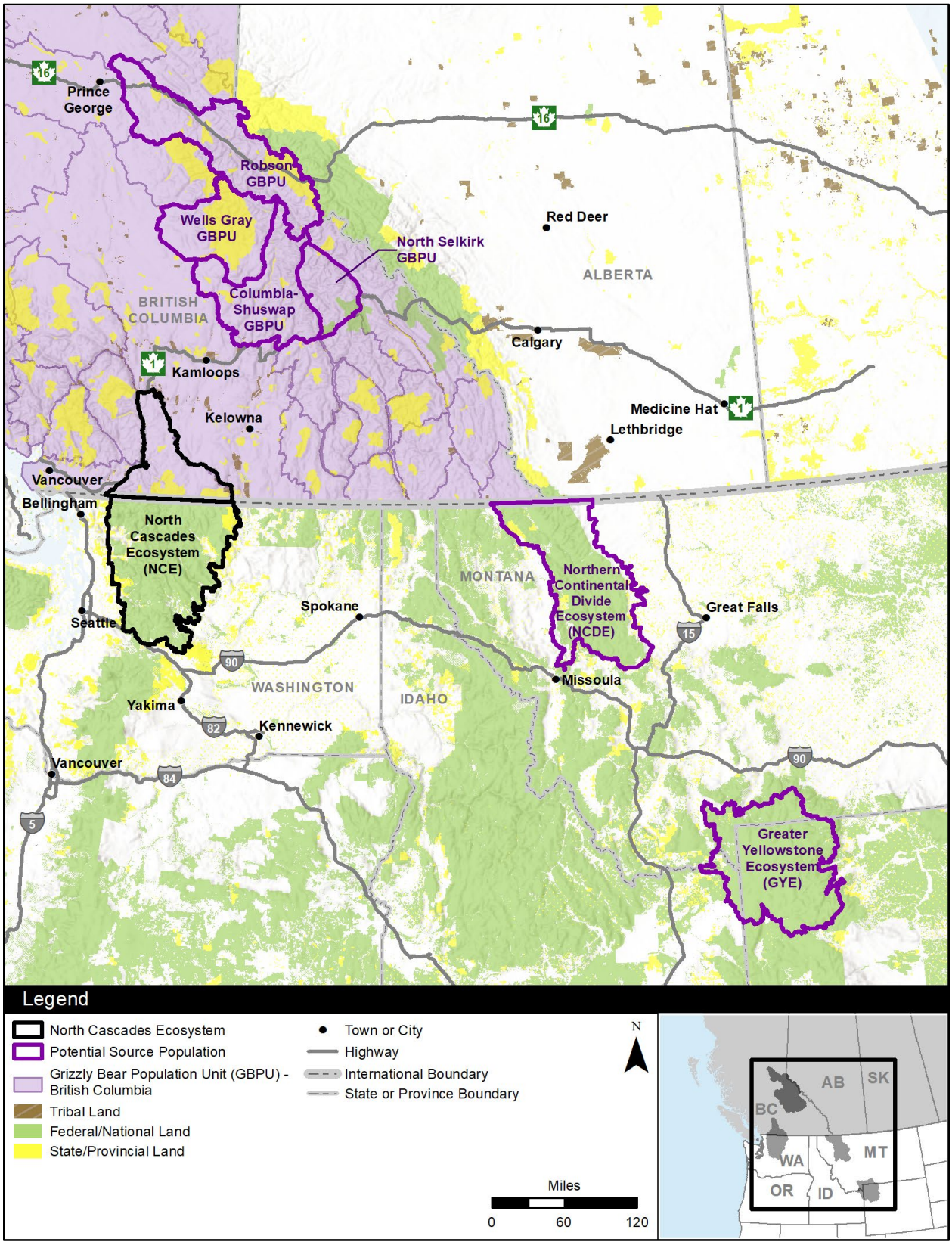


FIGURE 5. POTENTIAL GRIZZLY BEAR SOURCE POPULATIONS

Potential source areas for grizzly bears could be the Robson, Columbia-Shuswap, North Selkirk and/or Wells Gray GBPUs (MFLNRO, Mowat pers. comm. 2023). All four areas had viable populations in 2012. Estimated populations per GBPU in 2018 were, respectively: 534, 318, 265 and 345 (MFLNRO 2020). MFLNRO assigns each GBPU one of five conservation ranks based on population isolation, population size, and cumulative threats: M1 = extreme concern, M2 = high concern, M3 = moderate concern, M4 = low concern, and M5 = very low concern, The conservation rank for the Columbia-Shuswap GBPU is high concern (M2), moderate concern (M3) for the Robson and North Selkirk GBPUs, and low concern (M4) for the Wells Gray GBPU (Morgan et al. 2019). The overall threat rankings were all influenced by the cumulative effects of low-level influences from transportation (roads, railroads), extractive uses (mining, oil and gas) and other types of human intrusion (residential, recreation, agriculture) (Morgan et al. 2019).These GBPUs compose the fifth largest system of contiguous protected area in British Columbia, span the Cariboo Mountains and Shuswap Highlands located in the northern Columbia Mountains, and include nine protected areas (MacHutchon 2004). Habitat types include valley bottom riparian corridors; lakes and rivers; avalanche chutes; wetlands; alpine and subalpine areas; and old growth spruce, hemlock, cedar, fir and pine forests (MacHutchon 2004). The habitat is largely unfragmented with few roads. This area is entirely within the Fraser River watershed, and the interior wet-belt ecosystems contains a variety of wildlife. The availability of fish is similar to the NCE, where salmon are present but are not a significant component of the general food economy (MacHutchon and Austin 2004).

Northern Continental Divide Ecosystem — As described in chapter 1, the NCDE includes the Bob Marshall Wilderness Complex and Glacier National Park in northwestern Montana, and adjacent areas in Canada. The NCDE recovery zone encompasses approximately 9,600 square miles of northwest Montana (Dood, Atkinson, and Boccadori 2006). The NCDE extends south from Canada, west into the Flathead and Mission valleys, and east to the Rocky Mountain Front. Approximately 90% of the recovery zone is in federal, Tribal, or state ownership, with only 10% on private lands (Dood, Atkinson, and Boccadori 2006). However, the majority of human-grizzly bear conflicts and bear mortality occur on private lands, especially as grizzly bears expand their ranges. Grizzly bears in the NCDE occupy approximately 26,000 square miles of habitat that includes Glacier National Park, parts of the Flathead and Blackfeet Indian Reservations, parts of four national forests (Flathead, Helena-Lewis and Clark, Kootenai, and Lolo), Bureau of Land Management lands, and a large amount of state and private lands (Costello and Roberts 2021). The recovery zone, including Glacier National Park, and the Bob Marshall, Mission Mountain, Scapegoat, and Great Bear Wilderness Areas, serves as a largely undisturbed core of the larger ecosystem, containing many areas accessible only by foot or horse (NPS 1999). The area is characterized by extremely diverse habitats, much of it heavily forested, mountainous, and a largely roadless wilderness and similar food economy as the NCE.

The grizzly bear population in this ecosystem numbers over 1,000 animals and continues to grow each year with an average rate of increase of approximately 2.3% (Costello and Roberts 2022; NCDE Subcommittee 2021). The NCDE has achieved biological recovery goals (FWS 2022). Grizzly bears in Glacier National Park and surrounding national forests appear to rely more on vegetation sources for food and have low dietary meat content from approximately 3% to 24% of the total diet, compared to populations in the GYE where meat is approximately 32% to 70% of the total diet (Jacoby et al. 1999).

Greater Yellowstone Ecosystem — The grizzly bears in the GYE ecosystem have tripled the extent of their occupied range since the early 1980s (Bjornlie and Haroldson 2021), and the GYE has achieved its biological recovery goals (FWS 2022). This population continues to demonstrate stable to slightly increasing demographic trends with an estimated 965 bears in 2022 and has expanded well beyond the recovery zone (FWS 2021b, 2023a).

Trends and Planned Actions

Without active restoration, it is anticipated a grizzly bear population would remain absent from the NCE. Implications of the permanent loss of a grizzly bear population in the NCE are described below, followed by a discussion of the trends and planned actions that may affect grizzly bears should they exist in the NCE in the future.

Grizzly bears are highly adaptable omnivores and are considered both habitat and food generalists that can adapt to changing food sources; therefore, the effects of climate change on grizzly bears in the source areas are not expected to result in population-level impacts. Further, it is not anticipated that climate change would decrease the suitability of the NCE to support a population of grizzly bears. A decision support framework was developed in 2017 to help understand these possible future conditions and guide response (Lyons et al. 2017). Previous research on grizzly bears in Canada suggests that some of these forecasted climate change patterns may improve overall food sources for grizzly bears in ecosystems with a limited growing season like the NCE (Nielsen et al. 2013). For example, wildfire is expected to burn nearly four times more area by the 2080s compared to the historical period of 1980 to 2006 (Littell et al. 2014), which will change forest structure and create canopy openings and growth of graminoids and forbs that are grizzly bear foods. Depending on their size and severity, fires may have immediate adverse effects on grizzly bears because of the risk of mortality but would provide greater benefits within a short period, during the years after the area recovers because changes in vegetation could increase the abundance of early-seral, fruit-bearing vegetation and small mammal and ungulate populations, which are valuable food resources for grizzly bears. For example, "recently burned areas are generally avoided by bears for the first few years after a fire while vegetation recovers; however, following a fire, food resources generally become plentiful and these areas often become highly used habitats by bears" (Lyons et al. 2018 citing Hamer and Herrero 1987 and Apps et al. 2004). Likewise, climate models predict that the NCE will experience substantial vegetation changes from longer growing seasons, drier summer months and wetter winter and spring months, decreased snowpack, and an increased number of disturbance events that are expected to improve food resources for grizzly bears and thus increase habitat quality (Raymond, Peterson, and Rochefort 2014; Ransom, Krosby, and Lyons 2018, Ransom et al. 2023a). Further research may provide valuable insights into how this ecological plasticity may allow grizzly bears to adapt to changing environmental conditions. The complex relationship between changes in climate, natural processes, and natural and anthropogenic features will ultimately determine the future quality of grizzly bear habitat across the ecosystem (Ransom, Krosby, and Lyons 2018).

With current management, natural emigration from other populations would be the sole source of new grizzly bears to the region. Grizzly bears would not be prevented from moving into the US portion of the NCE from Canada, and while unlikely, any grizzly bears that did move into the NCE would be protected as a threatened species under the ESA.

The NCE is isolated from grizzly bear populations that exist elsewhere (see figure 2 in chapter 1). The nearest populations to the east are in the Kettle-Granby GBPU in British Columbia and the Selkirk Mountains in Washington, Idaho, and British Columbia (Singleton, Gaines, and Lehmkuhl 2004). Grizzly bears inhabit the remote areas east of Okanogan River and west of the Kettle-Granby Mountains, but the small number of detections indicate that the populations are probably limited to a small number of animals. These highlands may become an important linkage zone between the Rockies and the Cascades in the long term, but currently and for the near future, no population pressures exist in these areas that would cause grizzly bears to expand from the east into the Cascades (Braaten et al. 2013).

The nearest population to the north comprises a small number of individuals in the Stein-Nahatlatch GBPU in British Columbia (Proctor et al. 2012; see figure 2 in chapter 1). Farther to the west, grizzly bears in the Squamish-Lillooet and Garibaldi-Pitt GBPUs are likewise not at a population density that

would facilitate range expansion into the NCE. In addition, potential dispersal is obstructed by major barriers created by the Fraser River, the TransCanada Highway, two national railroads, and the high levels of human influence along that corridor (Singleton, Gaines, and Lehmkuhl 2004; Braaten et al. 2013). Because of the highly fragmented landscape between these areas, as well as the distance between these ecosystems, which is beyond the average female dispersal distance of 6.1–8.9 miles (McLellan and Hovey 2001; Proctor et al. 2004), it is unlikely grizzly bears would move into the NCE from existing populations. There are efforts under consideration in British Columbia to assess the feasibility of recovering grizzly bears in the Canadian portion of the NCE. First Nations have declared grizzly bears within the North Cascades GBPU as in immediate need of restoration and protection (Okanagan Nation Alliance 2014; Piikani Nation 2018). A Joint Nation grizzly bear recovery partnership has been established among First Nations in collaboration with the British Columbia government to outline population recovery objectives and strategies in a North Cascades Grizzly Bear Stewardship Strategy. Canadian translocation efforts have not started, and it is unclear how any Canadian efforts would impact the US portion of the NCE. Should reintroduction efforts occur in British Columbia, it is likely that some grizzly bears reintroduced into the Canadian portion of the ecosystem may move into the US portion of the NCE, either as a transient and return to Canada or may ultimately remain in the US.

Ongoing actions within the NCE with the potential to impact grizzly bear habitat include trail maintenance and repairs, invasive plant management (e.g., NPS 2011b), mountain lake restoration and fish stocking per the *North Cascades National Park Service Complex Fish Stocking Act*, fire management operations, the *Stehekin River Corridor Implementation Plan*, administrative flights for search and rescue operations and other purposes, forest vegetation management, cattle and sheep grazing, motorized travel management projects, mining, mine cleanup under *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) and abandoned mine lands projects, and ski area expansion projects.

Invasive plant management would have beneficial impacts on grizzly bears, if present, by enhancing native habitat. Fire management operations would have beneficial impacts on grizzly bears because they would provide opportunities for habitat enhancement. Finally, the *Stehekin River Corridor Implementation Plan* could have adverse impacts because the rerouting of roads and other features included in the plan could affect native vegetation and reduce the amount of available habitat for bears.

USFS forest vegetation management projects could have both beneficial and adverse impacts on grizzly bears if bears return depending on whether they create opportunities to enhance habitat for certain species. Cattle and sheep grazing on national forest lands could have adverse impacts on grizzly bears if conflicts with grizzly bears occur. Beneficial impacts on grizzly bears could occur from decommissioning roads for a variety of reasons unrelated to grizzly restoration actions in or near sensitive habitat. However, trail maintenance, mountain lake restoration, motorized travel management, and administrative flights may temporarily disturb grizzly bear habitat, while ski area expansion projects on national forest lands could have adverse impacts on grizzly bears or habitat because land clearing could disturb and fragment additional habitat.

Planned actions with the potential to result in impacts on grizzly bears if these bears return include mining operations and clean up. Mine cleanup under CERCLA and abandoned mine lands projects on national forest lands would have beneficial impacts on grizzly bears, should they return, through restoration of habitat; grizzly bears have been found to exploit new food resources in reclaimed mines in Canada (Cristescu, Stenhouse, and Boyce 2015).

Environmental Consequences

Methods and Assumptions

Potential impacts on grizzly bears are evaluated qualitatively based on expert resource knowledge and professional judgment. In addition, a review of scientific literature was conducted detailing grizzly bear life history, reproductive biology, diet, habitat use, and other aspects of grizzly bear ecology in various ecosystems throughout North America. The analysis also relies on conclusions reached by Lyons et al. (2018) regarding grizzly bear carrying capacity in the NCE.

Analysis Area. The area of analysis for impacts of the restoration activities is the NCE grizzly bear recovery zone as described in the North Cascades Ecosystem Recovery Plan chapter of the FWS *Grizzly Bear Recovery Plan* (FWS 1997). Additionally, the impacts of capture operations on grizzly bears in source areas are analyzed. Finally, the impacts associated with the management of bears that move outside the NCE are also considered, including all three management areas under alternative C.

Issues Analyzed. The analysis of impacts on grizzly bears under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* Any action to restore grizzly bears in the NCE would have a clear and direct impact on the species.
>
> *Issue Statement.* Long-term adaptive management activities associated with restoration of grizzly bears (including actions associated with additional releases, section 10(j) designation, aversive conditioning, and relocation or removal of grizzly bears involved in conflict), would have an impact on the species.

Alternative A: No Action

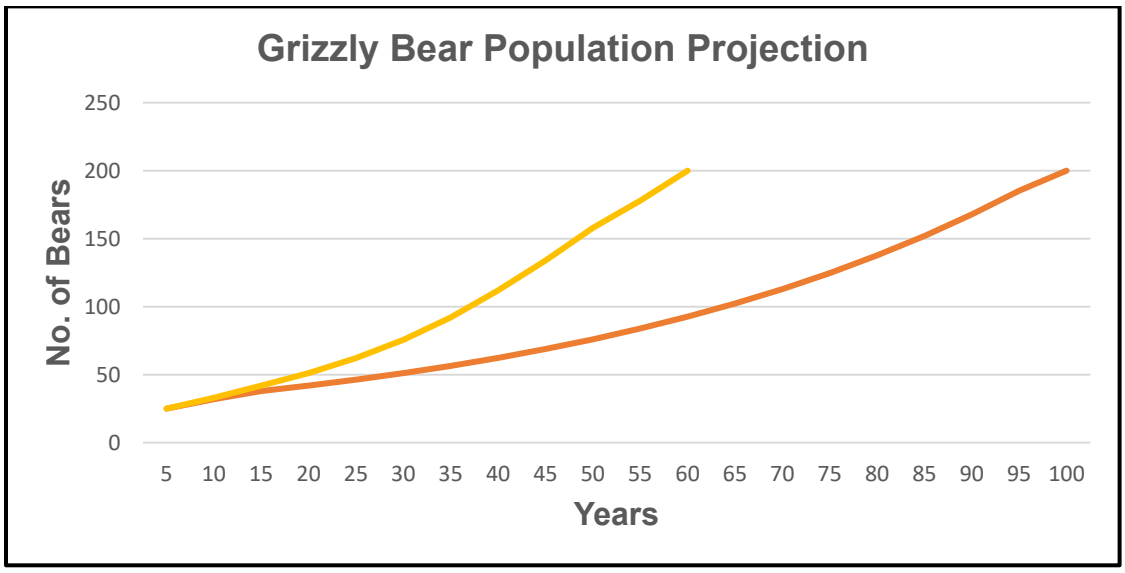
Under alternative A, current management would continue, and there would be no grizzly bear restoration; however, suitable grizzly bear habitat would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Alternative B would release 3 to 7 grizzly bears per year over 5 to 10 years to achieve an initial population of 25 grizzly bears in the NCE. To promote a higher reproduction rate, the sex ratio for grizzly bears released in the NCE would target approximately 60% to 80% female bears with males making up 20% to 40% of the initial population. Grizzly bears would be released in proximity to each other to facilitate interaction and ultimately, breeding. Any mortality of a grizzly bear during the primary phase of restoration, regardless of cause, would be replaced on a one-to-one basis. After an initial population of grizzly bears has been established in the NCE, population models suggest it would likely take between 60 and 100 years to reach 200 bears of any age (figure 6).

Figure 6 illustrates the projected grizzly bear population over time based on two growth rates (2% and 4%), with continual release of grizzly bears until 25 bears are established in the NCE. The model assumes 36 bears are released over 6 years, and 25 of those become established in the system. The remaining bears are assumed to either die or leave the NCE. These projections are based on data collected from the CYE grizzly bear augmentation and subsequent monitoring and use the same assumptions regarding population growth and survival rates (FWS, Kasworm pers. comm. 2023d). The projections use an anticipated

population growth rate between 2% and 4%, a survival rate for cubs of approximately 63%, and a survival rate for yearlings of approximately 88%. Survival rates for subadult females and males (up to age 5) were 82% and 76%, respectively, whereas survival rates for adults beyond age 5 were 95% for females and 91% for males. Approximately 72% of the bears released into the ecosystem are expected to become established in the ecosystem (FWS, Kasworm pers. comm. 2016b).



Source: FWS, Kasworm pers. comm. 2023d

FIGURE 6. APPROXIMATE ALTERNATIVE B GRIZZLY BEAR POPULATION PROJECTION BASED ON HIGH (4% [YELLOW]) AND LOW GROWTH (2% [ORANGE]) RATES

Capture, Release, and Monitoring. Restoration of grizzly bears into the NCE would require their capture and transport from other areas. As noted in chapter 2, the NPS and FWS would follow the International Union of Conservation of Nature Guidelines for Reintroductions and Other Conservation Translocations to ensure that grizzly bear translocations have the intended conservation benefits for the species (IUCN/SSC 2013). Under alternative B, grizzly bear mortality could occur during capture, transport, and release. Although some level of mortality is possible among the translocated grizzly bears, every effort would be taken to minimize capture and transport-related mortalities. The exact number of bears that may die because of capture, transport, and release is difficult to predict, but previous work suggests that mortality would be very low, as described below.

Grizzly bears are frequently captured with minimal risk of mortality in the United States and Canada for research and management purposes. For example, in 2020 in the NCDE, 79 grizzly bear capture events occurred, and no capture-related mortality was reported (Costello and Roberts, 2021). Mortalities related to scientific research or conservation efforts comprise 2.7% (29 of 1,097 bears) of all known grizzly bear mortalities in the lower-48 states between 1980 and 2009 (FWS 2011). In the NCDE, 12 capture-related grizzly bear mortalities were recorded between 1998 and 2017, accounting for approximately 3% of the 387 documented human-caused mortalities (NCDE Subcommittee 2021; FWS 2022). Most capture-related mortalities in the NCDE occurred in situations with grizzly bears involved in conflicts, where conditions for bear capture are often challenging (FWS 2022). In the CYE between 1982 and 2021, there were 2 research-trapping mortalities (out of 144 total captures) when a snared bear was killed by another grizzly bear (Kasworm et al. 2022a). In the GYE since 1982, there have been 6 grizzly bear mortalities associated with scientific research capture and handling. Only 1 of these mortalities was confirmed as capture-related, where a snared grizzly bear was killed by another grizzly bear in 2013. Four of those

mortalities, in 2006, were due to the handling of grizzly bears and resulted from Clostridium bacterial infections transmitted through survey instruments (81 FR 13173, March 11, 2016). No bacterial-related deaths have been reported since a new standard was implemented requiring mandatory use of antibiotics on captured animals. Because of rigorous protocols that dictate the proper bear capture, handling, and drugging techniques, mortality during capture and release is expected to be minimal. This type of mortality could affect the number of bears required to be captured and translocated to the NCE; however it is not expected to threaten the survival of grizzly bears in the lower-48 states (FWS 2011, 2022).

Capture methods would primarily consist of culvert traps and, where feasible and/or permitted, helicopter-assisted chemical immobilization. These trapping methods permit targeting of the age/sex class of bears retained for translocation (i.e., young individuals, mostly females without cubs). Grizzly bears not matching these criteria would be released from culvert traps without using drugs or would be avoided during helicopter capture. Foot snares may be used in limited circumstances. Bears trapped in foot snares would need to be drugged for release. Dangerous conditions for both bears and humans can occur using these methods if young bears traveling with their mothers are trapped while the mother remains free, but in the area. Cub stops would be used on all foothold traps to reduce the risk of this occurring. Traps would be checked daily, which would limit potential stress in cubs if a mother bear captured. In general, capture by foot snare is associated with higher levels of muscular exertion and injury than capture by helicopter darting or culvert trap, but grizzly bear movement is anticipated to return to normal within 3 to 6 weeks after capture (Cattet et al. 2008). Although there is no evidence suggesting any long-term negative impacts on grizzly bears from capturing and collaring grizzly bears, the International Association for Bear Research and Management notes three possible animal welfare concerns with bear collaring: the stress and risk to bears during capture and handling; the potential for an ill-fitting collars resulting in physical discomfort or harm; and the possibility that collars do not fall off, thereby staying on longer than desired (IBA 2019a). The capture and collaring of grizzly bears would be performed in such a manner as to minimize potential for harm to each animal.

Although most cases of trapping bears that are unsuitable for translocation in culvert traps would result in release without long-term harm to the bears, short-term stress to grizzly bears, lasting hours to days, is a likely outcome. In addition, more serious adverse outcomes, up to and including mortality, are possible but are expected to be rare. The number of bears trapped to achieve 7 candidates suitable for translocation annually is uncertain, but targeted trapping methods, especially helicopter capture, would reduce the risk of unnecessary capture and stress.

The translocation process would affect grizzly bears released into the NCE. There is some concern about the effects of capture on the subsequent behavior of bears (Cattet et al. 2008; Blanchard and Knight 1995) and the potential exists that the chemical immobilization required for translocation may impair the mobility of grizzly bears for some time after they resume activity. If this impairment is prolonged, it may have negative consequences on individual fitness (e.g., decreased movement rate following capture could lower time spent foraging and subsequently impact body condition). Nonetheless, studies of captures of physiologically similar polar bears indicate that these animals do not appear to suffer long-term effects on body condition, reproduction, or cub survival (Rode et al. 2014).

After recovering from capture and translocation events, grizzly bears entering novel environments tend to have higher movement rates, greater displacement, and spend more time in poor-quality habitats and habitats with higher mortality risk compared to resident bears (Stenhouse et al. 2022). Although grizzly bear translocations can be successful (see Stenhouse et al. 2022), they can also fail. (i.e., bears may not remain in the release area or may require management action). A study of 110 grizzly bear translocation events in Alberta, Canada, found that 77 of those events failed because bears either required subsequent management action after translocation or exhibited homing behavior, i.e., movements toward their original capture location (Milligan et al., 2018). Several components of successful translocation (i.e.,

moving bears more than 62 miles from their capture location and moving bears at appropriate times of year to maximize retention probability) would be implemented when moving grizzly bears into the NCE as recommended by the International Association for Bear Research and Management (IBA 2019b). For example, an emphasis on translocating bears during the fall would encourage denning in the NCE area, although grizzly bear captures in source areas would be limited during hunting seasons. Also, young males are less likely to exhibit homing behavior than older males (Miller and Ballard 1982) and might be more likely to remain where released. Home ranges of translocated bears could initially be several times larger than typical home ranges of resident bears, and some homing or exploratory behavior may occur where bears move long distances from their release site. Based on CYE data between 1990 and 2021, approximately three-quarters of grizzly bears are expected to remain in the NCE after translocation, and one-quarter, or an estimated 6 bears, could move out of the NCE (FWS, Kasworm pers. comm. 2023d).

Substantial habitat currently unoccupied by grizzly bears in the NCE may reduce the potential for displacement (i.e., would reduce the chance of intraspecific competition because there are no established grizzly bear home ranges), as would capture and release of younger bears targeted for this program (Kasworm et al. 2022a). Data from 22 released bears in the Cabinet Mountains from 1990 through 2022 indicate that the 16 bears that remained in the Cabinet Mountains after release moved, on average, up to approximately 9 miles from the release sites. In the first month, these same bears moved up to approximately 7.5 miles away from release sites; within the first year, they moved approximately 9.5 miles (FWS, Kasworm pers. comm. 2023d). The other 6 released bears left the Cabinet Mountains target area, moving east back toward their place of origin (with the exception of 1 bear, who moved south to the Selway-Bitterroot Wilderness; Kasworm et al. 2021).

As grizzly bear populations grow, and especially if they approach or exceed 200 bears, some bears could begin to explore new habitats outside the NCE. These bears would likely move north and south of the NCE, where similar habitat exists. They also could move east into agricultural areas. No management action (e.g., deterrence, relocation, lethal take) would be taken on bears that move outside the NCE unless a conflict is imminent; bears are lingering in a human-occupied area or involved in a conflict; or they demonstrate an immediate threat to human safety, livestock, or property.

Because the NCE includes an extensive backcountry area with minimal trails and camping areas, human activity is not expected to adversely affect the future population growth and expansion of grizzly bears. However, if grizzly bears establish home ranges overlapping with human activity in the NCE, human activities could affect grizzly bear behavior, habitat use, and risk of conflicts with humans. In GYE, the greatest number of reported conflicts and human-caused mortalities between 1992 and 2000 occurred during early and late hyperphagia (i.e., mid-July to den entrance; Gunther et al. 2004). During that study, 1 of 38 incidents of property damage and 1 of 24 incidents of bears obtaining human foods, garbage, or livestock or pet foods resulted in dead bears. Grizzly bears have been shown to generally avoid areas of frequent human recreation (Coleman et al. 2013a) and specifically avoid backcountry campsites in Yellowstone National Park (Coleman et al. 2013b) and in Alberta (Stenhouse et al. 2022). In addition, grizzly bears in human-dominated areas shift to nocturnality as a means of reducing the risk of conflicts with humans (Lamb et al. 2020). While the nocturnality required for bears to persist near people may reduce foraging efficiency and potentially affect body condition and reproduction, Lamb et al. (2020) observed that nocturnal female bears in human-dominated areas were able to find sufficient nutrition in human-dominated landscapes and produced at least as many offspring as females in wilderness, although they had poor survival.

Conflicts between humans and grizzly bears including threats to human life, can occur whenever bears and humans interact. Such conflicts are much more likely in cases where unsecured attractants such as garbage, human foods, and animal foods are present. Conflicts would likely increase as the grizzly bear population grows toward 200 bears (figure 6), but a larger population would be better able to sustain the

removal of some bears through take. Under alternative B, take could occur under a limited set of circumstances, including defense of life or removal of bears involved in a conflict where other options have been exhausted. Take during the primary phase would affect population restoration because of the small number of grizzly bears that would be present in the NCE, the high population consequences of removing individuals, and the need to replace lost individuals by capturing and translocating additional bears. Improved sanitation efforts on public lands, including providing bear-safe food receptacles at designated campgrounds and installing and maintaining signs about how to behave safely in bear country would continue to be implemented. This mitigation would reduce the potential for human-grizzly bear conflicts and limit the potential for grizzly bears to be taken.

In some cases, nonmotorized backcountry users may displace grizzly bears and potentially hinder foraging opportunities (Kasworm and Manley 1990; Mace and Waller 1996). Although the extent to which grizzly bear behavior and habitat use may be affected by human activity in the NCE remains uncertain, grizzly bears frequently and successfully establish home ranges overlapping similar levels of human activity in other parts of their range. Grizzly bears could also be accidentally killed due to mistaken identity by black bear hunters, although the potential for this would be reduced because WDFW requires black bear hunters to take and pass a bear identification test within game management units in the NCE recovery zone. Additionally, Washington does not allow bait or hounds for bear hunting (RCW 77.15.245).

Although impacts to grizzly bears associated with capture and release are predicted to be relatively small and compatible with the goals of grizzly bear reintroduction in the NCE (i.e., most bears are predicted to survive and are likely to remain in the NCE ecosystem), several uncertainties have been identified associated with these predictions. These uncertainties would be addressed using adaptive management, which would permit actions to be adjusted as information about successes and failures is obtained. Given the slow release of grizzly bears (i.e., 3 to 7 per year) and the careful adaptive management approach that would be implemented, the risk of any significant adverse impacts to grizzly bears would be very low. Long-term beneficial impacts through population establishment are likely under alternative B.

Source Populations. Alternative B would remove up to 7 grizzly bears per year over an initial 5- to 10-year period from trapping efforts occurring in interior British Columbia and/or the NCDE and GYE. If 7 grizzly bears were achieved per year, then the target of 25 initial bears would be met in the first 4 years. After the initial reintroduction of 25 grizzly bears, additional translocations may be needed to maintain the desired population trajectory, should previously translocated animals either die or emigrate from the NCE. While it is likely that grizzly bears would be translocated from multiple source populations, this analysis includes a conservative approach that assumes up to 7 grizzly bears could come from one source population in any given year.

Interior British Columbia — Alternative B could remove up to 7 grizzly bears a year from viable GBPUs in interior British Columbia (see figure 7). The likely number of bears removed would be fewer if some bears also came from the NCDE or from more than one GBPU in British Columbia. Given a grizzly bear population for any of the potential British Columbia GBPUs that was between 265 and 534 bears in 2018 this would amount to less than 3% of the estimated total population per year, well below the 6% harvest rate in British Columbia considered to result in a sustainable population (Boyce, Derocher, and Garshelis 2016). Because grizzly bears in British Columbia are not currently hunted, and other sources of human-caused mortality are low, the removal of less than 3% of the population per year would not affect the viability of the local population. If some bears are translocated from other GBPUs with similarly healthy and populations, potential for impact on the source population would be further reduced. Bear captures in source areas would be done in coordination with British Columbia wildlife managers and with appropriate permits or approvals in place.

NCDE and GYE — Alternative B could remove up to 7 grizzly bears a year from the NCDE or GYE (see figures 8 and 9). The likely number of bears removed would be fewer if some bears also came from interior British Columbia GBPUs. Given a grizzly bear population that likely exceeds 1,000 individuals in both the NCDE and GYE, this would amount to less than 1% of the estimated total population. These populations of grizzly bears have demonstrated resilience and are on a recovery trajectory. Given the limited number of grizzly bears that would be translocated (up to 36 grizzly bears to obtain an initial population of 25 individual bears) and in consideration with other ongoing grizzly bear management programs in both ecosystems, the source populations in the NCDE and the GYE are anticipated to remain stable and persist despite the translocation of up to 36 individuals. Overall, the number of individuals necessary for the NCE is minimal in relation to the demographic recovery criteria and the annual mortality of the NCDE and GYE populations.

Removals from the NCDE or GYE for purposes of augmenting populations in other ecosystems (e.g., the CYE) are an acceptable, discretionary source of loss to the population (FWS 2011). Any bears captured and translocated from the NCDE or GYE would be considered a "mortality" in the context of the overall annual survival and mortality thresholds described in the *Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem* (NCDE Subcommittee 2021). The strategy specifies mortality limits not to be exceeded to sustain the NCDE grizzly bear population—an annual total mortality limit for independent females is 7.6% and for independent males is 15%. In the GYE, annual mortality limits for independent females are 9% and 20% for independent males (IGBC Yellowstone Subcommittee 2016). Any grizzly bear captures in source areas would be done in coordination with state and federal wildlife managers. Given that translocations would not exceed thresholds when considered in conjunction with other forms of mortality, the translocation of grizzly bears from the NCDE or GYE to the NCE under alternative B would not likely affect the viability of the resident population of grizzly bears in the NCDE and GYE.

Assuming an equal contribution of grizzly bears from Canada and the United States, alternative B would remove up to 3 or 4 grizzly bears per year from each of the interior British Columbia and the NCDE or GYE, depending on capture success. If a mix of source populations could be achieved, impacts to individual populations would be lower than those predicted using the conservative analyses of single source populations outlined above. Once the initial population of 25 grizzly bears has been achieved, the adaptive management strategy for alternative B may require additional translocation of bears to the NCE depending on a variety of factors, including human-caused mortality, genetic limitations, population trends, and adjustment of the sex ratio. The additional translocations would not affect the viability of the source populations because they would occur at a rate lower than during the primary phase, and the source populations could withstand the removal of additional bears without impacting recovery.

Cumulative Impacts. Past, present, and reasonably foreseeable actions would be the same as those described in the "Current and Expected Future Conditions of the Environment" section. Overall, ongoing and reasonably foreseeable future actions would have both beneficial and adverse impacts on grizzly bears, but in aggregate, these impacts would be largely beneficial given the amount of secure grizzly bear habitat available. Alternative B would have a long-term, beneficial impact on grizzly bears by helping to restore them. Overall, long-term cumulative impacts on grizzly bears would be beneficial, and the contribution of alternative B would be substantial.

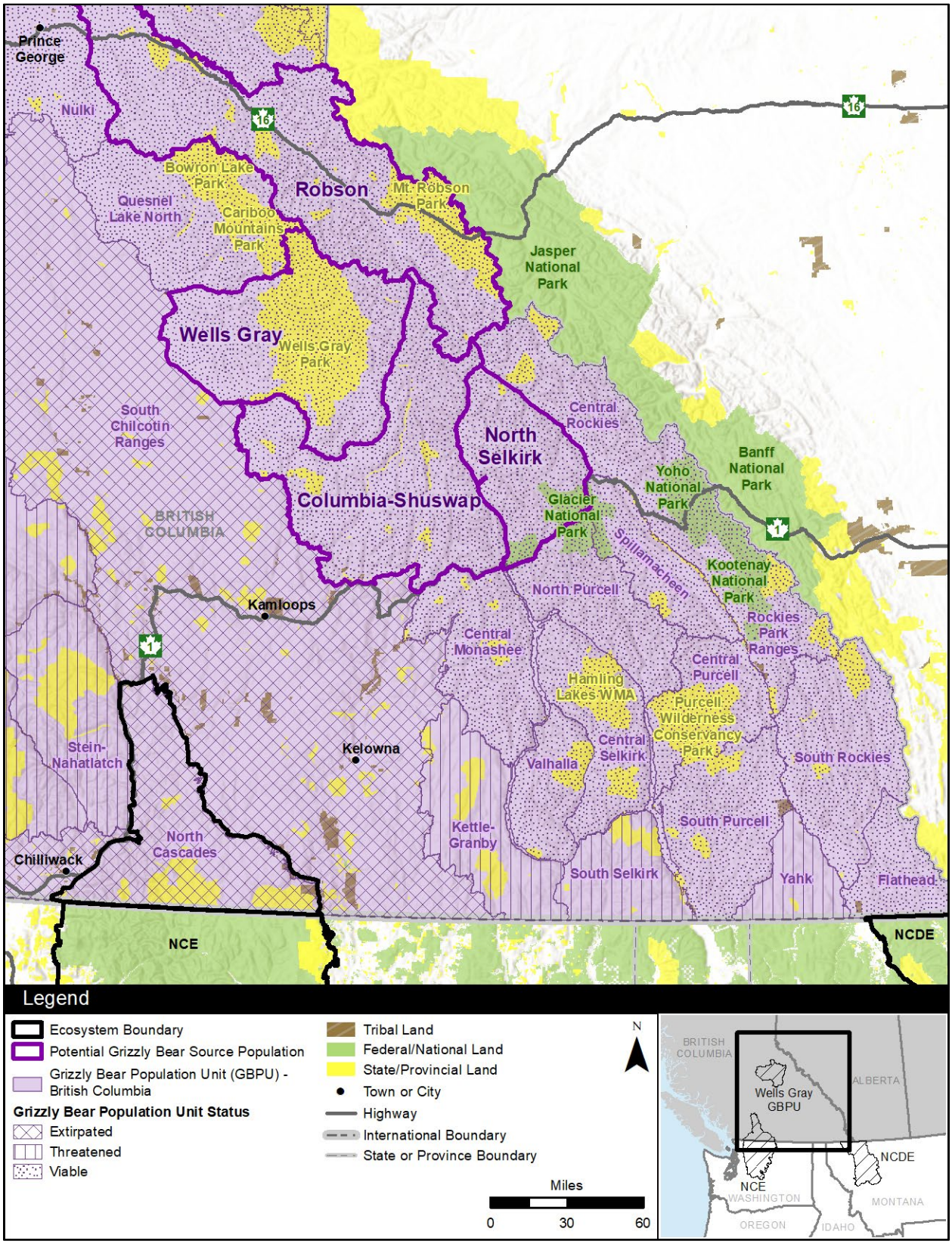


FIGURE 7. GRIZZLY BEAR SOURCE POPULATIONS IN INTERIOR BRITISH COLUMBIA

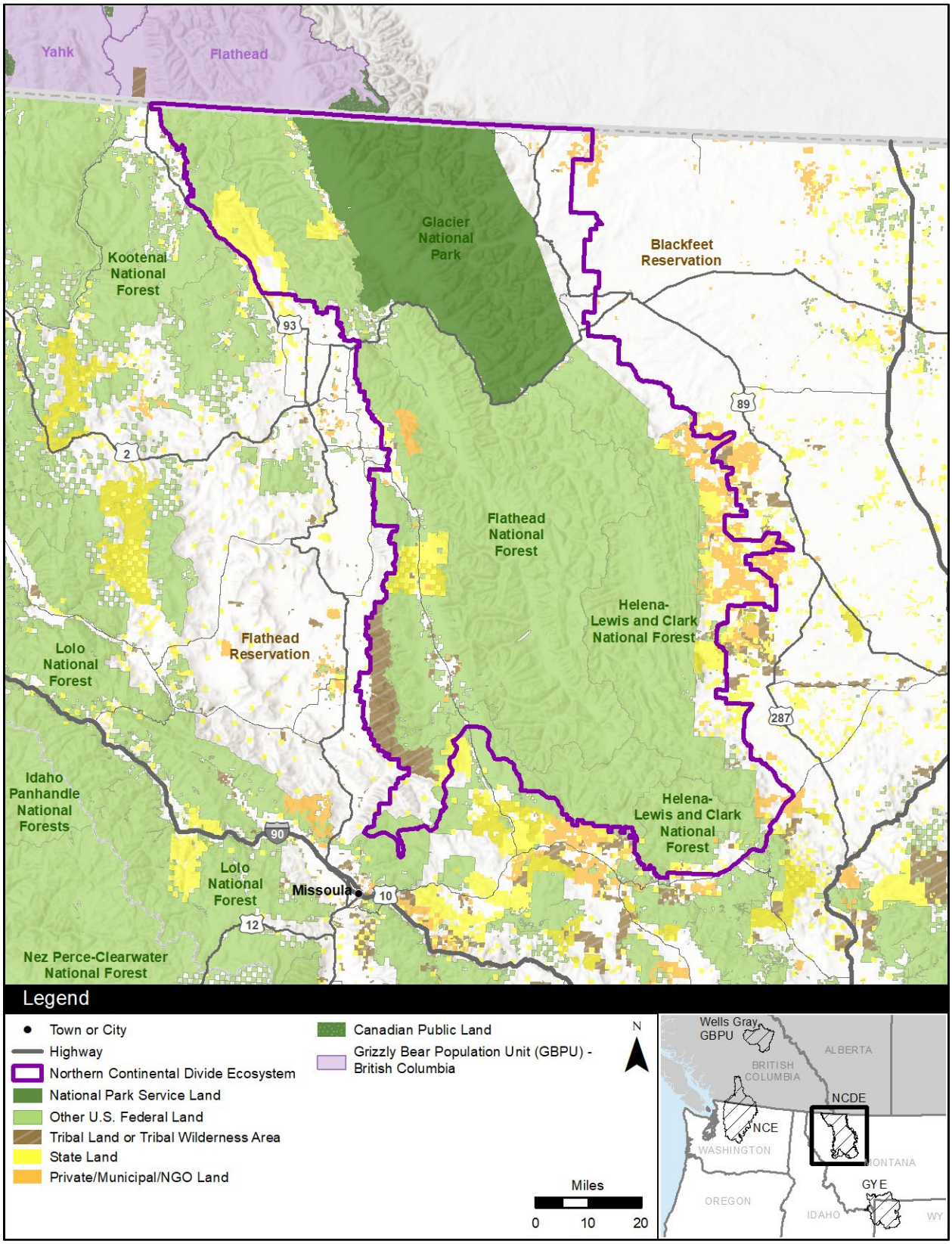


FIGURE 8. POTENTIAL GRIZZLY BEAR SOURCE POPULATIONS IN THE NCDE

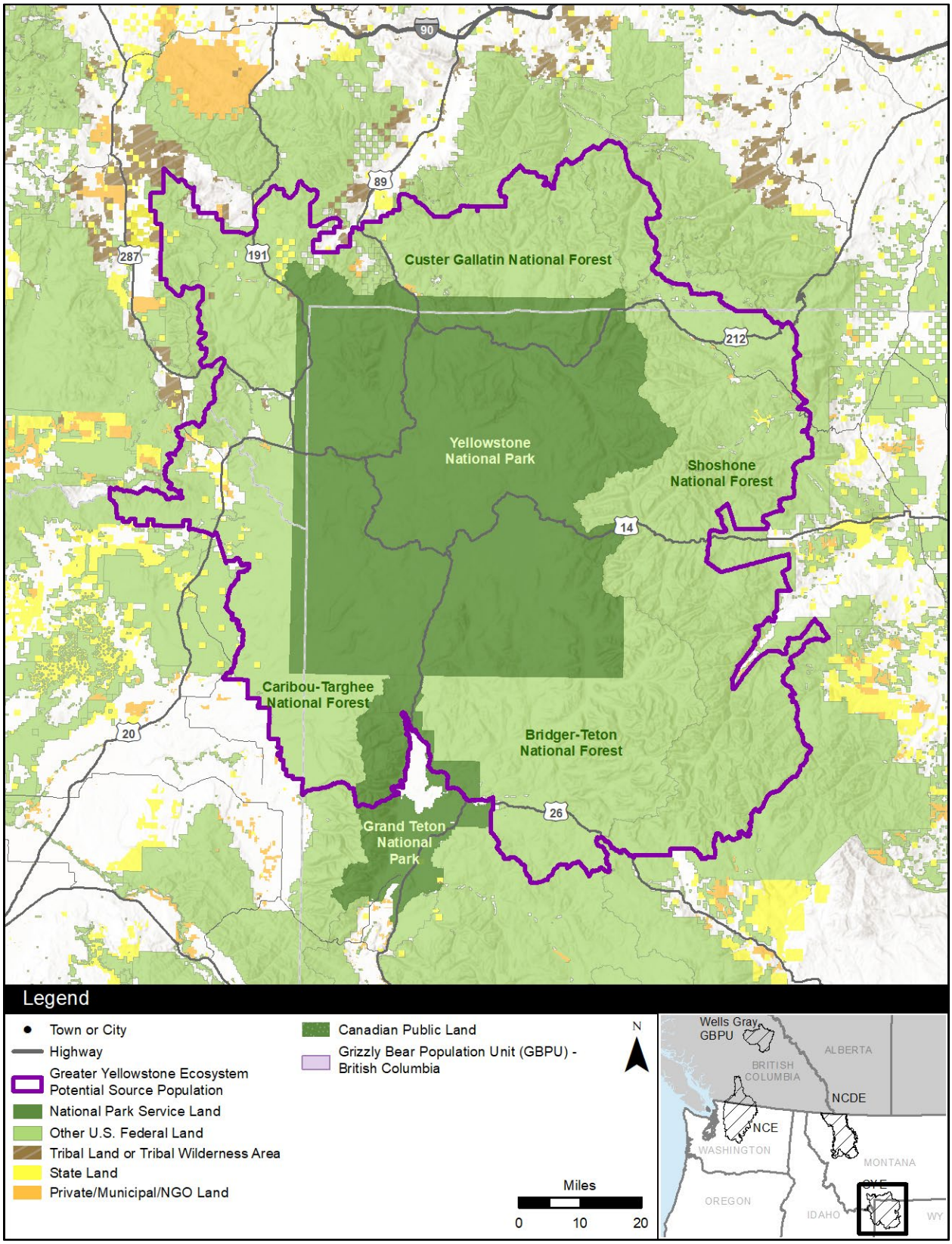


FIGURE 9. POTENTIAL GRIZZLY BEAR SOURCE POPULATIONS IN THE GYE

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Alternative C differs from alternative B only in the implementation of a section 10(j) designation for grizzly bears. Impacts on grizzly bears from capture, release, and monitoring, as well as impacts on source populations would be the same as described under alternative B. Under alternative C, there would be increased options for grizzly bear management, with specific rules applying to the different management areas, as described in chapter 2.

Using the section 10(j) designation would provide additional management flexibility to effectively manage the grizzly bear population in and around the NCE, including deterrence, expanded preemptive relocation options to prevent conflicts, written authorization for conditioned lethal take, and allowance to lethally remove bears caught in the act of attacking livestock in certain situations. As part of its 10(j) rulemaking and before authorizing the release of bears, the FWS must confirm that the effort would further the conservation of the grizzly bear. A section 10(j) designation would clarify the management options available to reduce impacts from grizzly bears that move outside NCE or to mitigate human-grizzly bear conflicts (e.g., livestock depredations, chickens, garbage). These would include actively trapping and relocating bears and hazing them away from conflict to increase human safety and reduce the likelihood of bears becoming food conditioned. Trapping and relocating bears would have impacts that are similar to those described for the original capture methods in alternative B.

To foster additional social tolerance for restoration, the 10(j) designation allows for management of grizzly bears not allowed under alternative B. These management tools include conditioned lethal take in Management Areas B and C. Additional grizzly bear mortality is anticipated under alternative C compared to alternative B in these management areas; however, the amount of additional mortality is difficult to quantify because it is likely that lethal take would be necessary to resolve some conflict situations under alternative B. Escalation of conflict situations without the management tools to adequately address grizzly bears involved in conflict is likely to erode social tolerance for grizzly bear restoration among some groups. Therefore, despite allowing lethal take in limited circumstances, the 10(j) designation is expected to improve social tolerance of grizzly bears and, in turn, improve the chances of establishing and maintaining a grizzly bear population in NCE.

Cumulative Impacts. Past, present, and reasonably foreseeable actions would be the same as those described in the "Current and Expected Future Conditions of the Environment" section. Overall, ongoing and reasonably foreseeable future actions would have both beneficial and adverse impacts on grizzly bears, but in aggregate, these impacts would be largely beneficial given the amount of secure grizzly bear habitat available. Alternative C would have a long-term, beneficial impact on grizzly bears by helping to restore them; however, it could also result in adverse impacts if management actions under the 10(j) designation result in take of individual grizzly bears. Compared to current conditions, long-term cumulative impacts on grizzly bears would be beneficial, and the contribution of alternative C would be substantial.

OTHER WILDLIFE AND FISH

Affected Environment: Current Status and Expected Future Conditions

Management actions associated with grizzly bear restoration activities, including the use of aircraft or other vehicles and equipment during release and subsequent monitoring of grizzly bears, could affect other wildlife species. Certain wildlife and fish species could be affected by the presence of grizzly bears in the ecosystem as a result of predation or competition for resources. Because grizzly bears have historically populated the ecosystem at some level, other species of wildlife and fish have historically coinhabited the NCE with grizzly bears. Wildlife and fish species present in the NCE that could be

affected, including special status species, are described below. A list of all special status species that could be present in the NCE is provided in appendix A.

Mammals. Approximately 76 mammal species in 21 families are found in the NCE. This section focuses on those species that may be most affected by the restoration of grizzly bears or the activities necessary for their restoration.

Predator-Prey Interactions — Grizzly bear diet varies by individual as well as seasonally and geographically depending on prey and forage availability and the presence of other predators. While they are omnivores that primarily feed on vegetation (Mace and Jonkel 1986; Mattson et al. 1991), their food webs are complex and dynamic, and they do have the potential to affect prey species in the NCE. A grizzly bear's diet consists predominantly of vegetable and insect matter (McLellan and Hovey 1995; Hobson, McLellan, and Woods 2000); however, they scavenge and occasionally prey on ungulates and fish, and dig for ground-dwelling rodents. Local concentrations of ungulates, where abundant, can be an important potential source of protein for grizzly bears (Mowat and Heard 2011). In many locations, animal matter may not constitute a major annual diet item but may be seasonally significant to grizzly bears (Mattson, Blanchard, and Knight 1991; Gunther and Haroldson 1998). In general, meat consumption is greatest in late spring when winter-killed carcasses or ungulate calves are available, and small mammals are mostly consumed during spring and early fall (Mattson, Blanchard, and Knight 1991; Munro et al. 2006; Ransom, Krosby, and Lyons 2018).

Photo credit: A. Braaten

Female deer with fawns near Stehekin in North Cascades National Park

Several species of ungulate occur in the NCE, including mule deer (*Odocoileus hemionus*), black-tailed deer (*Odocoileus hemionus columbianus*), mountain goats (*Oreamnos americanus*), bighorn sheep (*Ovis canadensis*), elk (*Cervus elaphus*), and moose (*Alces alces*). Mule deer and black-tailed deer numbers have declined somewhat since the historical highs in the mid-20th century, but populations in the ecosystem remain robust. In recent decades, populations have fluctuated largely in response to winter severity but have remained relatively stable over the last 15 years. On the east slope of the Cascades in Okanogan, Chelan, and Northern Kittitas Counties, the last zone-wide post-hunt aerial sightability surveys indicated approximately 47,000 mule deer residing within the East Slope Cascades Mule Deer Management Zone. Surveys indicated a decline in the overall population in the zone immediately following severe drought and fires in 2014 and 2015, but more recent demographic data suggests the population is now growing slowly (WDFW 2022a). The total deer population on the east slope of the Cascades likely exceeds 50,000 when white-tailed deer numbers in Okanogan and Chelan Counties are added (WDFW, Fitkin pers. comm. 2016a). Deer numbers on the west side of the Cascades may be lower, but are still relatively abundant. Due to the difficulties of surveying black-tailed deer in the dense forest habitats they occupy, the WDFW does not conduct population surveys for black-tailed deer on the west side of the Cascade Crest (WDFW 2022a,b). Although the WDFW does not estimate black-tailed deer population size, deer harvest estimates provide a proxy measure of black-tailed deer abundance, and the North Cascade Mountains Black-tailed Deer Management Zone supports approximately half the annual harvest as the similarly sized (~17,000 square miles) East Slope Cascades Mule Deer Management Zone (WDFW 2022a).

The North Cascades elk herd is the smallest of 10 herds formally recognized and managed by WDFW. After successful augmentation in 1946, 1948, and between 2003 and 2005, the North Cascades elk herd

peaked at about 1,400 to 2,000 elk in 1984 and then sharply declined to just a few hundred elk in the early 1990s, and rebounded to approximately 1,470 to 1,880 in 2018 (WDFW 2018). The Colockum elk herd inhabits the southern portion of the NCE. In 2021, the herd had an estimated population of 4,128 to 4,203 individuals, a decline from approximately 6,000 in 2014 and 2015 (WDFW 2022a).

Mountain goats occupy most of the high elevation habitat in the NCE. Mountain goat populations have declined relative to estimated historical levels. Between 2,400 and 3,200 mountain goats are estimated in Washington (WDFW 2023a), with about 635 goats within the NCE (Rice 2012). As part of the management of the nonnative mountain goat population on Washington's Olympic Peninsula, 325 mountain goats were captured and translocated to the NCE between 2018 and 2021, increasing the population (NPS 2022b).

Bighorn sheep populations are generally stable in Washington, although several herds have suffered declines as a result of the transfer of the pneumonia-causing bacteria from domestic sheep (WDFW 2022a). The NCE and immediately adjacent wildlands support a minimum population of approximately 500 sheep in 5 herds spread along the eastern edge of the ecosystem. This includes the Swakane, Chelan Butte, and Manson herds in Chelan County and the Mt. Hull and Sinahekin herds in Okanogan County (WDFW 2022a).

Moose in Washington colonized the northeastern portion of the state from neighboring British Columbia and Idaho. Moose were undocumented in Washington prior to the 1930s and were rare prior to the 1960s. Moose had become resident in northeastern Washington by the 1970s, and the first hunts occurred in the 1970s. Moose are uncommon visitors to the west slope of the Cascades but are present throughout much of the northeastern portion of the NCE. While moose populations are now well established in the NCE and likely increasing in number, no population estimates are currently available for this area (Base, Zender, and Martorello 2006; Harris et al. 2015).

Other potential prey include marmots and ground squirrels. Hoary marmots (*Marmota caligata*) are common in subalpine and alpine habitats, whereas Cascade golden-mantled ground squirrels (*Callospermophilus saturatus*) are common on mid to high elevation talus slopes (NPS 2023a), and Columbian ground squirrels (*Urocitellus columbianus*) are locally abundant in mid- to upper-elevation open meadows in the northeast portion of the NCE (WDFW, Fitkin pers. comm. 2016a). Of note, recent sharp declines in hoary marmot numbers have been documented in the park complex and concerns over vulnerability to climate change have raised questions about their long-term resilience in the NCE (Johnston et al. 2021).

Interspecific Competition — Some species of wildlife in the NCE may compete with grizzly bears for prey or other resources. The species most likely to compete or interact with released grizzly bears include gray wolf, coyote (*Canis latrans*), wolverine, fisher, Canada lynx, cougar (*Puma concolor*), bobcat (*Lynx rufus*), and black bear (*Ursus americanus*) (NPS 2023a).

The gray wolf was once present in North America from coast to coast, as far north as Alaska and south to Mexico until it was nearly brought to extinction in the lower-48 states by the 1930s. The species was listed as endangered under the ESA in 1973 (38 FR 14678, June 4, 1973; FWS 2015b). Currently it is listed as endangered by the state of Washington and federally listed as endangered in the western two-thirds of Washington. Wolves in the eastern third of the state were delisted as part of the Northern Rocky Mountain Distinct Population Segment in 2011 (76 FR 25590, effective May 5, 2011). Elsewhere in Washington, the gray wolf was briefly delisted in 2021 (85 FR 69778), but the delisting rule was vacated in February 2022; thus, in the NCE, wolves are endangered under the ESA. The FWS is currently evaluating the status of gray wolves in the western United States and intends to submit a proposed rule concerning the listing status of gray wolf by February 2, 2024 (FWS 2023e). Washington's first resident

wolf pack since the 1930s was documented in Okanogan County in 2008 (Becker et al. 2016). As of December 31, 2022, at least 216 known wolves existed in 37 known packs in Washington, including at least 19 breeding pairs. The 37 packs ranged in size from 2 to 10 wolves, and most packs contained 4 to 6 individuals. Washington comprises three recovery areas, which include eastern Washington, the Northern Cascades, and the Southern Cascades and Northwest coast. During 2022, the Northern Cascades recovery region had 9 packs, 6 of which were considered successful breeding pairs. This region has maintained a minimum of 4 successful breeding pairs for more than 3 consecutive years and continues to meet recovery objectives. (WDFW et al. 2023). The NPS documented at least 10 different wolves in the park complex from 2018 through 2020, and 174 confirmed or probable observations of wolves in the park complex from 1995 to 2020. The first breeding pack was documented in the park complex in 2020, with 2 adults and 4 pups (Ransom et al. 2023b).

Wolves are social pack animals that live in a variety of habitats. They are opportunistic carnivores, although they tend to focus on large ungulates like deer, elk, and moose (Wiles, Allen, and Hayes 2011). However, wolves also prey on smaller animals and eat carrion. Interspecific competition with grizzly bears has been documented, typically associated with prey (i.e., carrion), although wolves have been documented preying on grizzly and black bear cubs in Yellowstone National Park (Gunther and Smith 2004), and bears will also occasionally kill wolves (NPS 2015c).

Coyotes are opportunists, both as hunters and scavengers. In Washington, coyotes occupy almost every habitat type from open ranch country to densely forested areas to urban environments. Despite ever-increasing human encroachment and past efforts to eliminate coyotes, the species maintains its numbers and is increasing in some areas. Coyotes eat any small animal they can capture, including mice, rats, gophers, mountain beavers, rabbits, and squirrels, as well as snakes, lizards, frogs, fish, birds, and carrion. They eat some grass, fruits, and berries during summer and fall. Natural predators of coyote include cougars, grizzly bears, black bears, gray wolves, and other coyotes (WDFW 2023b). There are some indications from diet and trail camera studies that coyotes may be expanding into higher elevations than historically observed in the NCE (Whiles 2021).

Wolverines are the largest member of the weasel family. They are relatively solitary and require large expanses of undisturbed and unfragmented mountainous habitat. Wolverines are found exclusively in areas with cold climates, which may be related to their reliance on cold to preserve cached large animal carcasses for later use. There is concern about the status of wolverine because of potential effects of climate change on decreasing spring snowpack, which is used by nearly all wolverines for denning and pupping (Copeland et al. 2010; Heim et al. 2017). As such, the wolverine was listed as a threatened species under the ESA (88 FR 83726).

A sample of 14 wolverines was studied in the North Cascades from 2005 to 2013, and the ranges of 8 study animals were located primarily in Washington, demonstrating that there is a resident population of wolverines in the state (Aubry et al. 2016). Wolverines have also been documented near Mt Rainier, Mount Adams, and in the Goat Rocks Wilderness in the South Cascades. These occurrences have included 2 females with kits within or near Mount Rainier National Park. The statewide population is likely under 25 animals, but it appears to be relatively stable (WDFW 2023c). Wolverines are one of the rarest carnivores in the contiguous United States based on an estimated population size by Inman et al. (2013) of 318 wolverines (95% Confidence Interval = 249–926) in Montana, Wyoming, Idaho, and Washington. Over half of the habitat predicted to be suitable for long-term wolverine survival occurred in the GYE, Salmon-Selway, and Southern Rockies regions; the NCE composed approximately 7% of the estimated population capacity in the western United States. A species distribution model for the Cascade Range, based on location data from 10 resident adult wolverines, shows that wolverine habitat in Washington is closely associated with alpine areas near the tree line and snowy, cold environments

(Aubry et al. 2022). Occupancy surveys in modeled wolverine core habitat in Washington for 2016–2017 resulted in 41% of the 25 sampled cells being used by wolverines (Lewis et al. 2020).

Fishers are medium-sized carnivores in the weasel family that inhabit a variety of forest types, although they commonly use landscapes that are dominated by mid- and late-successional forests (Lofroth et al. 2010). Fishers commonly prey on small and mid-sized mammals including mice, voles, shrews, squirrels, snowshoe hares, mountain beavers, and porcupines (Martin 1994; Weir, Harestad, and Wright 2005). Fishers frequently use cavities in large live trees, large snags, and large downed logs for rest and den sites (Harestad, and Wright 2005; Lofroth et al. 2010; Weir, Aubry et al. 2013), and female fishers require cavities in large live trees or large snags as natal den sites (where kits are born). Fishers were extirpated in Washington in the early to mid-1900s because of over-trapping, incidental mortality, and loss of habitat (Lewis and Stinson 1998; Aubry and Lewis 2003). Fisher recovery efforts in Washington have included a reintroduction program in portions of the NCE on the west side of the Cascade Crest (Lewis 2013; NPS 2014). From 2015 to 2020, 89 Pacific fishers were reintroduced to the NCE, and 81 fishers were reintroduced into the South Cascades, including Mount Rainier National Park and Gifford Pinchot National Forest. Radio-telemetry monitoring indicated that survival one year after reintroduction was lower than expected in the North Cascades (42%) but was high in the South Cascades (76%). It is assumed that many fishers have settled into home ranges across the west slope and parts of the east slope of the Cascades (Lewis et al. 2022).

In 2000, the Canada lynx was federally listed as threatened. It has been protected in the state of Washington since 1993 and was reclassified from threatened to endangered in 2016. Canada lynx inhabit coniferous forests and wet bogs throughout most of Canada and Alaska, and high elevation forests in the Pacific Northwest and Rocky Mountains. This feline is dependent on the snowshoe hare as its primary food item, and the presence of adequate numbers of snowshoe hare is a key characteristic that defines its habitat. In Washington, Canada lynx are primarily found in high elevation forests in the north-central and northeast regions, including subalpine and high elevation mixed-conifer zones in the Cascades generally above 3,600 feet. The only persistent resident population of lynx in Washington is in the Okanogan Range north of Lake Chelan. There have been more recent sightings in the far northeast corner of the state, in the Selkirk Mountains, and the Colville Tribe is currently reintroducing lynx into the Kettle Range. Koehler et al. (2008) estimated the lynx carrying capacity at approximately 87 individuals based on home range size and available suitable habitat; however, this estimate may have been overstated because it was based on lynx density estimates from an area that had the highest quality lynx habitat in Washington at the time. Extensive wildfires within lynx habitat in the past 20 to 30 years have resulted in the loss of suitable habitat. As a result, the most recent revised carrying capacity estimate suggests a decline of 66% to 73% from 2000 to 2020 (Lyons et al. 2023). The naturally fragmented nature of Canada lynx habitat and low availability of suitable habitat outside of the Okanogan Range continues to challenge this species' conservation (Stinson 2001). Predictions of future distribution suggest lynx will be increasingly challenged by climate change, particularly at the southern and lower-elevation portions of their range in Washington (King et al. 2020).

Cougars favor dense forests, steep canyons, and rock outcroppings that provide good stalking cover while hunting, while grizzly bears tend to occupy more open habitats. Cougars eat a variety of prey species in the NCE, including birds, rodents, and lagomorphs, but in the North Cascades, and throughout the state, they prefer ungulates, primarily deer and elk. Generally, female cougars tend to kill smaller deer-sized ungulates, and males often kill larger species like elk (White et al. 2011) where available. In areas where white-tailed deer and mule deer overlap, cougars tend to prefer mule deer (Cooley et al. 2010). A long-term WDFW cougar research project in the North Cascades (2004–2013) resulted in an average 5-year density of 4.01 cougars per 100 square miles in suitable habitat (range =2.64–5.44; Beausoleil et al. 2021), and WDFW's management objective in North Cascades management units is population stability (WDFW 2015). Genetically speaking, habitat connectivity in the NCE is considered high when compared

to other regions within Washington (Zeller et al. 2023), and overall cougar movements were generally in the northerly direction (Wultsch et al., in press) as were subadult male dispersals (WDFW, Beausoleil pers. comm. 2023e) that included several movements well into British Columbia. Grizzly bears have been known to occasionally scavenge cougar kills.

Bobcats are opportunistic carnivores that prey on a wide variety of animals, including mice, voles, rabbits, gophers, mountain beaver, marmots, fawns, insects, reptiles, birds, and carrion. Rock cliffs, outcroppings, and ledges are important to bobcats; however, bobcats can commonly be found in open fields, meadows, and agricultural areas where brushy or timbered areas are nearby for escape (WDFW 2023d). Neither the size nor trend of the bobcat population in Washington is known, and local abundance is variable; however, bobcats appear to be relatively common and well-distributed throughout the state in suitable habitat (WDFW, Welfelt pers. comm. 2023f).

American black bears are found in primarily forested habitats from near the Arctic Circle to northern Mexico; however, in the NCE they commonly forage on subalpine berries in the late summer and fall. Black bears are opportunistic omnivores that feed on herbaceous vegetation, berries and other fruits, invertebrates, small mammals, ungulate calves, fish, carrion and when available, human-related foods. WDFW (2022b) conducted a 4-year study to evaluate black bear density in the North Cascades and found black bear density to be negatively correlated with human development; average black bear density was estimated to be approximately 0.5 bears per square mile, but density varied from approximately 0.2 bears per square mile to 0.8 bears per square mile depending on degree of human development. The statewide black bear population has been estimated at approximately 20,000 animals (WDFW 2023g).

Birds. According to the North Cascades National Park species list provided on the NPSpecies database, more than 200 species of birds in 38 families can be found in the park complex habitats that range from subalpine meadows to low elevation forests and wetlands. Many of these species are abundant or are increasing, whereas a few have had decreasing populations requiring protection (Ransom et al. 2023b). Two protected species, marbled murrelet and northern spotted owl, are listed as threatened under the ESA, and Mount Rainier white-tailed ptarmigan (*Lagopus leucura rainierensis*) is proposed for ESA listing. Other species include bald eagle (*Haliaeetus leucocephalus*), northern goshawk (*Accipiter gentilis*), common loon (*Gavia immer*), Vaux's swift (*Chaetura vauxi*), black-backed woodpecker (*Picoides arcticus*), and pileated woodpecker (*Dryocopus pileatus*). Many migrating, breeding, and wintering species of birds are attracted to the rivers, lakes, and streams in the NCE. One of the largest wintering populations of bald eagles in the continental United States occurs within the Skagit River watershed, where they are attracted by the large numbers of winter-running chum salmon. Clear, fast-flowing rivers and streams host breeding populations of Harlequin ducks (*Histrionicus histrionicus*) (NPS 2022c).

The NCE is within the Pacific Flyway Corridor, and many migratory species, including raptors, pass through the NCE during their spring and fall migrations (FWS n.d.). More than half of the species breeding in the NCE are migratory species. However, the species potentially affected would be those that may be nesting close to grizzly bear restoration activities, specifically when grizzly bears are released using helicopters.

Fish. According to the North Cascades National Park species list, 34 fish species are present in the park complex, of which 29 are native. Some of these species, especially salmon and trout have experienced declining populations, whereas other species are stable or increasing. Some of these species could be potential prey species for grizzly bears, either live or as post-spawning carcasses, including peamouth (*Mylocheilus caurinus*), northern pikeminnow (*Ptychocheilus oregonensis*), coastal and westslope cutthroat trout (*Oncorhynchus clarkii*), chum salmon (*Oncorhynchus keta*), coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), rainbow trout (*Oncorhynchus mykiss*), sockeye salmon

or kokanee (*Oncorhynchus nerka*), mountain whitefish (*Prosopium williamsoni*), bull trout (*Salvelinus confluentus*) and Dolly Varden (*Salvelinus malma*) (NPS 2023a). In addition, Okanogan-Wenatchee National Forest supports runs of Middle Columbia River steelhead (*Oncorhynchus mykiss*) and Upper Columbia River spring-run Chinook (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss)*, and Mt. Baker-Snoqualmie National Forest supports runs of Puget Sound steelhead and Puget Sound Chinook salmon (*Oncorhynchus mykiss*) (USFS 2019). The *Oncorhynchus* species are anadromous, spawning in clear, cold streams and rivers, migrating as juveniles to salt water and returning 2 to 5 years later to their natal stream to spawn and die. The rest of the species are catadromous, remaining in fresh water year-round.

The NCE includes tributaries to the Skagit, Chilliwak, Nooksack, and Stehekin Rivers, which support runs of anadromous and potamodromous salmonids, albeit at much reduced levels relative to their historical abundance. Pacific salmon are an important food source for numerous wildlife, transferring marine-derived nutrients into terrestrial ecosystems. They are also an important spiritual and cultural resource to Tribes in the NCE. The Skagit River and its tributaries provide spawning grounds for one-third of all salmon in Puget Sound (NPS 2009), and most tributaries like the Baker River, Sauk River, and Cascade River host runs of salmon. The sockeye salmon run on Baker River is blocked by two dams so the fish are trapped and transported above the dams and released at artificial spawning beaches into Baker Lake to spawn naturally or are used for production at the lake's hatchery facility. As discussed below under "Trends and Planned Actions," efforts are ongoing to improve fish passage in the Upper Skagit River watershed and elsewhere in the NCE. The Chilliwack River flows north into Canada and empties into the Fraser River in British Columbia and is the most productive salmon-producing river in Canada (Lapointe et al. 2003). Monitoring of sockeye salmon on the Chilliwack River and Chilliwack Lake has reported an average of approximately 2,800 fish (spawning escapements) with a maximum return of 8,000 fish in 1994 (Fisheries and Oceans Canada 2022).

Trends and Planned Actions

Under current management, it is anticipated that grizzly bears would remain extirpated in the NCE. The USFS would continue to uphold the NNLA, wherein no net loss of core area would occur, and the NPS would follow the direction provided in the Ross Lake *National Recreation Area General Management Plan* (see chapter 1). Implications of the permanent loss of grizzly bears in the NCE on wildlife and fish are described below, followed by a discussion of the trends and planned actions that may affect other wildlife and fish in the NCE in the future.

With the absence of grizzly bears in the NCE, no predator-prey interactions related to released grizzly bears would occur. Grizzly bears in the NCE historically competed for resources with gray wolves, coyotes, wolverines, fishers, Canada lynx, cougars, bobcats, and black bears. Without restoration of grizzly bear populations in the NCE, there would be no potential for interspecific competition to occur between grizzly bears and other species.

Climate change is expected to affect wildlife and fish populations, community structure, and ecosystem dynamics in the NCE in the coming years and decades. Increases in average temperature are almost certain to decrease the regional snowpack in extent and duration (Mote 2003; Elsner et al. 2010), which may carry substantial implications for species like lynx, wolverine, and other species and their forage or prey, especially cold water fish such as salmon and trout.

Climate change is likely to alter physical and hydrologic conditions in the NCE in a way that will create shifts in vegetation communities in the area (Littell, Oneil, and McKenzie 2010). Using dynamic models that take into account climate change, current vegetation community composition, and plant tolerances, Rogers et al. (2011) predicted shifts in vegetation biomes for three different climate scenarios. Over the

next century, models presented by Raymond, Peterson, and Rochefort (2014) indicate that alpine tundra may nearly disappear from the NCE, and the total area of subalpine forest may decrease. These changes could have a significant effect on wildlife that rely on snowpack, are temperature sensitive, rely on climate-sensitive food sources, or avoid post-burn areas. Certain species of fish may be stressed by changes in climate. Those species that require cold water, such as salmon or trout, could be stressed as changes in snowpack and runoff cause increases in water temperature and decreases in dissolved oxygen levels. However, ocean conditions for those migrating species could result in other changes that are not well understood, including changes in migration timing, food availability, and overall survival. These effects would likely be experienced throughout the Pacific Northwest and not limited to the NCE.

Ongoing and planned actions that could affect wildlife and fish include fisher restoration, invasive plant management, fire management operations, the Skagit River Hydroelectric Project relicensing and other fish passage projects, the *Stehekin River Corridor Implementation Plan,* administrative flights for search and rescue operations and other purposes, cattle and sheep grazing, mining, CERCLA mine cleanup and abandoned mine lands projects, rural development, and ski area expansion projects.

Fisher restoration to the Cascades Range in Washington, discussed above under "Interspecific Competition," benefits other wildlife because it has restored a species native to the ecosystem, allowing natural interactions to occur. Invasive plant management would have beneficial impacts on other wildlife through the enhancement of native habitat. Fire management operations benefit other wildlife because they provide opportunities for habitat enhancement. USFS wildfire suppression efforts could have both beneficial and adverse impacts on wildlife and fish because they would help reduce the risk of catastrophic fires and improve understory habitat but may deprive some forests and wildlife of the fires they need to thrive (Swanson et al. 2014). In addition, fire retardants can be toxic to aquatic wildlife (Dietrich et al. 2013, 2014).

Seattle City Light has committed to adding fish passage on its three hydroelectric dams on the Skagit River under terms of a new federal license. Although dam removal is not proposed in its final license application, Seattle City Light has proposed a fish passage that includes a baseline study (Phase 1) and a pilot passage program (Phase 2) to assess the feasibility of constructing and operating fish passage facilities. In the interim, Seattle City Light proposes to trap adult salmon at Gorge Dam and release them above Ross Dam to spawn (Seattle City Light 2023). Negotiations and studies are ongoing during the NEPA process led by the Federal Energy Regulatory Commission to renew the project license. Other efforts to restore fish migration in Washington, such as Washington State Department of Transportation fish passage program (see Washington State Department of Transportation 2022), would increase and benefit salmonids within the NCE.

The *Stehekin River Corridor Implementation Plan* provides management options to respond to the magnitude and frequency of flooding in the Stehekin River corridor within Lake Chelan National Recreation Area and could have adverse impacts because it could reroute roads, affect native habitat, and displace wildlife. Administrative flights for NPS search and rescue operations, transporting materials for trail maintenance, and transporting staff could have adverse impacts on some wildlife species from disturbance associated with helicopter and aircraft noise, especially if these flights occur during nesting, denning, or rearing periods.

Cattle and sheep grazing on national forest lands would continue to impact wildlife and fish habitat by altering the composition, structure, and productivity of plant communities. In general, grazing adversely affects species that require denser cover for protection and benefits species adapted to open habitats. Grazing degrades riparian and instream habitat and increases competition among fish and wildlife for resources. The Okanogan-Wenatchee National Forest is planning to update the way it manages domestic sheep and goat grazing within the range of bighorn sheep to better provide for viability of bighorn sheep

and has initiated scoping for an EIS that would update existing forest plans. CERCLA mine cleanup and abandoned mine lands projects on national forest lands would have beneficial and adverse effects on fish in the long term by preventing toxic runoff into streams but may have adverse impacts in the short term from the effects of stream crossings and diversions and stormwater runoff from road surfaces and areas subject to ground disturbance.

Suburban, exurban, and rural development across the NCE results in wildlife habitat loss and fragmentation. Development in formerly rural landscapes such as the Skagit Valley or Methow Valley often occurs in high-quality habitat and conversion of agriculture and forest lands to residential use is a primary threat to Washington's biodiversity (Washington Biodiversity Council 2007a). This threat to wildlife and fish habitat is not expected to change given current rates of land conversion (Washington Biodiversity Council 2007b). WDFW (2000) reported that 70,000 acres of undeveloped land was being converted to other land uses annually. More recent data from the US Department of Agriculture (USDA) Natural Resources Inventory indicates that the rate has slowed since the late 1990s. On average from 1982 to 2017, approximately 30,000 acres per year of private land was converted from rural land uses to development (USDA 2020). On national forest lands, ski area expansion projects could have adverse impacts on some wildlife and fish species because ground-disturbing activities could increase runoff into streams, land clearing could fragment habitat, and human activity could disturb wildlife and reduce habitat quality.

Environmental Consequences

This section assesses the impacts on other species, including mammals, birds, and fish. Impacts are analyzed in terms of disturbance from restoration activities as well as predator-prey interactions and interspecific competition. For additional analysis of impacts to special status species, see appendix A.

Methods and Assumptions

Potential impacts on other wildlife and fish were evaluated qualitatively based on resource expert knowledge and professional judgment, review of scientific literature, anticipated rates and locations for release of grizzly bears, and the resource-specific issues identified in chapter 1.

Analysis Area. The area of analysis for impacts on other fish and wildlife is the NCE. Additionally, the impacts of capture operations on fish and wildlife in source areas are analyzed. The impacts associated with the management of grizzly bears that move outside the NCE are also considered, including in all three management areas under alternative C.

Issues Analyzed. The analysis of impacts on other wildlife and fish under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* Wildlife species could be affected by noise and human-related disturbance associated with the capture and release of grizzly bears. Therefore, this impact topic was retained for analysis.
>
> *Issue Statement.* Wildlife or fish species such as elk and deer, black bear, trout, and other species could be affected through grizzly bear predation or competition for resources. Therefore, this impact topic was retained for analysis.

Assumptions. A number of assumptions were made to analyze the impacts on other wildlife and fish, including several assumptions related to helicopter and other noise disturbance during capture and release operations. Wildlife response to aircraft can be highly variable depending on species, type of study,

ecological characteristics, and other attributes (NPS 1994). NPS (1994) and other studies (Stockwell, Bateman, and Berger 1991; Manci et al. 1988) generally conclude that helicopter flights below 500 feet above ground level stimulate a stronger response than fixed-winged aircraft or higher altitude flights.

A Hughes 500 or similar helicopter would be required during the release of grizzly bears under the action alternatives. Federal Aviation Administration testing data determined that a Hughes 500 produces between 71 and 90 A-weighted decibels (dBA) during hovering, approach, and low speed (airspeed of 69 miles per hour [mph] at 500 feet above ground level) flyover maneuvers (FAA 1977). Additionally, medium-duty diesel trucks may be needed to move culvert traps, grizzly bears, and other equipment. Passing diesel trucks have been recorded producing upward of 85 dBA (Purdue University 2015) at speeds of 40 mph.

Ambient noise levels can vary depending on location and conditions (Falzarano 2005). Rural settings have been reported to have an ambient noise level of 30 dBA; quiet urban settings have an ambient noise level of 40 dBA; and some bird calls have been recorded at 44 dBA (Purdue University 2015). Falzarano (2005) suggests that backcountry and wilderness areas may be even quieter at 15 dBA to 30 dBA with much louder noise associated with occasional events (e.g., lightning cracks and overflights). Ambient noise levels at grizzly bear capture and release locations in wilderness settings were assumed, under normal conditions, to likely range from 30 dBA to 45 dBA; therefore, the noise associated with a Hughes 500 is expected to be at least eight times louder than normal ambient conditions.

Various studies have shown impacts to wildlife can occur from low-level aircraft overflights, although there is no direct relationship between specific sound level and animal responses, and response to noise disturbance cannot be generalized across species (Manci et al. 1988; NPS 1994; Ellis, Ellis, and Mindell 1991; Stockwell, Bateman, and Berger 1991). Response differences among individuals or groups of individuals of the same species may occur because an animal's response to noise can depend on a variety of factors, including environmental conditions, age class, gender, season, type and elevation of aircraft, and even the activity the wildlife is participating in prior to the disturbance all may influence the reaction (NPS 1994; Ellis, Ellis, and Mindell 1991). Habituation to repeated exposure to aircraft noise has been noted in some species (Grubb 1979; Trimper 1998; Delanehy et al. 1999), but not all species exhibit the same pattern of habituation, and residual effects are possible (Koolhaas, Dekinga, and Piersma 1993; Goudie, 2006). Furthermore, several studies (NPS 1994; Carrier and Melquist 1976; Kushlan 1979) conclude that minimal use of aircraft, such as limited-season aerial surveys, are not likely to cause harm or have long-term effects on mammal or bird species.

In addition to emitting noise, helicopters would also produce what is termed "downwash." Downwash is defined as the air that is directed vertically down from the horizontal main rotor. Helicopter downwash is calculated by (Rotor & Wing International 2011):

$$\sqrt{\left(\left(\frac{gross\ wt}{2}\right) \times (air\ density) \times (rotor\ disk\ area)\right)}$$

Based on the calculation, a Hughes 500 at sea level would produce a downwash of approximately 23 mph at the base of the main horizontal rotor. However, as the air is forced downward, the air column is restricted (due to outflow and recirculation of air) and because of the Venturi effect, downwash reaches maximum velocity at a distance of approximately twice the rotor diameter below the rotor (Rotor & Wing International 2011). Assuming use of a Hughes 500 at sea level, maximum downwash velocity is expected at 53 feet below the rotor at a speed of 46 mph. Assuming grizzly bear release sites are at an

approximate elevation of 5,000 feet above mean sea level and a combined culvert trap and grizzly bear weight of 850 pounds, maximum downwash from a Hughes 500 during grizzly bear transport would be 63 mph at 53 feet below the rotor. Downwash is not expected to affect birds nesting below the helicopter while flying in transit approximately 500 feet above tree level. However, helicopter downwash during takeoffs and landings could move large debris and damage nearby nests.

Additional alternative-specific assumptions are described under each alternative.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts to other wildlife and fish; therefore, the environment would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Alternative B would release 3 to 7 grizzly bears per year for 5 to 10 years to achieve an initial population of 25 bears with an eventual restoration population of 200 bears within approximately 60 to 100 years. Potential impacts on other wildlife and fish due to predator-prey interactions, interspecific competition with grizzly bears, and disturbance during grizzly bear releases are described below. These impacts are subject to change under various climate change scenarios because of changes in wildlife habitat (see Ransom, Krosby, and Lyons 2018).

Predator-Prey Interactions. As carnivores, grizzly bears have the potential to impact prey species in the NCE; however, grizzly bears are omnivores that primarily feed on vegetation. Grizzly bears may kill some ungulates, mainly during the ungulate calving/fawning season when ungulates are most vulnerable and their availability is greatest, or during spring when ungulates are weakened from winter conditions (Green and Mattson 1988), and during fall when males are weakened from the rut (Schleyer 1983). The first large-scale study of the use of ungulates by grizzly bears (Mattson 1997) concludes that elk, moose, and bison may provide the majority of energy required by grizzly bears in the GYE during the non-denning season. Grizzly bear predation rates averaged between 1.4 and 5.8 ungulates per year for adult female and male bears, respectively, of which 13% were elk calves. More recent studies estimate that an individual grizzly bear kills 19 calves per year on the northern range of Yellowstone National Park (Barber-Meyer, Mech, and White 2008) and 7 calves per year within the Yellowstone Lake watershed, (Fortin et al. 2013). It is important to note that grizzly bear predation on ungulates is variable, and grizzly bears in the GYE are highly carnivorous, even compared with other grizzly bear populations in the Rocky Mountains as a result of a high density of ungulates and the prevalence of winter-killed elk and bison (Jacoby et al. 1999; Mattson et al. 1991). Based on grizzly bear predation rates reported by Mattson (1997) from the GYE, an initial population of up to 25 grizzly bears, after 5 to 10 years of restoration, could kill approximately 90 elk a year assuming a 50:50 grizzly bear sex ratio. Based on a combined minimum population estimate of approximately 5,600 elk in the North Cascades and Colockum herds (WDFW 2018, 2022a), this would translate to grizzly bears killing approximately 1.6% of the elk population; however, a total elk population estimate is not available for the NCE, and the majority of elk occur in the Colockum herd, which has a significant portion of its range outside the NCE. Also, the actual number of elk killed by grizzly bears after restoration under alternative B could be less than this calculation because the grizzly bear source population requirements include capturing grizzly bears from populations that have a similar food economy to the NCE. In the southern Canadian Rockies, where grizzly bear habitat is similar to the NCE and deer are the most common ungulate in the mountains, Munro et al. (2006) documented that grizzly bears consumed less meat than they do at lower elevations

where elk are more abundant; diets of grizzly bears in the mountains had nearly 2.5 times less animal matter than the diets of bears at lower elevations. Also, grizzly bear predation on ungulates at higher elevations occurred later in the year and was shorter in duration than at lower elevations (Munro et al. 2006). Grizzly bear predation on mountain goats and bighorn sheep is possible but is not expected due to their relatively low densities in the NCE and preference for steep and rocky terrain. However, the ewes of both species, as well as moose calves, would be vulnerable to occasional grizzly bear predation. After 60 to 100 years, ungulate predation by a population of 200 grizzly bears could be proportionately greater but is not expected to have significant population-wide effects. Grizzly bear predation on ungulates would ultimately be influenced by prey availability, and the overall impacts would depend on how predation is distributed, which is not predictable.

Ground squirrels and other small mammals, including marmots, are expected to be an important late summer and autumn source of protein for grizzly bears (MacHutchon and Austin 2003) and were reported as an autumn diet component in Montana's Mission Mountains (Servheen 1983) and Banff National Park, Alberta (Hamer and Herrero 1987). Small mammals were detected in 9%–64% of grizzly bear scats, dependent on location in Montana (Mace and Jonkel 1986). While some studies suggest that predators have little to no effect on the overall abundance or survival of ground squirrels in Montana (Maron, Pearson, and Fletcher Jr. 2010), the influence of predators in limiting the abundance of small mammals is uncertain. Where predator presence has been found to affect small mammal prey abundance, the effects may be interrelated with habitat, animal densities, season, and species behavioral characteristics (Lima, Stenseth, and Jaksic 2002; Maron, Pearson, and Fletcher Jr. 2010). Furthermore, even if a restoration population of 200 grizzly bears is achieved, the number of bears in the NCE would be low relative to the abundance of potential small mammalian prey populations. Therefore, the restoration of grizzly bears to the NCE is not expected to adversely impact small mammal populations, including Cascade golden-mantle ground squirrels, Columbian ground squirrels, and hoary marmots.

In summary, grizzly bears released into the NCE are expected to have an opportunistic feeding strategy and may prey on ungulates if encountered during spring calving/fawning season. Grizzly bears are expected to kill deer and elk, mainly fawns/calves, and small numbers of moose, particularly neonates. Because grizzly bears have great diet plasticity (Edwards et al. 2011), bears new to the NCE area may shift their diet according to foods that are most nutritious (i.e., high in fat, protein, and/or carbohydrates) and available (Mealey 1980, Mace and Jonkel 1986; Martinka and Kendall 1986). Because grizzly bears restored to the NCE would be largely from areas with similar berry-based food economies, their consumption of ungulates could be lower than the GYE, although bear diets would ultimately depend on prey availability. There are no large populations of wintering ungulates in the NCE, and ungulates are not predicted to be a primary component of grizzly bear foraging in spring (Gyug 2003). Grizzly bears could concentrate in such areas in the spring and opportunistically prey on calves and fawns when encountered. Therefore, grizzly bears are expected to have minor, adverse impacts on ungulate populations in the NCE under alternative B.

Once a restoration population is achieved, grizzly bears would have a greater impact on other wildlife and fish via predation. Grizzly bear distribution in the NCE would expand throughout secure core habitats and increase the potential for bears to encounter ungulate calves in spring or spawning salmonids, and potentially impacting local recruitment of wild ungulates or spawning of local salmon runs. However, as described above under "Habitat Suitability" in the "Grizzly Bears" section of this chapter, the NCE provides habitat of sufficient quality and quantity to support a restoration population (Servheen et al. 1991; Lyons et al. 2018). Furthermore, it is anticipated that under various future climate scenarios, grizzly bear habitat quality (i.e., food resources) in the NCE is projected to improve over the next 100 years (Ransom et al. 2023a).

Restoring grizzly bears in the NCE would contribute to restoring missing ecological interactions that help to shape fish and wildlife habitat through seed dispersal, increasing nutrient availability, and regulating prey populations (see van Manen, Haroldson, and Gunther 2017). Grizzly bears have large home ranges and help disperse seeds by consuming large quantities of fruit and excreting seeds in their scat (Willson and Gende 2004), which replenishes plant life for the benefit of other wildlife. Grizzly bears also affect plant distributions and mineral nitrogen availability when they forage by digging for plant roots, bulbs, and ground squirrels, which potentially influences plant community structure (Tardiff and Stanford 1998). Like wolves and other large carnivores, grizzly bears also help regulate populations of ungulates such as moose, elk, and deer, improve habitat quality for other wildlife (Berger et al. 2001), and provide carrion that provides food for other scavengers (Weiss et al. 2016). Furthermore, a continuation of the no net loss of core area lands in the NCE for the protection of grizzly bear habitat could limit the net gain of road networks and therefore serve to maintain terrestrial habitat quality for multiple species that are adversely impacted by motorized access (e.g., elk). Considering core area protections for grizzly bears in land management decisions may serve to enhance conservation planning across jurisdictions and thereby improve habitat connectivity for other wildlife. Also, the enforcement of food storage orders in bear habitat would ensure that other animals like black bears do not gain access and become involved in conflicts, and would generally results in greater public awareness of the risks of feeding wildlife.

Interspecific Competition. Other wildlife in the NCE may compete with grizzly bears for prey or other resources. The species most likely to compete or interact with released grizzly bears include the gray wolf, coyote, wolverine, fisher, Canada lynx, cougar, bobcat, and black bear.

Gray Wolf — Competition between grizzly bears and gray wolves would be unlikely under alternative B. Most interactions between grizzly bears and wolves in other ecosystems are usually characterized by mutual avoidance (Servheen and Knight 1990; Gunther and Smith 2004). Wolves tend to prey on ungulates year-round, while grizzly bears feed on ungulates primarily as winter-killed carcasses and calves in spring, and weakened or injured males during the fall rut (Mattson, Blanchard, and Knight 1991; Fortin et al. 2013). In the NCE, grasses, sedges, forbs, berries, nuts, and roots are expected to make up the major portion of grizzly bear diets throughout the year.

Wolf recovery in the GYE resulted in a shift in ungulate herd distribution, and wolf presence in the NCE could affect the availability of this potential food source for some grizzly bears in the spring. Wolves and grizzly bears scavenging the same carrion sometimes will interact with each other in an aggressive manner and occasionally kill each other (Gunther and Smith 2004; NPS 2015c). However, these aggressive interactions between grizzly bears and wolves are rare and are likely to be an insignificant factor in the population dynamics of either species. Gray wolves are expected to continue increasing in the North Cascades, and grizzly bear restoration under alternative B is not expected to have a consequential, adverse impact on them, even after a restoration population of 200 grizzly bears is reached.

Coyote — Because of the relative abundance of coyotes and their opportunistic feeding strategy, and because the number of released grizzly bears would be limited, the initial population of 25 grizzly bears would not likely place any competitive pressure on coyote populations in the NCE under alternative B. It is likely that coyotes and grizzly bear would primarily use different habitats, and the likelihood of interaction would be low. Once a restoration population of 200 bears is achieved, potential effects on coyotes may increase due to increased scavenging opportunities but would not be detectable at the population level.

Wolverine — Grizzly bears do not directly complete with wolverines for food or habitat, but they effectively exploit carrion as a food resource and frequently usurp kills from other carnivores such as wolverines. As a result, grizzly bears could adversely affect some individual wolverines through competition. However, grizzly bear-killed carcasses would also provide wolverines with additional

carcasses to scavenge. The limited number of grizzly bears during the primary phase under alternative B would not be enough individuals to substantially affect the small number of wolverines likely present in the NCE from either increased or decreased carcasses for scavenging. However, once a restoration population of 200 bears is achieved and grizzly bears expand throughout secure core habitats in the NCE, wolverines could benefit from increased availability of carcasses to scavenge, as observed in the Canadian central Arctic and Finland where grizzly bear and wolves were among the species positively associated with wolverine, likely due to the scavenging opportunities provided by these other carnivores (Johnson et al. 2005; Koskela et al. 2013).

Fisher — The potential for adverse impacts on fisher from competition with and predation by grizzly bears would be very low if at all given the limited number of bears released and the different habitats exploited by fisher (i.e., fisher spend much of their time in low- and mid-elevation forests). In addition, the presence of grizzly bears is not expected to affect fisher restoration. As a result, grizzly bears would not likely place any competitive pressure on fisher populations in the NCE under alternative B, even after a restoration population of 200 grizzly bears is reached.

Canada Lynx — Given the low numbers of lynx in the NCE and the limited number of grizzly bears released under alternative B, the chance of overlapping with active lynx areas would be small. If lynx are present at a release site, the likelihood that grizzly bears would compete for food resources would be low because lynx rely heavily on hunting snowshoe hare for food. As a result, an initial population of 25 bears grizzly bears would not place any competitive pressure on lynx populations in the NCE under alternative B. The potential for grizzly bears to impact lynx would increase once a restoration population of 200 bears is achieved, as observed in Europe where the probability of Eurasian lynx (*Lynx lynx*) losing its prey to a scavenging bear was related to the local bear density (Krofel and Jerina 2016). However, adverse impacts to lynx in the NCE are unlikely because grizzly bears are not likely to usurp the small prey items preferred by Canada lynx (snowshoe hares, red squirrels, small mammals, and birds).

Cougar — Although some dietary overlap may exist between cougars and grizzly bears, cougars typically do not occupy the same habitat as grizzly bears. Cougars also primarily hunt deer. Grizzly bears may benefit from finding cougar kills and chasing cougars off the carcass (Murphy et al. 1998; Allen, Elbroch, and Wittmer 2021). There is no expectation that cougars would flee the area into adjacent human-occupied areas, but rather would adjust behaviorally within their range. Therefore, the initial population of 25 bears under alternative B would place minor competitive pressure on cougar populations in the NCE but is not expected to have adverse population-level impacts. However, once a restoration population of 200 bears is achieved, grizzly bears may displace more cougars from their kills. While the adverse impacts of grizzly bears on cougars is believed to be less severe than that on wolves because of the seasonal dormancy of bears that provide cougars a temporal reprieve from competition, grizzly bears may contribute adverse impacts on cougar populations if the local wolf population continues to grow (Elbroch and Kusler 2018).

Bobcat — Bobcats may occasionally use open habitat and meadows that are preferred by grizzly bears, but bobcats tend to prefer steep, rocky terrain for shelter, raising young, and resting. In addition, the generalist diet of bobcats and grizzly bears would not likely result in any competitive pressure between the two species, especially given the limited number of grizzly bears released under alternative B, even after a restoration population of 200 grizzly bears is reached.

Black Bears — Although some displacement occurs where grizzly and black bears coexist, potential adverse impacts on black bear population dynamics following restoration of a grizzly bear population are unclear. Grizzly and black bear population relationships have been studied in areas similar to the NCE. Black bears are the most physiologically similar to grizzly bears of the abovementioned species, and, as a result, they are expected to have the highest degree of niche overlap with grizzly bears. However, Holm,

Lindzey, and Moody (1998) argue that behavioral and physiological differences have allowed the two to coexist in areas where the populations overlap. Apps, McLellan, and Woods (2006) studied the spatial partitioning of resources between black bears and grizzly bears and reported that these two species frequently occupy and forage in separate areas, thus avoiding conflict and maximizing foraging effectiveness. Researchers in Wyoming reported that where grizzly and black bears coexist, black bears become diurnal and occupy more forested habitat than grizzly bears, while adult male grizzly bears were nocturnal and occupied open habitat, and females and subadult grizzly bears were crepuscular, avoiding male grizzly bears (Holm, Lindzey, and Moody 1998; Schwartz et al. 2010). Areas in Glacier National Park have extremely high densities of both grizzly and black bears, and in 2014, researchers estimated the black bear population there was slightly more than 600 animals, approximately twice the grizzly bear population. In this ecosystem, Stetz, Kendall, and Macleod (2014) found that black bears were selecting different habitat (e.g., lower-elevation areas with higher forest cover) than where grizzly bears were found (e.g., more alpine areas with less forest cover). However, competition can occur under certain circumstances, as Jonkel (1984) observed grizzly bears displacing black bears during drought conditions in two river bottoms typically frequented by black bears. Mattson, Knight, and Blanchard (1992) documented one instance of an adult male grizzly bear preying on a black bear in the GYE, but they reported that less than 0.15% of the 6,979 grizzly bear scats examined contained remains of black bears.

Under alternative B, some black bears would likely be displaced or potentially killed by grizzly bears, but adverse impacts on black bears, if any, are expected to be limited to interactions between individual grizzly bears and black bears and would not affect black bears at a population level, even after a restoration population of 200 grizzly bears is reached. The increased focus on bear habitat management, food storage, and conflict management actions in the NCE would provide a positive secondary impact to black bear populations because black bear conservation and management issues are similar to grizzly bear issues.

Helicopter and Other Human Disturbances. Alternative B would require approximately 144 helicopter flights over 5 to 10 years, although some additional flights may be necessary for collar retrieval and incidental actions. The noise produced by vehicles, associated human activities, and other disturbances needed to complete the capture and release process would result in adverse impacts on wildlife through temporary disturbances and avoidance of active staging and release areas. Impacts would be limited in duration to 3 to 7 days per year during the summer and fall and would be localized to capture and release sites and helicopter flight paths. However, management actions to maintain or enhance grizzly bear habitat or to minimize conflict with humans in backcountry areas would benefit other wildlife through maintenance of habitat security and increased awareness of proper sanitation practices.

The presence and noise associated with aircraft in the NCE is not uncommon. In 2022, the park complex had approximately 125 flight hours over wilderness per year for non-fire-related flights and an additional 100 flight hours for wildfire-related flights (NPS, Braaten pers. comm. 2023h). The flights were often staged outside wilderness (NPS 2014). A large percentage of the flights were made with smaller, lightweight helicopters such as an Airbus H125. These actions have not affected other wildlife and fish over the long term.

Mammals — Introduction of helicopters, trucks, and other capture/transport/release equipment into an area with few human disturbances could have an effect on certain species of mammals, especially those close to staging and release activities (e.g., ungulates, ground squirrels). Alternative B would result in impacts from noise and disturbances that would cause some wildlife to temporarily flee areas surrounding grizzly bear capture, staging, and release sites, although the distance an animal would move would likely be species specific. Stankowich (2008) suggests ungulates associate different levels of danger with different types of disturbances as he documented differing responses by elk to humans on foot versus humans in vehicles. This would suggest that even limited use of a truck to transport culvert traps has the

potential to affect species during capture and release activities. Stankowich (2008) also identified that in some circumstances, mule deer were likely to respond more intensely to humans in an "off-trail" situation than humans in an "on-trail" setting. The simple presence of personnel, even without use of motorized transportation, can trigger a response. Possible wildlife responses to noise and visual cues of people, helicopters, trucks, and other associated equipment can range from an alert posturing to an energetic escape response, possibly resulting in separation of young from mothers or injuries (NPS 1994; Stankowich 2008). The displacement of individuals may cause temporary stress in these individuals; however, it is unlikely to cause a substantial increase in mortality or lowering of species health given the time of year of release activities (i.e., avoiding periods requiring energy reserves).

Stankowich (2008) suggests the possibility that if an ungulate has never been exposed to humans, it may perceive people more as a "curiosity" than a threat. A complete lack of exposure to human disturbances can create situations where some species simply do not identify the disturbance as a threat that would normally trigger a flight response or other behavioral or physiological reaction. In these cases, wildlife in wilderness areas that may have never seen a person, truck, or helicopter may not recognize these disturbances as a danger and not respond at all.

Research has demonstrated varying short-term reactions of mammals to noise; however, overall, impacts because of helicopter and other human-made noise and disturbance would be limited, lasting for portions of a few days each year, and localized to capture and release sites and helicopter flight paths. Impacts on specific individuals would be limited to minutes and hours of operation and presence of staff and vehicles. The agencies would first assess the proposed release areas during an initial reconnaissance flight for the presence of listed species or to make sure it does not provide important habitat features (e.g., denning sites). Overall, impacts of helicopters and human activity would likely have no population-level effects, nor are these disturbances expected to interfere with long-term behavioral or physiological processes of individuals or populations.

Birds — Impacts on birds can be examined at three separate levels: grassland birds within helicopter landing sites, edge species that may be present near landing and staging sites, and deep forest species that may be flown over during transport of grizzly bears. The NPS (1994) identified one clear connection between wildlife and aircraft, "the closer the aircraft, the greater the probability that an animal will respond, and the greater the responses." This would suggest that within helicopter landing sites, presumably grassy meadows, grassland bird species would likely incur a higher level of impact compared to birds occupying edge or deep forest habitats. Grassland birds would be exposed to noise from helicopters, the landing of the helicopter, placement of the transport culvert traps for grizzly bears, disturbances associated with release equipment and staff, and the disturbance of helicopter downwash. Noise and downwash from the helicopters may flush adult birds that may be injured or killed as a result of bird strikes with the helicopter. Furthermore, when adults are flushed, they may accidentally expel eggs or young birds from a nest, or eggs or young left in the nest may be vulnerable to predation or the effects of the downwash (NPS 1994). The downwash from the helicopter could produce enough force to destroy nests or blow young birds and eggs from nests causing mortality. These impacts may result in a lower recruitment rates for affected species, and if affected sites are reused for multiple years of the project, habitat abandonment may result for some species (Belanger and Bedard 1989a, b, as cited in NPS 1994). Habitat abandonment has been attributed to aircraft overflights in waterfowl and water birds (NPS 1994; FWS 1993b); however, the literature is lacking as to a possible relationship between grassland bird species nest abandonment and aircraft-related disturbances. Impacts on ground-nesting birds would be minimized through pre-release site assessments, and areas with active nesting would be avoided.

Birds that use edge habitat may also be influenced by the noise from helicopters and the disturbance of helicopter downwash. As helicopters land and depart from landing sites, the noise and downwash may flush birds that occupy habitats adjacent to those landing sites. Flushed adult birds may accidentally expel

eggs or young birds from a nest. Waterfowl and sand hill cranes were documented to be displaced for days after low-altitude aircraft disturbances (NPS 1994; FWS 1993b). However, the literature is again lacking as to a possible relationship between long periods of upland bird displacement and aircraft-related disturbances.

The mostly likely response of adult birds in edge habitat would be flushing. Flushed birds run the risk of injury or death from strikes with the helicopter, and eggs or young that may be left at nest after adult birds are flushed would be vulnerable to predation and exposure. The level of risk to eggs and young birds would depend on the duration adults remain away from the nest, the abundance and type of predators present nearby, and the integrity and durability of the nest and trees where nests are located. Birds in edge areas associated with staging areas are less likely to be affected because the staging areas are commonly used for helicopter operations unrelated to grizzly bear restoration, and species present in those areas would be somewhat habituated to the disturbance.

Birds occupying contiguous forest stands or deep forest may be influenced by the noise associated with helicopter overflights. While transporting grizzly bears, staff, and equipment, helicopters would be flying at least 500 feet above ground level. Maximum downwash from a Hughes 500 is approximately 63 mph at 53 feet below the rotor, assuming an altitude of approximately 5,000 feet above sea level. It is presumed that at an altitude of 500 feet above the ground, downwash would not be an influencing factor to trees or birds. Noise and activities at landing sites are not likely to affect birds occupying forest stands within the NCE. Dense forest and topography are expected to shield or deflect noise produced at helicopter landing areas in both capture and release sites. It is assumed that only the noise associated with the overflights would affect forest bird species. Noise from the Hughes 500 may produce responses ranging from no reaction, to birds stopping calling or defending territories, possibly followed by "raucous discordant cries," to flushing birds from nests and perches (NPS 1994; Manci et al. 1988). Birds that flush from nests may expel eggs or young from nests, potentially reducing recruitment or survival of young. Additionally, a flushed bird may stay away from a nest long enough to allow a predator access to eggs or young that remain in the nest.

Raptor responses to disturbances can vary depending on the given circumstances (NPS 1994). For example, the NPS documented a bald eagle pair completely abandoning nesting activities after repeated overflights by military helicopters at Cross Creek National Wildlife Refuge in Georgia (NPS 1994). Grubb et al. (2010) found that incubating golden eagles in the Wasatch Mountain of Utah did not flush when exposed to military helicopters but did respond after hatching young. Helicopters would remain approximately 1,000 feet from any known bald eagle nests in accordance with FWS (2007) and NPS (Ransom et al. 2023b) guidelines.

Possible bird responses to noise and visual cues of people, helicopters, trucks, and other associated equipment could include an alert posturing by birds, stopping calling and defending of territories, random outcries, calmly fleeing the area, energetic escape responses possibly resulting in accidentally expelling eggs and young from nest, and possible permanent nest or habitat avoidance (NPS 1994; FWS 1993b; Manci et al. 1988; Gladwin, Asherin, and Manci 1987). The displacement of individuals may result in additional stress on these individuals; however, it is unlikely to cause a substantial long-term increase in mortality or lowering of species health. Overall, impacts on birds from helicopter and other human noise would generally be short term and localized to the capture, staging, and release sites and helicopter flight paths, although a few individuals (eggs and young) may be permanently lost. Unlike mammal impacts, helicopter flights have a potential to affect birds directly through bird strikes or destruction of nests, although the probability is low.

The use of helicopters to transport grizzly bears from staging areas to release sites could disturb and/or displace the federally and state-listed marbled murrelet or northern spotted owl that might be in those

areas. Staging and release sites have been identified to avoid suitable habitats for both species. The aforementioned measures to reduce impacts on sensitive birds, such as flying helicopters at least 500 feet above ground level and avoiding, in particular, low-level flight paths in the vicinity of suitable nesting habitat, would avoid disturbance to any nesting marbled murrelet or northern spotted owl. Any impact would be temporary in nature, insignificant, and discountable.

Fish. Under alternative B, restoration activities would not disturb fish habitat and therefore would not adversely impact critical habitat for bull trout or federally listed salmonids. The number of grizzly bears translocated to the NCE would initially be small, at 3 to 7 bears released per year for 5 to 10 years, and the population is not expected to occupy all available habitat in the NCE. While it is possible that grizzly bears, as opportunistic omnivores, could use fish as a food source, fish are not expected to be a primary food source. Other food sources are generally available throughout the year that grizzly bears could obtain more easily than trout and salmon.

Grizzly bears could identify areas with limited natural fish passage (e.g., waterfalls) where migrating fish congregate and exploit them. They could also eat fish carcasses from spawned out salmonids. Although there could be impacts to a small number of fish consumed by grizzly bears, including bull trout, salmon, and steelhead, the relatively small number of grizzly bears released to form an initial population of 25 bears are unlikely to affect the population viability of any fish. While there is the potential for increased adverse impacts with a restoration population of 200 bears after 60 to 100 years, the impacts would still be limited due to the abundance of fish relative to the number of grizzly bears, even if certain individual bears were to prey on fish when seasonably abundant. Some relevant insights might be gained from studies on coastal black bears with access to salmon. In coastal British Columbia, where some black bears actively fish during salmon runs, the amount of salmon in their diet was proportionately small compared to terrestrial food sources, and most salmon consumption likely arose from scavenging carcasses (Shardlow, Van Elslander, and Mowat 2022). That study also found that presence of humans near salmon streams led to less salmon in the diet of black bears because the bears tended to avoid human activity. This paradigm reflects early records of grizzly bear presence along the Columbia River and their scarcity around fishing villages (Rine et al. 2018). Of salmon consumed by coastal black bears with a highly piscivorous diet, a study on Moresby Island, British Columbia, found that 79%–80% of consumed salmon were partially or completely spawned-out at the time of capture by bears (Reimchen 2000). Any opportunistic capture of a live salmon would likely be of a post-spawned adult fish and therefore impacts would be insignificant.

The anticipated level of take is not anticipated to have population level impacts or jeopardize the continued existence of bull trout, especially given the small number of grizzly bears restored to the ecosystem. Any predation of individual bull trout is predicted to occur only within the more robust, local populations, not concentrated in any one local population, and no more frequent than baseline predation by other wildlife in the NCE (e.g., river otter, black bear, and eagles). Therefore, grizzly bears are not expected to alter the reproductive capacity of local fish populations.

A continuation of the no net loss of core area lands in the NCE for the protection of grizzly bear habitat would limit the net gain of road networks and therefore serve to maintain aquatic habitat by reducing the potential adverse effects of new road construction. Considering core area protections for grizzly bears in land management decisions may serve to lessen other potential impacts to fish habitat from future activities in the NCE.

Cumulative Effects. Ongoing and reasonably foreseeable future actions with the potential to contribute to cumulative effects on other wildlife and fish under alternative B are the same as those described under "Trends and Planned Actions." Cumulative actions would result in both adverse and beneficial impacts on other fish and wildlife, depending on the species. Impacts range from creation of fish passages and fisher

restoration, both beneficial impacts, to continued sheep and cattle grazing and habitat fragmentation and loss from development, which result in adverse impacts. Alternative B would incrementally contribute adverse impacts on ungulate populations that grizzly bears prey upon and short-term (hours to days), adverse impacts primarily related to helicopter use; however, the restoration of grizzly bears would increase ecological integrity by supporting the habitat conditions necessary for other species to survive, a long-term benefit. As a result, when the minimal adverse impacts of the alternative B are combined with the effects of other cumulative actions, an overall adverse cumulative impact is expected, with alternative B contributing most of the impacts.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Under alternative C, potential impacts on other wildlife and fish due to predator-prey interactions and interspecific competition with grizzly bears would be the same as those described for alternative B. However, additional grizzly bear management options that would become available under a 10(j) designation could result in occasional impacts due to disturbance from additional human activities within grizzly bear habitat. For example, under certain conditions and with prior approval from the FWS, actions may be taken to remove or relocate grizzly bears involved in conflict, which may involve live-capture attempts that could result in incidental capture of nontarget wildlife, including black bears. Also, potential deterrence activities (i.e., hazing) could temporarily disturb other wildlife. However, these impacts are anticipated to be minimal and similar to those described under alternative B. Potential adverse impacts would be uncommon and localized because measures to manage grizzly bears would only be authorized on an as-needed basis, if certain conditions are met in accordance with the 10(j) rule. Under a 10(j) designation, authorized agencies could implement all actions available under the existing ESA section 4(d) rule, but they could also, under specific conditions and in certain areas, issue conditioned written authorization to lethally remove a grizzly bear when necessary for public safety or to protect property (see chapter 2).

Helicopter and Other Human Disturbances. Alternative C would require the same level of helicopter support as described for alternative B. Impacts to mammals and birds due to noise disturbance and human presence would be the same as described under alternative B, with varied responses based on the species. This includes the lack of potential adverse impacts on federally and state-listed mammals and birds. Overall, the impacts from alternative C are unlikely to result in the injury or mortality of individuals and would have no effect on species at the population level.

Fish. Under alternative C, grizzly bear restoration activities would not involve any disturbance of fish habitat, and impacts to fish would be the same as those described for alternative B.

Cumulative Effects. Ongoing and reasonably foreseeable future actions with the potential to contribute to cumulative effects on other wildlife and fish under alternative C are the same as those described under "Trends and Planned Actions." Cumulative actions would result in the same impacts as described under alternative B, and alternative C would contribute impacts similar to those described under alternative B. As a result, when the adverse impacts of the alternative C are combined with the effects of other cumulative actions, an overall adverse cumulative impact is expected, with alternative C contributing most of the impact.

WILDERNESS CHARACTER

Affected Environment: Current Status and Expected Future Conditions

The *Wilderness Act* of 1964 established a national wilderness preservation system to be composed of federally owned lands designated by Congress as wilderness areas. By law, these wilderness areas

> […] shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness (16 United States Code [USC] 1131).

Wilderness character, as described in *Keeping it Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System*, is a "holistic concept based on the interaction of (1) biophysical environments primarily free from modern human manipulation and impact, (2) personal experience in natural environments relatively free from the encumbrances and signs of modern society, and (3) symbolic meanings of humility, restraint, and interdependence that inspire human connection with nature" (Landres et al. 2015). The qualities of wilderness character are described as follows:

- **Untrammeled.** An untrammeled wilderness is one in which ecological systems and their biological and physical components are autonomous, free from human intervention. By contrast, human actions that restrict, manipulate, or attempt to control the natural world within wilderness degrade the untrammeled quality. Trammeling actions include the removal of nonnative species, reintroduction of native species, intervention in the behavior or lives of native plants and animals, projects to restore the natural conditions of wilderness, and interference in natural processes and energy flows. These actions may be temporary but, while they are in effect, they affect the untrammeled quality of wilderness.
- **Natural.** A natural wilderness shows minimal effects of modern civilization upon the ecological systems and their biological and physical components. A natural wilderness comprises landforms, soils, waterways, habitats, species, and terrestrial food webs that are largely intact in their natural state and not influenced by human activities and external threats.
- **Undeveloped.** An undeveloped wilderness is an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, with the imprint of man's work substantially unnoticeable. The undeveloped wilderness is impacted by the presence of structures and installations, and by the use of motor vehicles or motorized equipment. The NPS defines an installation as anything made by humans that is not intended for human occupation and is left unattended or left behind when the installer leaves the wilderness. These developments are also prohibited by section 4 (c) of the *Wilderness Act*, and are only permissible if they are "necessary to meet minimum requirements for the administration of the area" as wilderness.
- **Opportunities for Solitude or Primitive and Unconfined Recreation.** Opportunities for solitude or primitive and unconfined recreation provide visitors a chance to connect with the natural world, to practice traditional skills, and to have transformative personal experiences. Encounters with other visitors and changes in management that alter visitor recreation behavior can affect opportunities for solitude. Developments that support public recreation decrease the primitive quality of wilderness (as well as the undeveloped quality). Restrictions on visitors in wilderness can reduce the unconfined quality of wilderness.
- **Other Features of Value.** This quality captures important elements or "features" of a particular wilderness that are not covered by the other four qualities. Typically these occur in a specific location, such as archeological, historical, or paleontological features; some, however, may occur over a broad area such as an extensive geological or paleontological area, or a cultural landscape. This quality may or may not occur within a specific wilderness. Preservation, removal, or degradation of these resources can affect this value.

Each administering agency is responsible for preserving the wilderness character of designated wilderness areas. This section describes the designated wilderness areas in the park complex, Mt. Baker-Snoqualmie National Forest, Okanogan-Wenatchee National Forest, and the Tonasket District of the Colville National Forest. Figure 10 displays the wilderness areas managed by these agencies in the NCE.

North Cascades National Park Service Complex

The park complex contains 680,855 acres of North America's most spectacular mountain scenery and ancient forests. From its inception in 1968, the park complex was primarily conceived as a wilderness park. Congress established the Stephen Mather Wilderness through the Washington Park Wilderness Bill of 1988, designating 634,614 acres of wilderness across the park complex. An additional 5,226 acres were designated "potential wilderness," contingent on Seattle City Light's plans to implement other hydroelectric projects; 3,559 acres of this potential wilderness were converted to designated in 2012.

Currently, 641,219 acres of designated wilderness exist within the park complex, with another 1,527 acres considered potential wilderness. Within this area there is a corridor 100 feet wide, and 50 feet either side of the center of the Cascade and Stehekin River Roads, which is not part of the wilderness designation. Table 4 shows wilderness acreage on NPS-managed land within the NCE.

TABLE 4. WILDERNESS ACREAGE ON NATIONAL PARK SERVICE LAND IN THE NORTH CASCADES ECOSYSTEM

Wilderness Areas	Acreage	Percent of North Cascades National Park Service Complex in Wilderness
North Cascades National Park	500,779	99%
Lake Chelan National Recreation Area	56,223	89%
Ross Lake National Recreation Area	84,217	73%
TOTAL	**641,219**	**94%**

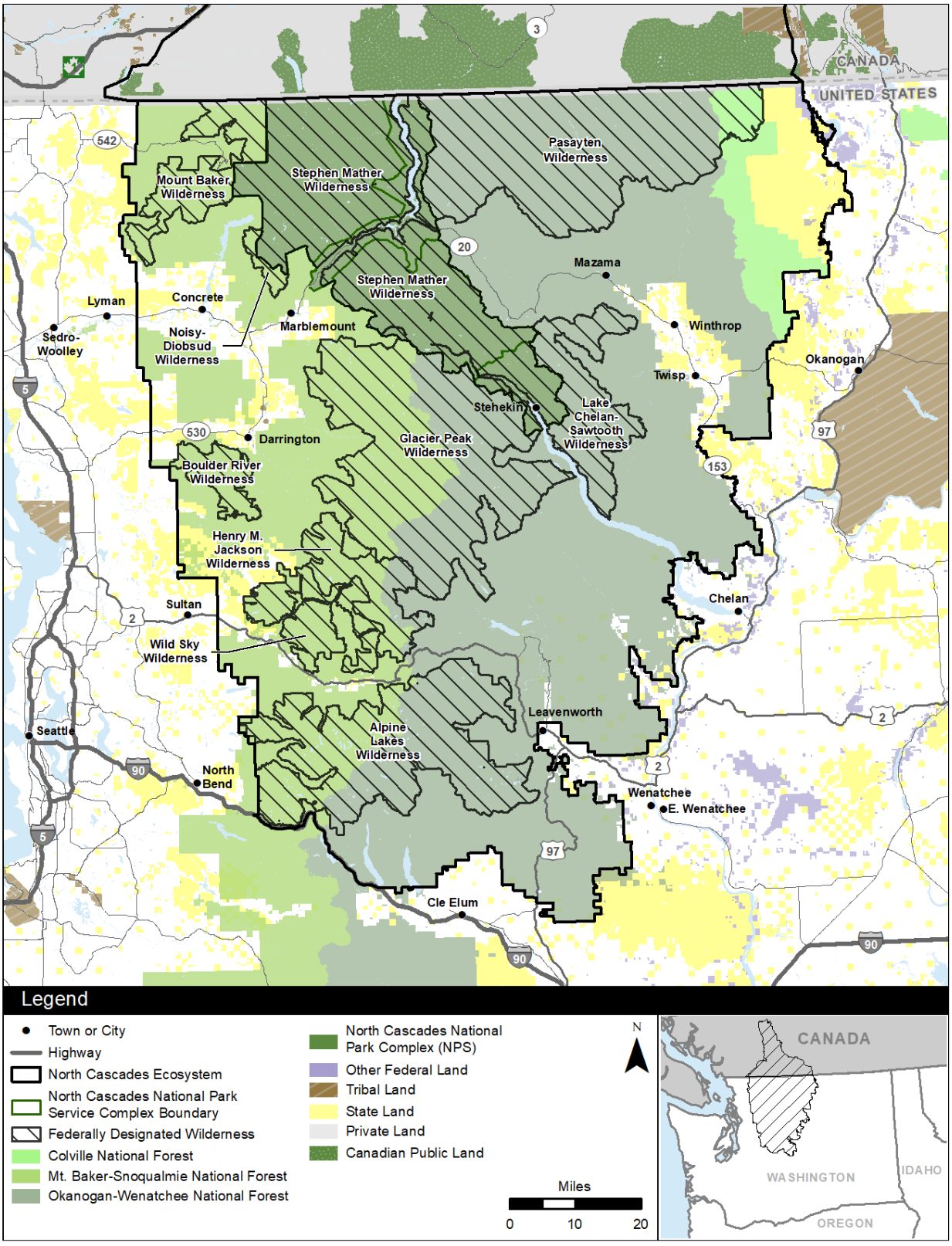


FIGURE 10. WILDERNESS AREAS MANAGED BY THE NATIONAL PARK SERVICE AND US FOREST SERVICE IN THE NORTH CASCADES ECOSYSTEM

The current condition of wilderness character within the Stephen Mather Wilderness is described below.

Untrammeled. The Stephen Mather Wilderness is generally unhindered and free from most human manipulation. The park participates in a number of actions that may trammel wilderness in an effort to protect other qualities of wilderness character. Actions mainly include fire suppression and nonnative fish management, but also include wildlife management, hazard tree management, and research activities (NPS 2014).

Fire suppression is chosen as a management action when the fire threatens life, property, and natural and cultural resources. However, the act of suppressing the fire, regardless of how many acres have burned, is a direct attempt to control the natural world (NPS 2007a).

Photo credit: C. Brindle

Bowen Ridge in autumn in the Stephen Mather Wilderness Area

The WDFW has historically stocked 91 mountain lakes (excluding small ponds) within the wilderness with nonnative fish as part of its recreational fishery program. Under the 2008 *Mountain Lakes Fishery Management Plan*, removal of reproducing populations of fish and cessation of fish stocking occurs in some lakes. Both stocking and removal of fish is a direct manipulation of otherwise autonomous wildlife, and therefore degrades the untrammeled quality of wilderness character (NPS 2011a). The *North Cascades National Park Service Complex Fish Stocking Act* (2014) authorizes the NPS to stock fish in some of the high mountain lakes, with stipulations.

Unauthorized trammeling actions are believed to be rare; a single 5-acre marijuana growing operation dismantled in 2008 is the most recent and serious example (NPS 2011b).

Natural. Although generally in good condition, conditions and actions beyond the wilderness boundary continue to affect the natural ecological systems inside the Stephen Mather Wilderness. For example, seven species of amphibians, birds, fishes, flowering plants, insects, and mammals listed as threatened or endangered under the ESA, along with one candidate species and two species proposed for listing, are found in the Stephen Mather Wilderness (FWS 2023c). One federally threatened and state-endangered species, grizzly bear, and one state-endangered species, Cascade red fox, are currently considered extirpated from the NCE (Ransom et. al. 2023b). These listed species have been historically affected by human actions both inside and outside wilderness.

Photo credit: A. Braaten

Boston Basin Meadows

Nonnative and invasive species can be found throughout the wilderness. Nonnative species are those that have been intentionally or accidentally introduced to wilderness by humans or their activities. Invasive species are those that are not only nonnative, but also negatively impact the environment. These species threaten the natural processes of the Stephen Mather Wilderness in that they have the potential to outcompete native species and create monocultures in once diverse habitats. Out of approximately 1,675 vascular and non-vascular plant species in the wilderness, at least 232 are nonnative and 40 are invasive (NPS 2011b, 2014). Additionally, the barred owl, a species native to the eastern United States, can be found in the wilderness. As the barred owl has expanded westward, evidence indicates that they are displacing, hybridizing with, and even killing northern spotted owls, a federally listed species (Wiens, Anthony, and Forsman 2014). American bullfrog, a nonnative amphibian, and eastern cottontail rabbit, a nonnative mammal, have also recently been documented in the park complex (NPS, unpublished data). Six nonnative fish species are found in the mountain lakes of wilderness (NPS 2014).

Air quality is generally good in the Stephen Mather Wilderness. Research focusing on atmospheric pollution deposited in snow, from fog, and in surface water shows that the wilderness is receiving mercury and pesticide pollution from sources adjacent to the park complex, as well as from across the Pacific Ocean (NPS 2011b). A wide range of pollutants has been found in vegetation samples. Polychlorinated biphenyls (PCBs) and pesticides have been found in lichens, and mercury and organochlorine compounds have been found in fish tissue. PCBs and other environmental contaminants have also been detected in samples from bald eagle, peregrine falcon, and common loon that were recovered in the park complex (Christophersen and Ransom 2022).

Water quality is generally good in the Stephen Mather Wilderness. However, Washington State lists Newhalem Creek as not meeting state water quality standards for instream flows since 2004. Low instream flows are attributed to the Newhalem Creek Hydroelectric Project operated by Seattle City Light (Washington State Department of Ecology 2022). Ross Lake is listed on Washington's 303(d) list of impaired waters due to methyl mercury and PCB contamination (Washington State Department of Ecology 2022) Atmospheric deposition is the primary source of pollutants entering surface waters in the Stephen Mather Wilderness.

Little research has been conducted on soils in the Stephen Mather Wilderness. Human-caused soil disturbance or erosion occurs at a localized scale, usually around trails that are snow-covered well into summer, or in camping areas where bare ground disturbance has increased over time. Soil crusts in wilderness are generally in good condition (NPS 2011b).

Undeveloped. The undeveloped quality of the Stephen Mather Wilderness is generally good; however, the wilderness contains a number of administrative and recreational structures that affect this quality of wilderness character (NPS 2014). These facilities include signs; historic fire lookouts; shelters/cabins; toilets; radio repeaters; snow telemetry monitoring stations; a temporary road (the last mile of Thornton

Lakes Road); approximately 140 designated camps with site markers; and a system of approximately 350 miles of designated trails containing culverts, bridges, puncheon, rock and log-lining, and other historic and non-historic constructed features. There are also a number of permanent research and monitoring plots, as well as some temporary trail cameras used to monitor at-risk wildlife species (NPS 2014, 2023b; Ransom et al. 2023b). Additionally, radio-collared animals, such as fishers or mountain goats, may be present in the wilderness areas.

Past and ongoing NPS actions in the Stephen Mather Wilderness include cleanup activities at the Newhalem penstock, Ladder Creek settling tank, and Diablo dry dock, which are all located within Ross Lake National Recreation Area. The sites became contaminated as a result of activities associated with the historical operations of Seattle City Light, a publicly owned utility company that operates three hydroelectric facilities within the national recreation area. The NPS is currently conducting cleanup activities at each of the sites pursuant to CERCLA, 42 USC §§ 9601, et seq., and its implementing regulations under the *National Oil and Hazardous Substances Pollution Contingency Plan*, 40 CFR Part 300 (NPS 2023b).

Use of motorized equipment (such as chainsaws) and motorized vehicles and aircraft landings (helicopters) for administrative purposes also negatively affects the undeveloped quality of the wilderness. Helicopters are also used for wildlife control efforts.

Opportunities for Solitude or Primitive and Unconfined Recreation. Opportunities for solitude within the Stephen Mather Wilderness are abundant. Local topography, dense vegetation, and spacing of campsites and trails within the wilderness provide a sense of remoteness from the sights and sounds of other people and human development (NPS 2014). Night sky visibility is excellent at lower elevations but diminishes at higher elevations where light pollution becomes visible from the Seattle-Tacoma and Vancouver metropolitan areas. The natural soundscape is in relatively good condition, though noise intrusions occur from aircraft, motorboats, highway traffic, and NPS administrative activities. Aircraft noise can be heard throughout the wilderness at any time of day, but motorboat and highway noise drops significantly during nighttime hours. During 2022, there were about 125 hours of routine (non-fire-related) helicopter flights. There were about 100 additional hours of wildfire-related flights (NPS, Braaten pers. comm. 2023h). The flights are often staged outside wilderness at the Marblemount Ranger Station, Newhalem gravel pit, Diablo Lake overlook, Ross Lake overlook, Colonial Creek boathouse, Hozomeen, Cascade Pass trailhead, Bridge Creek trailhead, Canyon Creek trailhead, Swamp Creek gravel pit, or the Stehekin Airstrip (NPS 2014). Most flights use smaller, lightweight helicopters such as an Airbus H125 or AS350 (A-Star). In addition to NPS administrative use, non-NPS aircraft such as military, commercial, and private sector aircraft fly over the wilderness annually. Two air tour operators operate at the park complex, primarily for the purposes of transportation to and from Stehekin over Lake Chelan; however, few of these flights traverse wilderness (NPS 2014). Neither company operated in 2022. The source of NPS-generated noise typically includes chainsaw use to support trail maintenance activities, equipment used to maintain roads near the wilderness boundary, and aircraft used to support fire management, trails, search and rescue, and other administrative activities (NPS 2014). Human-caused sounds also raise the natural ambient levels more during the daytime hours than at night. Even when the contribution of human-caused sounds are removed to produce ambient levels at backcountry locations, the natural ambient levels are high. Acoustic monitoring results provide a clue for why this might be: flowing water and wind are frequently audible. Their presence is the likely cause for high natural ambient levels in the Stephen Mather Wilderness (NPS 2008).

Opportunities for primitive and unconfined recreation are reduced by a number of facilities that decrease self-reliant recreation and policies that place limits on use and activities within wilderness, such as the backcountry permit system, group size restrictions, limitations on the use of campfires, food storage policies, and restrictions on capacities for designated campsites. While some of these facilities and

policies adversely affect opportunities for primitive and unconfined recreation, they can also increase opportunities for solitude by dispersing visitors throughout the wilderness. Overnight backcountry stays in wilderness increased gradually from 2010 (1,316 stays) to 2019 (2,744 stays) (NPS 2023c). This increase in backcountry visitor use demonstrates the need for a backcountry permit system to manage visitor use to avoid limiting opportunities for solitude in the Stephen Mather Wilderness. Overnight backcountry stays decreased in 2020 and 2021 (1,805 and 1,837 stays, respectively; NPS 2023c) but this decrease is likely attributable to health and travel restrictions during the COVID-19 pandemic and may not be representative of the overall trend in backcountry visitor use.

Three areas of classification are used to define and describe opportunity class in the Stephen Mather Wilderness: (1) day use area (frontcountry), (2) trailed/established camps, (3) crosscountry I, and (4) crosscountry II. Areas are classified based on the type and amount of use, accessibility and challenge, opportunity for solitude, current resource conditions, and management uses. These areas of classification are described in detail below (NPS 1989):

Camping and fires are prohibited in the day use area, and stock use is limited to all-purpose trails. Day hiking visitation is often high, with some overnight visitors passing through this zone enroute to their final destinations. Most areas are within one to three hours' hiking time from a trailhead on trails maintained to standard specifications. Frontcountry visitor education efforts of all types are used. In more isolated areas like McGregor Mountain and Easy Pass, the opportunity for solitude is high. Presence of park staff is generally high, with a 90% chance of meeting a ranger in the higher use areas. Visitor education in the form of trail guides or interpretive talks may be available. Impacts from camping and other activities are rehabilitated.

Trailed/established camp areas receive moderate day use and moderate camping use. Camping is restricted to designated sites, and party size is limited to protect wilderness values. Fires are restricted to camps where fire grates are provided; all other camps are personal stoves only. Food storage requirements are also in place and vary by campsite. Stock parties are limited to 6 people and stock. Access to major destination areas is from two hours to several days hiking on trails maintained to standards. The opportunity for solitude ranges from low where day use and camping overlap, to high at campsites several days distance from the trailhead. Presence of park staff is moderate, with a 25%–50% chance of meeting a ranger or trail crewmember. The number of visitors per camp varies by the size of the camp. They range from 1 to 7 sites in a camp, and a limit of 4 to 12 people. Visitor education is extensive at permit-issuing stations and during on-site contacts. Use limits are based on the number of sites within a camp and the number of tent pads per site. There are 128 established camps, each with between 1 and 6 campsites. If all the camps were full, they would accommodate 1,966 visitors.

Crosscountry I zones include popular climbing routes and bivouac sites. These receive about 75% of all climbing activity in the park complex. Some routes include a small number of built features, while others were established through repeated use and flagged by climbers traveling to climbing areas. These areas receive minimal day use and moderate to high camping use, at designated sites and in crosscountry zones. In Lake Chelan National Recreation Area, stock use is permitted in Dee Dee Lakes; Rainbow Ridge; and Rennie, Purple, and Triplet Lakes crosscountry zones. Visitors must camp at least a half mile from maintained trails and 1 mile from established camps. Subalpine meadows are closed to camping. Fires are prohibited. Party size is limited to 12, and the number of parties is limited in some areas of heavy use. Horse parties are limited to a combination of 6 visitors and stock. Access is at least a 2-hour hike on non-maintained routes ranging from easy hiking to technically difficult, requiring knowledge and skills in route-finding and mountaineering.

The opportunity for solitude is moderate to high in crosscountry I zones. Presence of park staff is high in areas of high use. The opportunity for meeting a ranger is from 25% to 90%, depending on the area and

day of the week. Designated sites, where present, are maintained to the same standards as trailed/established camps but with minimal developments. These standards are described in the *1989 Stephen Mather Wilderness Management Plan*. Visitor education is extensive both at permit-issuing stations and in the field. Backcountry permits are required for all overnight stays, and climbers are encouraged to sign in and out on a climbing register. No mechanical tools for maintenance are used in wilderness without advance written request for a variance. Aircraft may be used for emergencies and, to a limited extent, for administration of the area. Administrative use is limited to a period before July 4 and after Labor Day, and on weekdays from Monday through Thursday.

Crosscountry II zones represent about 90% of the wilderness and are the most pristine, with little evidence of human presence. They receive little to no day use. Fires, stock use, and camping in meadows are prohibited. Wilderness permits are required for all overnight stays, and parties are encouraged to sign in and out on the climbing register. Visitors must camp at least a half mile from maintained trails and 1 mile from established camps. Party size is limited to 6 party members, and the number of parties may be limited in some areas. Access is more than 6 hours from a road trailhead, maintained trail, or climbers' route. Routes are minimally visible or nonexistent, and require knowledge of route-finding and/or skills in mountaineering. The opportunity for solitude is high. Presence of park staff is low, with less than a 10% chance of contact. Human impact is not acceptable for camps or routes. Impacted sites are rehabilitated and/or closed. Signing is not permitted in crosscountry II zones.

Other Features of Value. The other features of value in the Stephen Mather Wilderness include historic (e.g., fire towers) and pre-historic cultural resources. These resources are generally in good condition. More than 8,500 years of human presence on the landscape offers a glimpse into the distribution of people across a high mountain environment over centuries of ecological changes in climate and topography. Grizzly bears themselves represent a unique ethnographic resource due to their cultural importance to some Tribes and First Nations whose traditional lands include designated wilderness in the NCE. Given the functional extirpation of grizzly bears in the NCE, this feature of value is significantly degraded under current conditions.

Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest

Mt. Baker and Snoqualmie National Forests were administratively combined in 1974, creating the Mt. Baker-Snoqualmie National Forest. The forest is managed under the 1990 *Mt. Baker-Snoqualmie National Forest Land and Resource Management Plan* (USFS 1990a), as amended by the 1994 *Northwest Forest Plan* (USDA and Bureau of Land Management 1994). Mt. Baker-Snoqualmie National Forest encompasses 1,761,644 acres, with more than 840,000 of wilderness.

The Okanogan and Wenatchee National Forests were administratively combined in 2000, creating Okanogan-Wenatchee National Forest. The forest is managed under the previously existing forest plans for Okanogan National Forest and Wenatchee National Forest. As such, this section contains information from the 1989 *Okanogan National Forest Land and Resource Management Plan* (USFS 1989) and the 1990 *Wenatchee National Forest Land and Resource Management Plan* (USFS 1990b), except where noted (USFS 1989). Okanogan-Wenatchee National Forest encompasses approximately 3.8 million acres, with more than 1.5 million acres of wilderness. On October 1, 2020, the administration of the Tonasket District was transferred from the Okanogan-Wenatchee National Forest to the Colville National Forest.

Table 5 shows the wilderness acreage within the NCE on national forest lands. Mount Baker, Noisy-Diobsud, Boulder River, and Wild Sky are managed by Mt. Baker-Snoqualmie National Forest. Lake Chelan-Sawtooth Wilderness are managed by Okanogan-Wenatchee National Forest. Glacier Peak, Alpine Lakes, and Henry M. Jackson are jointly managed by both national forests. Pasayten Wilderness is jointly managed by Okanogan-Wenatchee and Colville National Forests. Most wilderness areas are in a

stable or improving trend relative to wilderness character (USFS 2011). However, USFS management faces a number of challenges, which are discussed below.

TABLE 5. WILDERNESS ACREAGE ON US FOREST SERVICE LAND IN NORTH CASCADES ECOSYSTEM

Wilderness Area	Acreage	Percent of National Forest Lands in Wilderness
Mount Baker	119,966	6.8%
Noisy-Diobsud	14,266	0.8%
Boulder River	49,344	2.8%
Wild Sky	105,543	6.0%
Glacier Peak[a]	566,161	9.8%
Alpine Lakes[a]	414,322	7.2%
Henry M. Jackson[a]	102,919	1.8%
Pasayten[b]	531,325	13.9%
Lake Chelan-Sawtooth[c]	152,980	3.8%
TOTAL	2,056,826	35.7%

Source: Wilderness.net. (2023)

[a] Jointly managed by Okanogan-Wenatchee National Forest/Mt. Baker-Snoqualmie National Forest. Approximately 51% of the jointly managed wilderness areas are found on Okanogan-Wenatchee and 49% on Mt. Baker-Snoqualmie. Percent wilderness calculated by total acreage of both forests.

[b] Jointly managed by Okanogan-Wenatchee and Colville National Forests. Percent wilderness calculated as a portion of the Tonasket Ranger District of the Colville National Forest that is within the NCE and all of Okanogan-Wenatchee National Forest.

[c] Percent wilderness calculated based on 3.8 million acres (USFS 2011).

Untrammeled. Wilderness areas on national forest lands in the NCE remain largely unhindered by human manipulation, although historical practices of suppressing wildfires and stocking nonnative fish in lakes that predated wilderness designation have continued, with impacts on the biophysical environment. In some wilderness areas, wildlife management and research activities, such as capture and collaring of mountain goats at various times by the NPS, USFS, WDFW, and area Tribes, have been undertaken as part of efforts to recover indigenous species. Recent actions involving translocation of mountain goats to wilderness areas in the NCE are described below. Treatments are carried out to eradicate or prevent the spread of invasive plants in wilderness. For example, in the Lake Chelan-Sawtooth Wilderness, the USFS and partner agency personnel hand-pull and spray herbicide to treat common crupina (*Crupina vulgaris*).

Natural. Wilderness areas on national forest lands in the NCE span a multitude of environments and elevations ranging from low, open, grassy slopes to timber stands of all ages and varied species; from subalpine and alpine areas to the rugged and rocky mountain peaks. In addition to the grizzly bear, mountain goats have been identified as an indigenous wildlife species at-risk of local extirpation. Beginning in 2018, the NPS in partnership with the USFS and the WDFW began translocating mountain goats from the Olympic Peninsula to the Alpine Lakes, Glacier Peak, and Henry M. Jackson wilderness areas to facilitate an increase of native mountain goat populations there. From September 2018 to September 2021, 325 mountain goats were translocated to the North Cascades (NPS 2022d). Heavy recreational use in popular parts of these wilderness areas has led to vegetation loss from the proliferation of campsites and user-created trails and has facilitated the spread of invasive plant species. Nonnative fish are present in some wilderness lakes because of the state's fish stocking program. One vacant sheep allotment exists in the Pasayten Wilderness, while portions of one vacant sheep allotment exist in the

Lake Chelan-Sawtooth Wilderness. However, no grazing permits have been recently issued in either of these wilderness areas.

Undeveloped. Where the sights and sounds of human occupation are present, they are often related to historical uses of these areas prior to wilderness designation. In parts of the Wild Sky Wilderness, evidence of past logging activities and old roads are visible. Mineral-related activities occur in the Pasayten Wilderness and Lake Chelan-Sawtooth Wilderness. In the Henry M. Jackson Wilderness, the Monte Cristo Mining Area operated from 1889 to 1920. Historic mining activities resulted in contamination of soils and surface waters with arsenic and other hazardous substances. The USFS completed a cleanup of contaminated soil and water from the Monte Cristo Mining Area, pursuant to CERCLA, in 2015. The cleanup involved the use of helicopters and heavy equipment. Revegetation of disturbed areas and installation of institutional control signage was completed in 2016, and monitoring was conducted though 2019 (USFS 2020a). Across these wilderness areas are a number of fire lookouts; some maintained by volunteers. In the Pasayten Wilderness, administrative sites are located at Spanish Camp, Stub Creek, and Pasayten Airport. Remnants of old trapping cabins are scattered across the Pasayten Wilderness; these structures are in various stages of deterioration and may have historical significance. In the early 20th century, the Icicle and Peshastin Irrigation Districts built dams in what is now the Alpine Lakes Wilderness to capture water for crops in the Wenatchee Basin; these operations continue. The US Geological Survey maintains a number of structures and installations, including a research station at South Cascade Glacier, a seismic station on Glacier Peak in the Glacier Peak Wilderness, a snow survey cabin near Freezeout Creek, and a stream-gauging station in Andrews Creek within the Pasayten Wilderness. The USFS maintains radio repeaters at Miners Ridge and Lost Creek in the Glacier Peak Wilderness and Frog Mountain in the Wild Sky Wilderness.

Motorized equipment and mechanical transport, such as helicopters, are also used on the forests in wilderness areas. This equipment is often used for search and rescue and fire suppression, maintenance of fire lookouts and radio repeaters, research and monitoring activities, annual placement and removal of toilets at popular areas in the Mt. Baker Wilderness and Alpine Lakes Wilderness, and US Border Patrol operations. Infrequently, chainsaws, rock drills, and other motorized equipment are used to repair trails and bridges damaged by fire or flood events. Some uses otherwise prohibited by the *Wilderness Act* are allowed through special provisions in the act or subsequent wilderness legislation, such as use of floatplanes on Lake Isabel in the Wild Sky Wilderness. In the Alpine Lakes Wilderness, the Icicle and Peshastin Irrigation Districts exercise reserved rights and easements for helicopter or other motorized access to dams they operate in wilderness. The WDFW and some Tribes use helicopters for wildlife management and studies.

As described above, between 2018 and 2020, the NPS in collaboration with the USFS and the WDFW used helicopters to translocate mountain goats from the Olympic Peninsula to release sites in the Alpine Lakes, Glacier Peak, and Henry M. Jackson Wilderness Areas. Three-hundred and twenty-five goats were translocated to the Northern Cascades (NPS 2022d). The presence of collars, tags, or other markers on wildlife degrades the undeveloped quality of wilderness character. Collared mountain goats are already present in some wilderness areas on the Mt. Baker-Snoqualmie National Forest.

Opportunities for Solitude or Primitive and Unconfined Recreation. Wilderness areas in each national forest contain a vast number of lakes, and the mountains afford many challenges for rock climbing, mountaineering, and cross-country travel. Despite proximity to the Seattle metropolitan area, they also provide many opportunities for solitude. However, military aircraft noise in Alpine Lake Wilderness, Glacier Peak Wilderness, and Mount Baker Wilderness sometimes affect solitude in these areas. Greater use of the internet and global positioning systems (GPS) for trip planning and navigation may be resulting in social trail development in formerly pristine locations.

Mt. Baker-Snoqualmie National Forest Wilderness Areas — National visitor use monitoring data for 2020 estimates 389,000 annual visits to wilderness areas out of an estimated 2,122,000 total visits to the Mt. Baker-Snoqualmie National Forest (USFS 2020b). Five areas of classification are used to define and describe opportunity class in Mt. Baker-Snoqualmie National Forest wilderness: (1) transition; (2) trailed; (3) general trail-less; (4) dedicated trail-less; and (5) special (USFS 1990a).

The transition class includes system trails that have a travel-way worn to mineral soil over long distances, and is characterized by having a large proportion of day-users, often mixed in with overnight and long-distance travelers. This area is usually adjacent to trailheads and extends into the wilderness a distance that is typically traveled in one day by a hiker. This class includes areas accessed by trail, around lakes, or other attractions used by people or pack stock, within the day use influence area. The class extends at least 500 feet on either side of a trail, and it may be wider around lakes or heavily used areas. The length of this trail class is established for each trail depending on ease of travel, distance from the trailhead outside wilderness, and destination attractions inside wilderness. Trails are generally 3 to 5 miles long inside the wilderness boundary. If the day use activity occurs entirely outside wilderness, the trail has no transition. The trailed class includes all managed system trails. It extends beyond the transition class. This class extends at least 500 feet on either side of the trail but may be wider around lakes or heavily used areas.

The general trail-less class includes areas not falling into the other classes. It attracts very low use because of a relative lack of trails or destination spots. The area is unmodified, and user-made trails are not encouraged but may exist. If obvious user-made trails become well established or are causing resource damage, consideration is given to their reconstruction to protect the wilderness resource from further damage. Reclassification from general trail-less to trailed requires a supplement to the Forest Plan, which includes full public involvement. This class is available for new trail construction or relocation of existing trails to protect resources or meet other objectives by dispersing use. If this should occur, the trail is constructed to no higher than “more difficult” or “most difficult” standards.

The dedicated trail-less class is managed exclusively as a trail-less area, and user-made trails are not permitted. It may include popular attractions accessed only by cross-country travel. Human impact and influence is minimal; therefore, user restrictions may be necessary to ensure that trail-less experiences remain. Dedicated trail-less areas are of a size that allow for a meaningful experience and can be reasonably protected for the experiences and remoteness identified. Generally, the class is at least 1,000 acres in size and contains whole drainages out of sight and sound of trails or areas outside wilderness.

The special area class intends to provide for significant changes in standards or other management guidelines for unique areas. Areas that qualify for special area designation include congressionally acknowledged areas, areas of significant cultural or historic value, areas with special considerations, and areas with limited management options to deal with unique situations. Areas do not qualify for this class for administrative convenience in dealing with overuse. The class is rare and does not exist in many wilderness areas.

Mt. Baker-Snoqualmie National Forest has 635 miles of trails in wilderness, the majority of which are found in the Glacier Peak Wilderness. A quarter of this mileage consists of trails in the transition class (USFS, Rohrer pers. comm. 2016c). Hiking accounts for 41% of wilderness use. A majority of this hiking is day use, a reflection of the accessibility of the wilderness. Another 34% of wilderness use comes from climbing, fishing, hunting, nature study, horse use, and miscellaneous activities. Camping accounts for the remaining 25% of wilderness use (USFS 1990a).

Okanogan-Wenatchee National Forest Wilderness Areas Including a Portion of the Colville National Forest — Because administration of the Tonasket Ranger District was transferred from the Okanogan-Wenatchee National Forest to the Colville National Forest in 2020, this section includes the NCE-portion of the Colville National Forest as part of the Okanogan-Wenatchee National Forest management and associated baseline conditions, including visitation and miles of trails.

National visitor use monitoring data for 2020 estimates 254,000 annual visits to wilderness areas out of an estimated 4,106,000 total visits (USFS 2020c). Two areas of classification are used to define and describe opportunity class in Okanogan-Wenatchee National Forest wilderness: (1) pristine/trail-less areas, and (2) primitive/trailed areas.

Pristine/trail-less areas are characterized by an extensive unmodified natural environment where natural processes are not measurably affected by the actions of visitors. Visitors have the most outstanding opportunity for isolation and solitude, free from evidence of human activities and with very infrequent encounters with other visitors. Visitors have outstanding opportunities to travel cross-country using a maximum degree of primitive skills, often in an environment that offers a high degree of challenge and risk.

Primitive/trailed areas are characterized by an unmodified natural environment with a minimum of on-site controls and restrictions, and where present, controls are subtle. Facilities are only provided for protection of wilderness resource values. Materials for facilities are native, where possible, and are always natural in appearance. Visitors have a low to high opportunity for isolation and solitude, with various levels of evidence of past human activities. Encounters with other users also range from low to high. Access ranges from no trails to well-defined trails.

Approximately 1,285 miles of trail are found in wilderness on Okanogan-Wenatchee National Forest (USFS n.d.[b]). These trails are not open to motorized or mechanical use but are generally open to both hiker and stock use. In some locations, however, inappropriate or prohibited uses are occurring such as snowmobile trespassing across wilderness boundaries (USFS 2011). Visitor use on trails and in wilderness ranges from extremely light in the more remote areas, to heavy along major trails and favored attractions. Most visitor use occurs from July through October. Camping, hiking, horseback riding, hunting, and fishing are the primary activities, with the latter two activities accounting for 25% of visitor use in wilderness.

Other Features of Value. The USFS recently completed a process to identify and describe elements of wilderness character for wilderness on the Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest and developed a narrative for each designated wilderness area as part of efforts to establish a wilderness character baseline for future monitoring. Other features of value were identified for the Okanogan-Wenatchee National Forest, including cultural resource features and glaciers; however, no elements that would be considered other features of value were included for future monitoring. No other features of value were identified for Mt. Baker-Snoqualmie National Forest.

Trends and Planned Actions

Under current management, grizzly bears are expected to remain extirpated in the NCE. Implications of the permanent loss of this species in the NCE on the qualities of wilderness character are described below, followed by a discussion of the trends and planned actions that may affect all wilderness areas in the NCE in the future.

The impact of climate change on natural processes in wilderness is an ongoing threat. Impacts include decreased snow cover, glacial retreat, decreased summer stream flow, increased frequency and magnitude

of floods, increased stream temperature, increased wildfire potential, a rising tree line, changes in phenology, and longer growing seasons. In September 2022, the Chilliwack Complex fires, a series of natural wildfires, burned more than 7,000 acres of forest in the Stephen Mather Wilderness (InciWeb 2022). Changing climate conditions including increased frequency of severe climate events are expected to become more evident in the coming decades.

With current management, no new impacts on the untrammeled or undeveloped quality of wilderness character are anticipated. Ecosystem trends would continue without human intervention. The permanent loss of this native species from the NCE would continue to adversely affect the natural quality of wilderness. There would be no new impacts on opportunities for solitude or primitive and unconfined recreation because there would be no additional noise or closures in wilderness areas associated with grizzly bear restoration actions. The permanent loss of a grizzly bear population from the NCE also represents loss of an important ethnographic resource (the bears themselves) to some Tribes and First Nations, and as such, other features of value would continue to be degraded under current management.

The NPS is currently considering two planned actions within the Stephen Mather Wilderness. The first project would reroute a 2,400-foot section of the Brush Creek Trail and relocate the Graybeal Hiker and Stock Camps along the Brush Creek Trail. The second project would construct additional backcountry camp accommodations at Six Mile Camp and Bridge Creek Camp, primarily for Pacific Crest National Scenic Trail long-distance permit holders. Potential impacts on wilderness character are expected to include short-term, adverse impacts on the undeveloped and natural qualities of wilderness during construction of the trails and camps. The proposed expansion of Bridge Creek Camp, Six Mile Camp, and addition of a food storage locker at Six Mile Camp are expected to result in a long-term, adverse impact to the undeveloped quality of wilderness in a small area. The proposed trail and camp improvements are expected to have long-term, beneficial impacts on the natural quality of wilderness by reducing off-trail use and increase opportunities for solitude and opportunities for primitive and unconfined recreation (NPS 2023c).

Other planned actions in wilderness areas include ongoing NPS trail maintenance and repairs, implementation of the *Mountain Lakes Fishery Management Plan* and associated Act (H.R. 1158, authorized by President Obama in 2014, which directs the Secretary of the Interior to authorize fish stocking in certain lakes in the park complex, including the Stephen Mather Wilderness), NPS fire management operations, the *Stehekin River Corridor Implementation Plan*, NPS administrative flights, CERCLA mine cleanup and abandoned mine land projects on national forest lands, and USFS wildfire suppression efforts.

A number of planned and unplanned actions could affect the natural quality of wilderness character, including intentional or accidental introduction of nonnative and invasive species, air pollution, water pollution, and soil disturbance. However, for all planned actions, all federal actions in wilderness would need to comply with the minimum requirements concept, minimizing potential impacts on wilderness character. Overall, planned actions could result in some adverse impacts on wilderness character, specifically the undeveloped and natural qualities.

Environmental Consequences

NPS wilderness management policies are based on general provisions under Title 54 of the United States Code governing the national park system, the 1964 *Wilderness Act*, NPS director's orders, and legislation establishing individual units. Wilderness areas on NPS land are devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historic use. NPS policy requires that all management decisions affecting wilderness be consistent with the minimum requirement concept defined in the *Wilderness Act*, which is a documented process to determine whether administrative actions,

projects, or programs undertaken by the park and affecting wilderness character, resources, or the visitor experience are necessary, and if so, how to minimize impacts (NPS 2006).

USFS wilderness management policies are based on general provisions under Title 36 of the United States Code governing the national forest system, the 1964 *Wilderness Act*, forest plans, and legislation establishing individual units. Wilderness areas on USFS land are meant for multiple uses, protecting wilderness character, and public values including, but not limited to, scientific study, inspiration, and primitive recreation experiences. USFS policy requires that wilderness values dominate over all other considerations except where limited by the *Wilderness Act*, subsequent legislation, or regulations (USFS 2007).

Methods and Assumptions

Potential impacts on wilderness are evaluated qualitatively, based on professional judgment concerning the potential impacts of grizzly bear restoration actions on each of the individual wilderness qualities listed in the "Affected Environment." For more information regarding the potential management actions analyzed below, see appendix D.

Analysis Area. The area of analysis for impacts of the alternatives on wilderness character includes federally designated wilderness areas located within the NCE grizzly bear recovery zone. Wilderness areas that would be affected under the action alternatives include the Stephen Mather Wilderness (NPS), Glacier Peak Wilderness (USFS), and Pasayten Wilderness (USFS). Additionally, if grizzly bears that are captured for release into the NCE are sourced from areas located within US federally designated wilderness, the impacts of capture operations on wilderness character in those source areas are analyzed based on the wilderness criteria described in the affected environment.

Issues Analyzed. The analysis of impacts on wilderness character under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* The use of aircraft and monitoring equipment (e.g., radio collars, cameras, or hair traps) in the release or monitoring of grizzly bears in designated wilderness areas, should grizzly bears be released and monitored, could adversely affect the undeveloped qualities and opportunities for solitude or primitive and unconfined recreational qualities of wilderness character.
>
> *Issue Statement.* The restoration of grizzly bears would also increase the overall biodiversity present in wilderness areas, increasing the overall benefits to the natural quality of wilderness character but adversely affecting the untrammeled quality.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts to wilderness character; therefore, the environment would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Untrammeled. Under alternative B, restoring grizzly bears in the NCE would constitute a direct manipulation of the behavior or lives of autonomous animals and therefore would be considered

trammeling. There would be adverse impacts on the untrammeled quality of wilderness character related to the release of grizzly bears into wilderness areas within the NCE. Impacts are expected to increase over time as the grizzly bear population increased from an initial population of 25 bears toward an eventual restoration population of 200 bears within approximately 60 to 100 years. However, impacts would likely decrease over time as a population is established that no longer requires intervention. Impacts would occur throughout all wilderness areas as bears disperse and populations increase. Additional translocations of grizzly bears associated with adaptive management actions to counteract mortality, change population trends, manipulate population genetics, increase distribution, and alter the sex ratio would further degrade the untrammeled quality of wilderness because these actions represent human intervention. Overall, the ecological systems within wilderness in the NCE, along with their biological and physical components, are expected to remain relatively, but not completely, free from human intervention.

Natural. Under alternative B, the restoration of grizzly bears would support recovery of natural conditions in wilderness, notably the restoration of a population of a native species and the ecological functions it serves as a component of the NCE. Minimal adverse impacts on the natural quality of wilderness character could occur because of localized disturbance to wildlife species near the release site from noise (specifically helicopter noise) during active release of grizzly bears. Disturbance would be limited due to the frequency of restoration and monitoring activities over the course of 5 to 10 years. Similar localized, adverse impacts could also occur because of the periodic release of additional grizzly bears or relocation of grizzly bears if adaptive management is necessary. These impacts would, however, take place on a highly intermittent basis, if at all. Overall, the long-term restoration of grizzly bears, both in terms of their physical presence on the landscape and their role in the terrestrial food web, is expected to have lasting beneficial impacts on the natural quality of wilderness in the NCE because digging and foraging by bears positively influences nitrogen available to plants, as well as seed and nutrient dispersal, and predation on wildlife helps to stabilize the food web. These beneficial impacts are expected to increase over time as the restored grizzly population increased from an initial population of 25 bears to an eventual restoration population of 200 bears.

Undeveloped. Under alternative B, the remoteness and lack of roads in wilderness would necessitate the use of helicopters for releasing grizzly bears. The use of motorized equipment and aircraft landings would result in adverse effects on the undeveloped quality of wilderness because, during active release efforts, the imprint of human activity would be noticeable. Most impacts would be localized in the vicinity of the staging areas (figure 11). All staging areas would be located outside the boundaries of wilderness area. However, several of the potential staging areas would be close to the wilderness boundary. Therefore, helicopters used for release operations would be audible and potentially visible from within designated wilderness. Impacts would extend farther into wilderness areas where helicopters would transport grizzly bears to sites within the three release areas shown in figure 11. The duration of impacts from helicopter use on the undeveloped quality of wilderness would be limited to up to 8 hours for up to 3 to 7 days per year for 5 to 10 years. Helicopters would make up to 4 landings in wilderness per grizzly bear with an estimated total of 144 landings over 5 to 10 years in the primary phase, although some additional flights may be necessary for collar retrieval and incidental actions.

Most impacts associated with the use of motorized equipment (i.e., helicopters) would be limited to restoration efforts that would occur over 5 to 10 years. Monitoring activities, including the use of GPS collars, would also adversely affect the undeveloped quality of wilderness for the duration of time the collars are on grizzly bears. Using GPS collars for monitoring would limit the need for aircraft monitoring. Installation of temporary camera stations for monitoring would also adversely affect the undeveloped quality of wilderness. Overall, wilderness in the NCE is expected to remain largely undeveloped under alternative B.

Opportunities for Solitude and Unconfined Recreation. Under alternative B, helicopters would produce noise in wilderness areas during the transport and release of grizzly bears, as described above. Additional impacts would be associated with initial reconnaissance flights that would be conducted prior to each release to determine release site suitability and check nearby areas for active camping areas or other human activity. Noise is typically measured in A-weighted decibels (dBA), which are an expression of the relative loudness of sounds as perceived by the human ear (Occupational Safety and Health Administration 2013). The US Environmental Protection Agency recommends that in areas of outdoor activity where quiet is a basis of use, the average ambient sound level over a 24-hour period should not exceed 55 dBA (USEPA 1974). A Hughes 500 or similar helicopter would be required during the capture and release of grizzly bears for the action alternative. Federal Aviation Administration testing data determined that a Hughes 500 produces between 71 and 90 dBA during hovering, approach, and low speed (airspeed of 69 mph at 500 feet above ground level) flyover maneuvers (FAA 1977). While helicopters would create noise above the ambient sound level at distances over a half mile, the noise would be intermittent and temporary as the helicopter traverses the landscape—lasting seconds to minutes. Furthermore, topography and vegetation would influence the level and distance at which noise would be audible. For a complete discussion of noise impacts as a result of motorized equipment, see "Other Wildlife and Fish."

The anticipated duration and frequency of helicopter use for grizzly bear releases is described above. Helicopter flight time over wilderness would likely vary depending on the location of the release site and corresponding staging area. Figure 11 shows potential release areas and corresponding staging areas near wilderness. Table 6 provides the range of hours helicopters could be operating over, and in, wilderness. Assuming a worst-case scenario where all grizzly bears released use staging area F, the anticipated maximum hours of flight time over wilderness would be approximately 65 hours per year. However, this amount of flight time is substantially lower than what would typically be required for similar firefighting efforts in nonwilderness areas.

Release of grizzly bears would take place from June through September. Release activities in wilderness would take place during daylight hours and would be confined to three potential release areas within the Stephen Mather, Pasayten, and Glacier Peak Wilderness Areas (figure 11). Area closures during operations at the staging areas would temporarily limit opportunities for solitude and unconfined recreation; however, closures are expected to last only a few hours. Closures are not expected to be needed at release sites because remote areas without people would be preferred. However, the duration of any necessary closure would be temporary and last until the bear has moved away from the release site.

Under alternative B, the use of motorized equipment and presence of wildlife management personnel associated with grizzly bear release operations would adversely affect opportunities for solitude because the resulting noise and visual disturbance would affect the landscape and soundscape. The potential for closures of various portions of wilderness areas, if necessary, during release of grizzly bears, would adversely affect unconfined recreation because the closures would temporarily restrict the recreational activities of wilderness visitors. Adverse impacts on opportunities for solitude associated with helicopter noise would occur annually, with an estimated 144 helicopter round trips over 5 to 10 years. Impacts on unconfined recreation would result from the use of helicopters to periodically release additional grizzly bears or to place culvert traps and transport wildlife management personnel during relocation or removal of grizzly bears involved in conflicts. It is expected that these impacts would be infrequent, localized, and limited in duration. Overall, wilderness areas in the NCE would continue to provide ample opportunities for solitude and primitive or unconfined recreation.

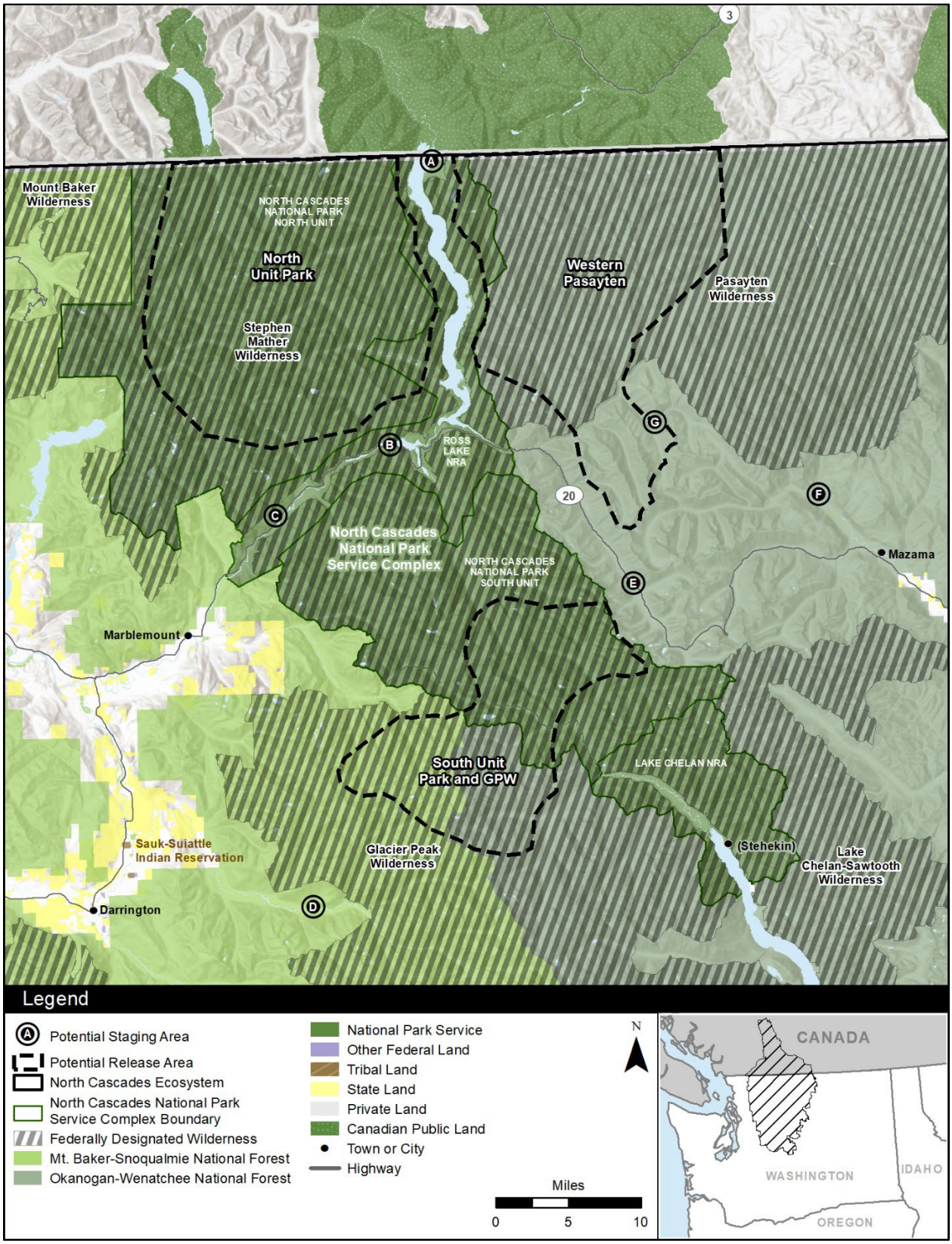


FIGURE 11. POTENTIAL RELEASE AREAS AND FEDERAL WILDERNESS AREAS IN THE NORTH CASCADES ECOSYSTEM

TABLE 6. ESTIMATE OF FLIGHT TIME OVER WILDERNESS*

Proposed Staging Area	Hours Over Wilderness Per Release
A	0.3–2.6
B	1.5–3.2
C	–
D	1.7–3.1
E	0.1–2.4
F	1.6–4.6
G	–

Source: NPS unpublished data

Note: Hours for four round-trip flights. Staging area C and G would be used as ground-staging sites only.

Other Features of Value. Under alternative B, restoration of grizzly bears would return an ethnographic resource to the wilderness, resulting in long-term, beneficial impacts on other features of value of wilderness character.

Impacts on Wilderness Character in Grizzly Bear Source Areas. If grizzly bear source populations were identified in wilderness areas, the impacts on wilderness character in the source areas would be similar to those described above for release areas because the equipment and procedures used, and the timing and duration of capture operations would be similar. Capture would include the use of helicopters, trucks in accessible areas, culvert traps, snares, and area closures. Capture operations in source area wilderness would have adverse impacts on all of the qualities of wilderness character described above and would be identical to those described for wilderness areas in the NCE. Adverse impacts related to periodic capture of additional grizzly bears necessary to address potential mortality or emigration from the NCE could also occur. The major difference between the impacts on wilderness in the NCE and the impacts on source area wilderness would be that the capture of grizzly bears would have adverse impacts on the natural quality of source area wilderness. These adverse impacts would result from capturing and permanently removing individual grizzly bears from the source area landscape and food web, which could temporarily affect predator-prey interactions and interspecific competition between grizzly bears and other carnivores. Source areas would be chosen in part because the grizzly bear populations in those areas would be at sufficient levels to withstand the loss of a small number of individual grizzly bears. Therefore, adverse impacts on the natural quality of source area wilderness are expected to be minimal.

Wilderness Areas Outside the NCE. Although grizzly bears would be released into remote wilderness areas of the NCE, they could move outside the area into other parts of Washington adjacent to the NCE. If grizzly bears move into other wilderness areas where they have been absent, they would improve the overall wilderness character of the area.

Under alternative B, wildlife managers would have some options for addressing bears involved in conflicts in wilderness areas. Management activities could affect wilderness qualities, depending on the tools used. For example, recreational opportunities could be affected if temporary closures of campsites or trails are implemented to address public safety.

Cumulative Impacts. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the "Current and Expected Future Conditions of the Environment" section. As discussed, planned actions could result in some adverse impacts on wilderness character, specifically the undeveloped and natural qualities. Alternative B would result in adverse impacts on wilderness character

from grizzly bear reintroduction activities and monitoring, especially the use of helicopters and GPS tracking collars. However, the limited adverse impacts from alternative B would be offset by restoring a native species, resulting in a beneficial impact. Compared to current conditions, these impacts, in addition to past, present, and reasonably foreseeable planned actions are expected to degrade some wilderness character qualities in the short term but improve overall wilderness character quality over the long term from the reintroduction of an extirpated native species, with alternative B contributing most of the effects.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Untrammeled. Under alternative C, impacts on the untrammeled quality of wilderness character associated with the release of grizzly bears would be the same as those described under alternative B. However, other management options that would become available under a 10(j) designation could result in additional impacts on the untrammeled quality of wilderness character, if implemented. All designated wilderness in the NCE is located within 10(j) Management Area A, which would authorize fewer management options than in Management Areas B or C. Additional management measures could include deterrence or incidental take of grizzly bears, as described in chapter 2. These management measures could result in additional human intervention and manipulation of the behavior or lives of autonomous animals compared to alternative B, if the actions occurred in designated wilderness. Potential additional adverse impacts would be intermittent and localized because take of grizzly bears would only be authorized on an as-needed basis, if certain conditions are met in accordance with the 10(j) rule. Overall, ecological systems within wilderness areas in the NCE, along with their biological and physical components, are expected to remain relatively but not completely free from human intervention.

Natural. Under alternative C, impacts on the natural quality of wilderness character would be similar to those described for alternative B because additional management measures that would be authorized under the 10(j) rule in Management Area A (deterrence or incidental take) would not result in measurable long-term impacts to wilderness character. There would be no authorized take associated with livestock depredation in wilderness because livestock grazing is not authorized in wilderness. Additionally, livestock grazing is nearly nonexistent in wilderness areas within the NCE. Ongoing livestock grazing is prohibited in much of the wilderness and is strictly regulated elsewhere. Occasional take for self-defense, deterrence of a bear from an occupied area (e.g., backcountry camp site), or removal of a bear involved in a conflict could occur, but any adverse impacts on wilderness character would be short term and localized. Overall, potential impacts associated with additional management measures would not measurably alter natural communities in designated wilderness compared to alternative B. The long-term restoration of grizzly bears, both in terms of their physical presence on the landscape and their role in the terrestrial food web, is expected to have lasting beneficial impacts on the natural quality of wilderness in the NCE.

Undeveloped. Under alternative C, impacts on the undeveloped quality of wilderness character would be the same as those described for alternative B because management measures that would be authorized under the 10(j) rule in Management Area A would not result in additional use of motorized equipment or other indicators of development in designated wilderness areas, except if a bear was relocated back into wilderness. Overall, impacts of alternative C on the undeveloped quality of wilderness character in the NCE would be minimal.

Opportunities for Solitude or Primitive and Unconfined Recreation. Under alternative C, impacts on opportunities for solitude or primitive and unconfined recreation would be the same as those described for alterative B because additional management measures that would be authorized under the 10(j) rule in Management Area A (deterrence or incidental take) would not limit these opportunities compared to alternative B. Overall, wilderness areas in the NCE would continue to provide ample opportunities for solitude and primitive or unconfined recreation.

Other Features of Value. Under alternative C, impacts on other wilderness features of value would be the same as those described under alternative B.

Impacts on Wilderness Character in Grizzly Bear Source Areas. If grizzly bear source populations were identified in wilderness areas, the impacts on wilderness character in the source areas would be the same as those described under alternative B.

Cumulative Impacts. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the "Current and Expected Future Conditions of the Environment" section. Impacts would be similar to those discussed for alternative B. Alternative C would result in adverse impacts on wilderness character from grizzly bear reintroduction activities and monitoring, especially the use of helicopters and GPS tracking collars. Additional management options that would be available to managers in accordance with the 10(j) rule could result in a slightly greater contribution to the overall cumulative effect, if implemented, compared to alternative B. Compared to current conditions, these impacts, in addition to past, present, and reasonably foreseeable planned actions are expected to degrade some wilderness character qualities in the short term but improve overall wilderness character quality over the long term from the reintroduction of an extirpated native species, with alternative C contributing most of the effects.

VISITOR USE AND RECREATIONAL EXPERIENCE

Affected Environment: Current Status and Expected Future Conditions

Visitors can partake in both frontcountry and backcountry activities throughout the NCE. The term backcountry refers to primitive, undeveloped portions of parks and/or forests, some of which may be designated "wilderness" (NPS 2021a). Backcountry activities offer greater opportunities for solitude along with greater challenges (including interactions with wildlife). The term frontcountry may refer to areas near well-developed trails, sites with picnic tables, areas proximate to ranger stations and/or visitor centers, and designated campgrounds (i.e., vehicle accessible, those with fireplaces, water pumps, and/or bathrooms). Visitors can partake in both frontcountry and backcountry activities throughout the NCE.

The NCE has a naturally high ambient noise level that includes wind and flowing water. Other noises include aircraft, motorboats, highway traffic, and NPS administrative activities, which can be heard any time, but typically decrease during nighttime hours. NPS-generated noise typically includes chainsaw use to support trail maintenance activities; equipment used to maintain roads; and aircraft used to support fire management, trails, search and rescue, and other administrative activities (NPS 2014).

In 2020, the administration of the Tonasket Ranger District was transferred from Okanogan-Wenatchee National Forest to the Colville National Forest. For purposes of this section, all information for the Okanogan-Wenatchee National Forest are inclusive of the portion of the Tonasket Ranger District that is located within the NCE.

Visitor Use in the North Cascades National Park Service Complex

The park complex attracts more than 900,000 visitors per year, the majority of whom visit Ross Lake National Recreation Area (920,526 in 2020, 855,926 in 2021, and 998,019 in 2022). Lake Chelan and North Cascades National Park attracted 30,598 and 30,885 visitors, respectively, in 2020 (NPS 2023d). In 2021, Lake Chelan and North Cascades National Park attracted 40,511 and 17,855 visitors, respectively (NPS 2023d). In June, July, and August 2022, recreation visits to Lake Chelan and North Cascades National Park totaled 34,646 (6,442 in June; 11,347 in July; and 16,857 in August) (NPS 2023d).

In the past decade, no visitor surveys have been conducted for the North Cascades National Park or the Lake Chelan National Recreation Area. A visitor survey was conducted for Ross Lake National Recreation Area in 2007 (NPS 2007b). According to that survey, the average party size for all visitors to Ross Lake National Recreation Area was 3.2 people, and 51.1% of parties included two people. Almost two-thirds (63%) of all visitors who stayed overnight spent one or two nights, and 92% of overnight visitors spent between one and four nights. Of visitors who did not stay overnight, visitors for whom Ross Lake was the primary destination stayed an average of four hours, while other visitors stayed approximately two hours. The average for all visitors was three hours. The North Cascades Visitor Center near the town of Newhalem along State Route 20 is one of two main visitor centers within the park complex. Golden West Visitor Center, which is the visitor contact point for the Lake Chelan National Recreation Area, is the other main visitor center.

According to the NPS, backcountry visitation in North Cascades National Park has fluctuated depending on the year; but generally has averaged between 21,000 and 27,000 backcountry campers for the last decade (NPS 2023d). Visitors must obtain backcountry use permits for overnight camping and adhere to additional rules and regulations when visiting backcountry areas. Popular activities include hiking, mountaineering, rock climbing, whitewater rafting, and wilderness camping. Among visitors to the backcountry in 2015, 77% were Washington state residents; 19% were residents of other states; 3% were residents of British Columbia, Canada, and 1% were residents from other areas. The average group size for backcountry visitors was three people (NPS 2015d).

Visitor Use of National Forest Lands in the North Cascades Ecosystem

The national forests within the NCE attract many visitors per year. In 2020, Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest attracted 6,228,000 national forest visits. Mt. Baker-Snoqualmie National Forest attracted 2,122,000 visits, and Okanogan-Wenatchee National Forest (including the portion of the Colville National Forest located within the NCE) attracted 4,106,000 visits (USFS 2020b,c).

According to a fiscal year 2020 USFS Visitor Use Report for the Okanogan National Forest, almost 37% of visits were from people living within 25 miles of the forest. However, about 39% of visits were from people who live more than 100 miles away (USFS 2020d). The USFS also produced a visitor use report for the Wenatchee National Forest, analyzing data from fiscal year 2020. According to that report, approximately 27% of visits were from people who reside within 50 miles of the forest, while more than 58% of visitors lived between 76 and 200 miles away (USFS 2020e).

Most visits (73%) to Okanogan National Forest were day use visits and lasted less than 6 hours. The average length of visits to overnight sites is about 40 hours, with a median duration of 28 hours, indicating that half of the visits were for one-night stays. About 38% of visits were from people who frequented the forest no more than 5 times annually, whereas 27% visited more than 50 times per year (USFS 2020d). Data were not available for backcountry versus frontcountry use within the national forests.

According to 2020 visitor data provided by Mt. Baker-Snoqualmie National Forest, the average group size for forest-wide visitors was 2.3. Most visitors were between the ages of 20 and 59. Designated wilderness areas received about 389,000 visits; about 55% of those visitors were between 20 and 39 years old.

Recreation on Federal Lands within the North Cascades Ecosystem

Recreational use of federal lands in the NCE is estimated to be 8 million recreation visitor days per year. Most of this use is associated with dispersed recreation rather than developed campgrounds or wilderness areas (figure 12). Almost l million recreation visitor days occur annually in wilderness areas; however, visitation is not equally distributed, and some areas receive much higher recreational use than others do. Most of the trails in the NCE occur in wilderness and roadless areas. Recreation also occurs on lands managed by the state of Washington, although state lands make up a relatively small portion of the NCE. As noted by Almack et al. in 1993, recreational use data for these areas are not readily available.

Both the NPS and USFS encourage and sustain a diverse and balanced spectrum of quality recreation opportunities within the NCE. Recreational activities enjoyed by visitors to both national park and national forest lands include hiking, backpacking, biking, birding, boating, fishing, hunting (on forest lands and within the NPS national recreation areas only), swimming, horseback riding, and mountain and rock climbing. Several of these activities are described in further detail below.

Guided Recreation. The park complex issued 75 permits for guided activities during 2013–2014. The majority of these permits (54 permits or 72%) were issued to companies and individual enterprises that provide guided backpacking (including mountaineering and paddling). Nine permits were issued for guided rafting and fishing. Stock packing and day hiking accounted for 1 and 2 permits, respectively (NPS, Oelfke pers. comm. 2016c).

Guided recreation use is measured in service days, which are defined as a day or any part of a day on national forest system lands for which an outfitter or guide provides goods or services, including transportation, to a client (USDA 2014). Per communication with the USFS in 2023, Mt. Baker-Snoqualmie National Forest currently administers about 85 long-term and temporary outfitting and guide permits, authorizing over 50,000 service days (USFS, Linn pers. comm. 2023). However, according to publicly available data from 2015, current permitted outfitting and guiding represents less than 1% of total annual non-ski recreation visits to the forest (USFS 2015).

On a yearly basis, Okanogan-Wenatchee National Forest administers approximately 55 priority-use outfitting and guiding permits and 15 temporary permits. Approximately 25,000 service days are used annually, including both priority and temporary use service days. The most popular activities are those involving stock use (i.e., trail rides, pack trips, and wagon rides) (USFS, Rohrer pers. comm. 2016c).

Camping. The park complex offers a full range of camping experiences, including traditional automobile access camping, boat-in camping, and wilderness/backcountry camping. There are 6 automobile access campgrounds in the park complex and 25 total boat-in campgrounds between Diablo Lake, Ross Lake, and Lake Chelan (NPS 2023e).

These boat-in camping areas have anywhere from 1 to 22 individual campsites, while the automobile access camping areas range from 1 to 142 individual campsites. Boat docks are present at 3 boat-in camping areas at Diablo Lake, 19 boat-in camping areas at Ross Lake, and 3 boat-in camping areas at Lake Chelan.

Within North Cascades National Park, 140 backcountry campsites are available; all require permits. In June, July, and August 2022, there were 17,798 backcountry overnight stays within the North Cascades National Park (1,376 in June; 7,392 in July; and 9,030 in August) (NPS 2023f). During the same period, there were 19,157 backcountry overnight stays in the Ross Lake National Recreation Area (2,794 in June; 8,923 in July; and 7,440 in August) and 1,907 backcountry overnight stays in the Lake Chelan National Recreation Area (31 in June; 719 in July; and 1,157 in August) (NPS 2023f). It is likely the backcountry

overnight stays within Ross Lake National Recreation Area and the North Cascades National Park double count some visitors since backcountry overnight stays are calculated using data from reservations.gov as well as self-reporting.

More than 140 campgrounds and picnic areas are located in Okanogan-Wenatchee National Forest, including group camping areas, dispersed/undeveloped camping areas, and recreational vehicle camping areas (USFS n.d.[a]). Mt. Baker-Snoqualmie National Forest features 38 designated campgrounds (Recreation.gov 2023).

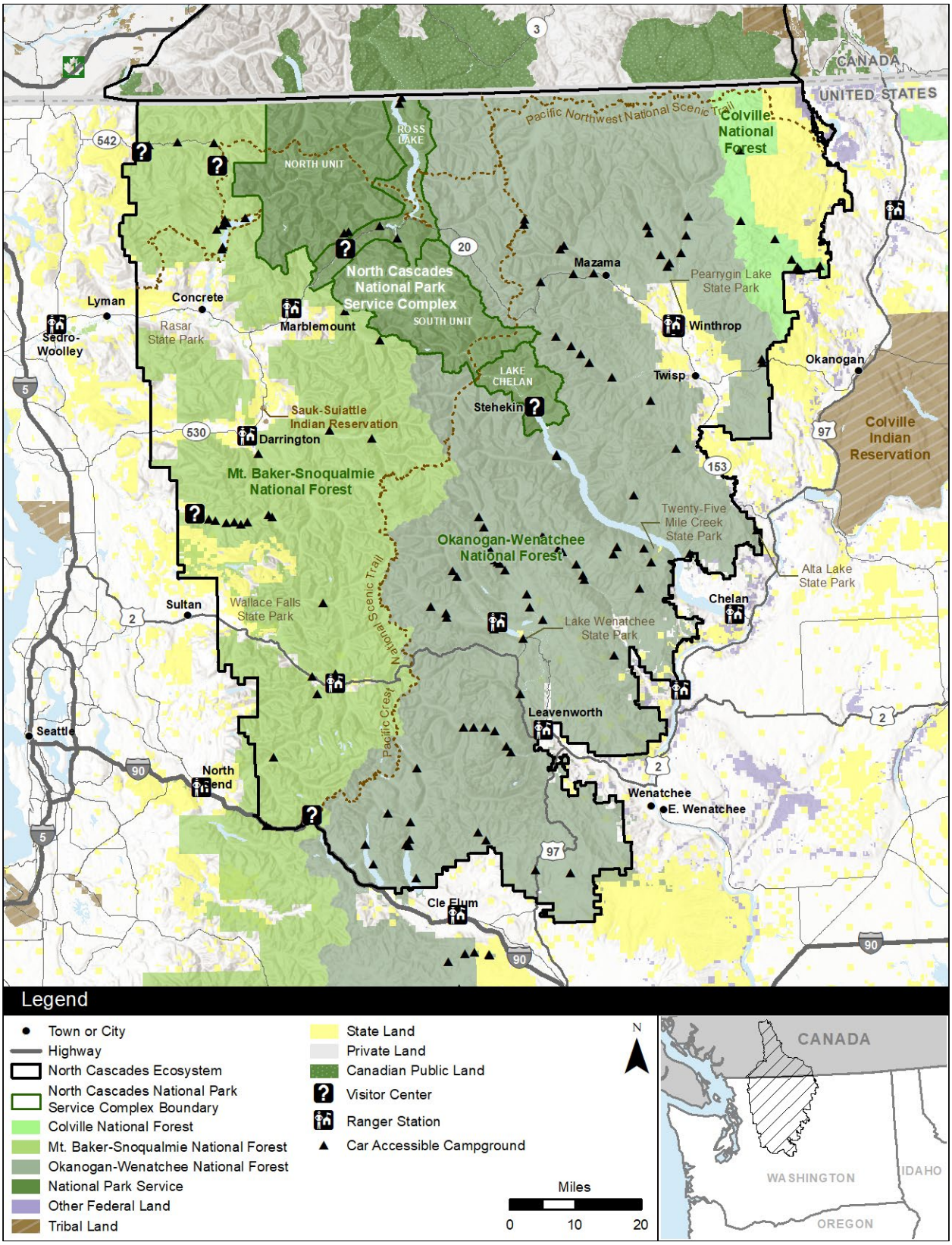


FIGURE 12. RECREATIONAL OPPORTUNITIES IN THE NORTH CASCADES ECOSYSTEM

Hiking. The Washington Trails Association lists 698 hikes in the North Cascades region, which it defines as an area inclusive of Mount Baker, the North Cascades Highway (Route 20), the Mountain Loop Highway, Methow/Sawtooth, and Pasayten (Washington Trails Association 2023). The NPS estimates that approximately 350 miles of trails are located in the park complex. Sixty-seven designated trails range significantly in both length and level of difficulty. For example, the Skagit River Loop is a 1.8-mile round-trip trail that follows the river and is suitable for all skill levels. By contrast, the Sourdough Mountain Trail is a 10.4-mile round-trip trail, described as one of the most strenuous hikes in the park and appropriate for experienced hikers only. It features steep climbs and passes through forest and then meadow communities before arriving at the fire lookout.

A portion of the Pacific Crest Trail in North Cascades National Park

There are more than 1,500 miles of designated hiking trails in Mt. Baker-Snoqualmie National Forest and more than 1,200 miles of trails in Okanogan National Forest (USFS n.d.[b]). Two national scenic trails pass through the NCE: the Pacific Crest Trail and the Pacific Northwest Trail. The Pacific Crest Trail begins at the Canadian-US border and runs southward through North Cascades National Park, Mt. Baker-Snoqualmie National Forest, and Okanogan-Wenatchee National Forest (USFS 1982). It is one of the original national scenic trails established by Congress in the 1968 *National Trails System Act* (16 USC 1241 et seq.; see chapter 1 for further detail). The Pacific Northwest Trail passes through the Pasayten Wilderness and other parts of Okanogan-Wenatchee National Forest on the east side of the NCE, and through the Mt. Baker Wilderness and other parts of Mt. Baker-Snoqualmie National Forest on the west side of the NCE. The 63-mile segment that passes through North Cascades National Park and Ross Lake National Recreation Area is a designated national recreation trail (NPS 2023g). First proposed in the early 1970s, the Pacific Northwest Trail was designated by Congress as one of 11 national scenic trails in the *Omnibus Public Lands Management Act* of 2009.

Climbing. The numerous peaks and glaciers within the NCE present a variety of climbing opportunities, including classic mixed mountaineering routes, intricate glacier travel, sport climbing, bouldering, and scrambling. At 10,781-feet, Mount Baker is the third highest summit in the state of Washington and the most heavily glaciated mountain in the Cascade Range (USGS n.d.[a]). Summit attempts are made year-round, although the warmer months (May–August) are much more popular, given better weather conditions. Of the service days, many days are authorized for guides leading trips on Mount Baker for climbing, avalanche training, and other snow-related activities. Additional service days are for use by guides, schools, and civic groups on Mount Baker. Within Okanogan-Wenatchee National Forest, popular climbing peaks include Bonanza Peak, Silver Star Mountain, Black Peak, Mount Fernow, Mount Maude, Seven-Fingered Jack, Gardner Mountain, and North Gardner Mountain (Terry 2015).

Fishing and Water-Based Recreation. The fresh, cold, and often glacially fed lakes, rivers, and streams of the NCE provide ideal habitats to support healthy fish populations, including northwest salmon and steelhead, several species of trout, and a variety of warm-water fish (NPS 2021c). Within the park complex, there are dozens of fishing areas; the most notable are Ross Lake, Diablo and Gorge Lakes, and

the Stehekin River. The park complex also includes 62 mountain lakes containing introduced fish. These include Lower Thornton, Monogram, McAlester, and Rainbow Lakes.

The WDFW notes high lake trout fishing as a popular activity and lists dozens of high-altitude lakes within the national forests, including Kachess Lake, Galena Chain Lakes, Slide Lake, Lake Jauns, and numerous others (WDFW 2023h). Lower altitude fishing spots include Keechelus Lake and Cle Elum Lake as well as many rivers (WDFW 2023i). Boating, swimming, whitewater rafting, water-skiing, jet skiing, parasailing, kayaking, canoeing, rowing, and tubing are also popular activities on some of the lakes and rivers within the NCE. Motorized boating is permitted in Okanogan-Wenatchee National Forest in four ranger districts (USFS n.d.[c]). Whitewater rafting is permitted in rivers that traverse both Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest. Popular permitted rivers include the Methow, Wenatchee, Sauk, Skagit, Skykomish, Suiattle, and North Fork Nooksack. The rafting season typically runs from late March to early August. The US Department of Agriculture website lists 15 guides/outfitters for whitewater rafting in Mt. Baker-Snoqualmie National Forest (USFS 2009).

Snow-based Sports. While bears are in hibernation during the most active season for snow-sports, some snow-based activities occur when bears are active, depending on the length of a snow season in a given year. Cross-country skiing, snowmobiling, and other winter sports opportunities are available in partnership with Methow Trails, Okanogan Valley Nordic Ski Association, Highlands Ski Club, and the Okanogan County Snowmobile Advisory Board. Skiing and snowboarding opportunities are available at privately run resorts known as Crystal Mountain and the Summit at Snoqualmie. The USFS manages ski/snowboard areas at Mount Baker (USFS 2021), Stevens Pass, Mission Ridge, Echo Ridge, and Loup Ski Bowl. According to the 2020 USFS Visitor Use Reports, skiing accounted for a large percentage of national forest visits (USFS 2020b). About 25% of visits to Mt. Baker-Snoqualmie National Forest were related to downhill and cross-country skiing, while 60% of visits to Okanogan-Wenatchee National Forest were related to skiing (USFS 2020b,c). Dog sledding, snowmobiling, and heli-skiing are also permitted in Okanogan-Wenatchee National Forest (USFS, Rohrer pers. comm. 2016c).

Other Activities. Within the NCE, the most favored horseback riding trails are located in the southeast section of the park complex, along Bridge Creek (Pacific Crest Trail) and throughout the Lake Chelan National Recreation Area. West side stock trails include the East Bank Trail, the west side of Ross Lake and Big Beaver Trail, and the Thunder Creek Trail (NPS 2017a). Both Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest offer more than 100 horseback riding trails and designated areas (USFS n.d.[d]). The WDFW issues hunting permits for both national forests, Lake Chelan and Ross Lake Recreation Areas, and several game management units within the NCE (USFS n.d.[e]). Permit holders are allowed to hunt several animals that could be affected by grizzly bears: deer, elk, bighorn sheep, coyote, raccoon, rabbit and hare, and wild turkey (WDFW 2022c).

Recreation on State Lands within the North Cascades Ecosystem

Washington state lands in the NCE are managed by either the Washington State Department of Natural Resources (DNR) or Washington State Parks. The DNR manages approximately 3 million acres of state trust lands that provide revenue for specific beneficiaries in Washington through revenue-producing activities. The DNR provides outdoor recreation opportunities across 2.2 million acres (Washington DNR 2017b). There are 6,173 acres of DNR lands within the NCE. On the west side of the Cascade Crest, these acres are concentrated in the Spada Lake Area, along State Route 530 and the Darrington area, and along the Skagit River corridor. On the east side of the Cascade Crest, state lands managed by DNR are located within the Methow Valley around Twisp and Winthrop, and the Chopoka Mountain area above Loomis.

Eight state parks are located within the NCE, including Alta Lake, Lake Wenatchee, Mount Pilchuck, Pearrygin Lake, Raser, Rockport, Twenty-Five Mile Creek, and Wallace Falls. Car-accessible camping is allowed at six of these state parks, excluding Mount Pilchuck and Rockport (Washington State Parks n.d.). Table 7 shows the number of day use and overnight (camping) visits to state parks in the NCE. Lake Wenatchee and Pearrygin Lake host the most overnight visitors and a relatively large numbers of day visitors. Raser and Wallace Falls experience relatively large numbers of day use visitors but relatively few overnight visitors (Washington State Parks 2021).

TABLE 7. STATE PARKS VISITATION

State Park*	2019 Day Use Visits	2019 Overnight Visits	2020 Day Use Visits	2020 Overnight Visits	2021 Day Use Visits	2021 Overnight Visits
Alta Lake	91,574	33,257	98,132	33,831	101,984	39,531
Lake Wenatchee	271,642	63,692	388,388	61,638	397,772	73,590
Pearrygin Lake	279,832	63,398	270,833	45,792	212,681	40,506
Rasar	93,868	32,624	85,604	20,723	97,744	30,882
Rockport	62,126	0	59,502	0	66,820	0
Twenty-Five Mile Creek	69,620	12,543	68,392	10,385	78,873	10,902
Wallace Falls	189,213	3,652	184,787	2,786	220,395	3,922

Source: Washington State Parks (2021)

Note: Visitation data is unavailable for Mount Pilchuck State Park.

The DNR Recreation program estimates approximately 20 million annual statewide visits to DNR-managed lands (Washington DNR n.d.). Approximately 50% (5.4 million) visits to DNR-managed lands occurred in the seven counties that fall within the boundaries of the NCE, including Chelan, King, Kittitas, Okanogan, Skagit, Snohomish, and Whatcom Counties. However, most of those visits (4.8 million) occurred within King and Snohomish counties, in proximity to Washington's population centers (see "Socioeconomics" below). In the counties that encompass the park complex (Chelan, Skagit, and Whatcom), there were approximately 450,000 annual visits to state lands managed by DNR, or approximately 4.5% of the state's total annual visits to DNR-managed lands (Washington DNR Recreation Program, Estep pers. comm. 2018).

Trends and Planned Actions

Future changes in climate could alter the timing and duration of certain recreational activities (e.g., skiing, fishing, berry gathering) and change the types of activities that may occur. If current management is continued, the extirpation of grizzly bears in the NCE is expected to continue and changes to existing visitor use patterns and recreational opportunities related to grizzly bears are not anticipated. Most visitors are expected to continue to visit the NCE with little change in their trip frequency or length. Visitors who are in favor of the restoration of grizzly bears and who believe that the presence of grizzly bears would constitute a unique recreational/outdoor experience would continue to be denied that experience in the NCE, but that would not be a change from existing conditions.

Ongoing and planned actions include road maintenance, trail maintenance and repairs, wildlife monitoring, invasive plant management, and fire management. Ongoing road maintenance would result in adverse impacts during the construction phase such as temporary road closures, traffic interruptions, and traffic delays. However, timely road maintenance is important because it sustains the quality and safety of

the road in a condition close to the original design and minimizes the user costs by reducing wear to vehicles. Proper road maintenance would continue to provide indefinite benefits by ensuring visitors unimpeded access to recreational areas and ease of travel. Trail maintenance would also have indefinite beneficial impacts on visitor use and experience through the continued provision of a well-maintained trail system.

Efforts by NPS and USFS personnel to monitor and maintain natural resources on federal lands are expected to continue to have overall beneficial impacts on visitor use and experience. For example, specific areas may be temporarily closed during invasive plant management activities, forcing some visitors to take alternate trails or camp in different areas. However, the eradication of invasive plants would improve the survival of native species, allowing visitors to experience a more intact native ecosystem. Ski area expansion projects would likely have beneficial impacts on visitor use and experience by expanding opportunities for winter recreation. River and aquatic restoration projects may yield adverse impacts by temporarily inconveniencing anglers, but could lead to indefinite beneficial impacts, by improving habitat for native species. During restoration activities, such as sampling, surveying or shoreline/habitat restoration, anglers may be prohibited from fishing in certain areas. Temporary use restrictions may also be an issue for recreational visitors seeking to use canoes, kayaks, and boats.

Mountain lakes restoration would continue to improve existing ecological conditions, while providing sport-fishing opportunities in reservoirs, rivers and streams, and select mountain lakes within each of the three units of the park complex (NPS 2011a). The removal of nonnative fish could have long-term, adverse impacts on anglers who fish in those lakes slated for fish removal. Stocking trout where they did not originally exist was an accepted practice in the North Cascades under a 1988 agreement between the state of Washington and NPS (NPS 2015b). However, this practice does not comport with NPS *Management Policies 2006*, and it is prohibited in other national parks (NPS 2015b). Following an extensive environmental review, including a 12-year scientific study, the NPS decided to end fish stocking if it did not receive Congressional approval by July 1, 2009. This decision was later amended by the *North Cascades National Park Service Complex Fish Stocking Act*, signed into law on July 25, 2014. The law requires the Secretary of the Interior to stock only fish that are: (1) native to the slope of the Cascade Range on which the lake to be stocked is located; and (2) non-reproducing, as identified in management alternative B of the *North Cascades National Park Service Complex Mountain Lakes Fishery Management Plan and Environmental Impact Statement.* Anglers may be inconvenienced by implementation of the mountain lakes restoration program if they are trying to catch a specific variety of fish in a nonnative aquatic environment where fish are no longer stocked.

Pack and saddle stock outfitter guided activities would continue to cause isolated disturbances to lakeshores, stream crossings, trails, and wetland/riparian areas (USFS 2010). Visitors may experience temporary, adverse impacts from these activities as they disturb the natural conditions of wilderness areas. Visitors may also experience beneficial impacts, as guided activities such as horseback riding are unique experiences.

Heavy metals and process chemicals from mining activities within the NCE have the potential to negatively affect humans (USEPA 2000). Additionally, toxic levels of heavy-metal residues generated by mining operations are a health threat to surrounding watersheds and drainage areas where fishery resources are highly valued aspects of recreation and tourism (USEPA 2000). The long-term impact of cleaning up these sites under CERCLA would produce beneficial impacts on visitors use and experience. Because current mining activities and CERCLA mine cleanup projects often produce localized, adverse impacts (e.g., dust and noise), restricting access is used to minimize access to areas where there may be an exposure. For example, USFS (in concert with the US Environmental Protection Agency) could restrict the use of off-road vehicles in an area where the use could damage the remediation and allow contaminants to be released by erosion (e.g., air or surface water). Hikers would be forced to navigate

alternate routes if they encounter fencing or posted signs. Such adverse impacts would probably not be widespread and would not affect most visitors to the NCE.

Aviation activities over parks include general aviation, commercial passenger flights, park maintenance, and fire and emergency operations. Excessive aircraft noise may produce adverse impacts such as annoyance or interference with the uses and enjoyment of natural areas and can adversely affect wildlife. NPS Overflights and Aviation Uses Policy 8.4 mandates that private or commercial aircraft may be operated in parks only on lands or water surfaces designated by the NPS as landing sites through special regulations (NPS 2016e). The types of aircraft generating noise exposure are important, as visitors have shown greater negativity regarding helicopters than fixed-wing aircraft, propeller planes, and high-altitude jets (TRB 2013). Helicopter flights, such as for search and rescue and fire operations, would continue to produce intermittent noise impacts. Such impacts could temporarily detract from visitors experience by limiting opportunities for viewing wildlife.

Current management efforts would maintain the status quo, as NPS, FWS, USFS, and WDFW personnel continue to promote public education, outreach, and sanitation measures, as discussed previously. Continued public education and management efforts would benefit visitors by fostering awareness, promoting behavior modification, and encouraging coexistence between people and bears. The NPS, FWS, USFS, and WDFW would continue to encourage recreational visitors and hunters to report potential grizzly bear sightings as well as black bear sightings. Existing black bear interactions with wildlife and humans would likely remain unchanged. Popular recreational activities such as hiking, camping, mountaineering, winter sports, boating, and fishing would be likely to continue unchanged. Grizzly bear restoration activities would not occur in the NCE; therefore, visitor use or recreational experience would not change from current use patterns and experiences.

Environmental Consequences

Methods and Assumptions

The potential impacts of the alternatives on visitor use and recreational experience were evaluated qualitatively based on resource expert knowledge and professional judgment; review of visitor use statistics for park and national forest visitors; and information provided by the NPS, FWS, and USFS recreation, natural resources, and public information experts. To assess impacts on visitor use and recreation, the current types of visitor uses in areas where grizzly bears may be encountered were considered, and the potential effects of the implementation of the alternatives on visitor use and recreation were analyzed. Additionally, while the topic of soundscapes was dismissed from detailed analysis in chapter 1, the level and regularity of various types of noises experienced by visitors were considered, and the potential for impacts on visitor use and recreation attributable to effects on the natural soundscape were analyzed.

Analysis Area. The area of analysis for impacts of the alternatives on visitor use and experience comprises the NCE grizzly bear recovery zone where grizzly bear restoration activities and subsequent grizzly bear habitat use may overlap with visitor use.

Issues Analyzed. The analysis of impacts on visitor use and recreational experience under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* The restoration of grizzly bears to the NCE could increase visitation and recreational use of the park and national forests as visitors seek to experience grizzly bears in their native habitat.

Issue Statement. Restoration actions that result in an increased grizzly bear population could also affect recreational opportunities for visitors who do not wish to encounter grizzly bears.

Issue Statement. Depending on the location and individual visitors' attitudes and preferences, there would be varying effects on visitor use and recreation related to area closures during ongoing grizzly bear restoration activities, noise, and the visible presence of helicopters, as well as the potential for human-grizzly bear encounters as initial restoration activities give way to adaptive management activities.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts on visitor use and recreational experience; therefore, this issue would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Under alternative B, potential beneficial and adverse impacts on visitor use and recreational experience could result from the initial restoration of grizzly bears in the NCE. Because grizzly bears have a high profile worldwide, and because they are rare in the lower-48 states, visitation could increase or decrease depending on visitor interest in or aversion to them. Some visitors may perceive the opportunity to view a grizzly bear as a unique recreational experience because grizzly and other bears are deeply embedded in the myths and historical experience of American society. In Glacier National Park, a survey found that 77.8% of visitors want to see a bear, with 32.3% (of all visitors) specifying the sight of a grizzly bear as first choice (Mihalic 1974). In Yellowstone National Park, a 2016 visitor use study revealed that 83% of visitors identified "viewing wildlife" as a primary reason for visiting the park. Seventy-five percent of respondents identified seeing grizzly bears as a "very important" factor for their visit, outranking seeing several other key features of the ecosystem (e.g., wolves and the Grand Canyon of the Yellowstone) (NPS 2016d). Respondents were then presented with a list of 21 different mammals and birds and asked to select the top five that they would most like to see on their trips to Yellowstone National Park. Bears ranked the highest, with 81% of respondents listing them as one of the top five they would most like to see. Impacts would be beneficial for those visitors who feel that the presence of grizzly bears and restoration of a large native mammal that is an important part of the terrestrial food web enhances their wilderness experience. Impacts could be adverse for those visitors who do not wish to encounter grizzly bears, such as hunters processing a deer or elk carcass.

Public outreach and education regarding bears would be more comprehensive under alternative B than under current management without restoration. These measures would have beneficial impacts by teaching members of the public about grizzly bear behavior and natural history, while educating them to recognize signs that grizzly bears are in the area. Management efforts in the frontcountry would continue to be directed at minimizing attractants (e.g., food) and deterring grizzly bears from easily accessible areas developed for high human use. Outreach to residents and visitors, including hikers and hunters, would provide education about bear spray and proper storage of attractants. Visitor compliance with NPS and USFS policies designed to protect natural resources would likely enhance their unique recreational experiences by mitigating the potential for human-grizzly bear conflict. Public acceptance and perceptions may change as grizzly bears increase in number over time and begin to use habitat over a larger area of the ecosystem.

Grizzly bears would be released away from areas of high visitor use, including motorized roads, campsites, and trails (figure 13). Specifically, release areas would be largely roadless, an adequate distance from high visitor use and open motorized areas, and have low human use. It is assumed that any trail and/or area closure would be temporary, localized, and limited to a few hours to a few days, and adverse impacts are not anticipated to occur outside wilderness/backcountry areas. As discussed in the "Wilderness Character" section, these temporary closures could have adverse impacts on unconfined recreation because they could restrict the recreational activities of some wilderness users. All released grizzly bears would be monitored.

Generally, adverse noise impacts on visitor use and recreational experience from helicopter flights associated with alternative B would be limited in duration, occurring for 3 to 7 days annually. An estimated 144 flights (over 5 to 10 years) would be required to transport and release bears, thus increasing the potential for adverse impacts associated with noise disturbance to visitors. However, helicopter operations at NCE are not uncommon, and under alternative B they would be intermittent and would occur over a 5- to 10-year period, further limiting impacts on individual visitors at any given time or location. Similarly, adverse impacts on the visual landscape would be temporary, intermittent, and would vary based on an individual's position on the landscape and distance from ongoing restoration activities.

Helicopters would take the most efficient routes to and from the release site, reducing the duration spent over camping areas or along trails. When landing and taking off from staging areas and release sites, helicopters could be audible to humans above the ambient sound level for approximately 0.5 miles. At approximately 650 feet from the staging areas and release site, helicopter noise would be audible at or above approximately 60 dBA, which is the threshold for interruption of normal voice communications at 3 feet. As noted above, up to 144 helicopter flights would take place over 5 to 10 years. It is unlikely that more than 1 bear would be released in a single day, and helicopter operations would require a maximum of 8 total flying hours a day during the primary phase. See table 6 in the "Wilderness" section regarding the range of hours helicopters could be operating over wilderness. The management window for helicopter-based capture and release would be approximately 3 to 7 days each year in late summer. However, given the preference for remote locations of release areas in the NCE, the probability of many human visitors being affected by noise is low.

Staging areas in general would not be located near heavy visitor use areas; the exception to this is proposed staging area A, located near the Hozomeen Campground adjacent to the Canadian border. Similar but much more intermittent adverse impacts on opportunities for solitude and unconfined recreation would result from the use of helicopters to place culvert traps and transport wildlife management personnel during relocation or removal of grizzly bears involved in conflicts. These impacts are expected to be infrequent, localized, and limited in duration.

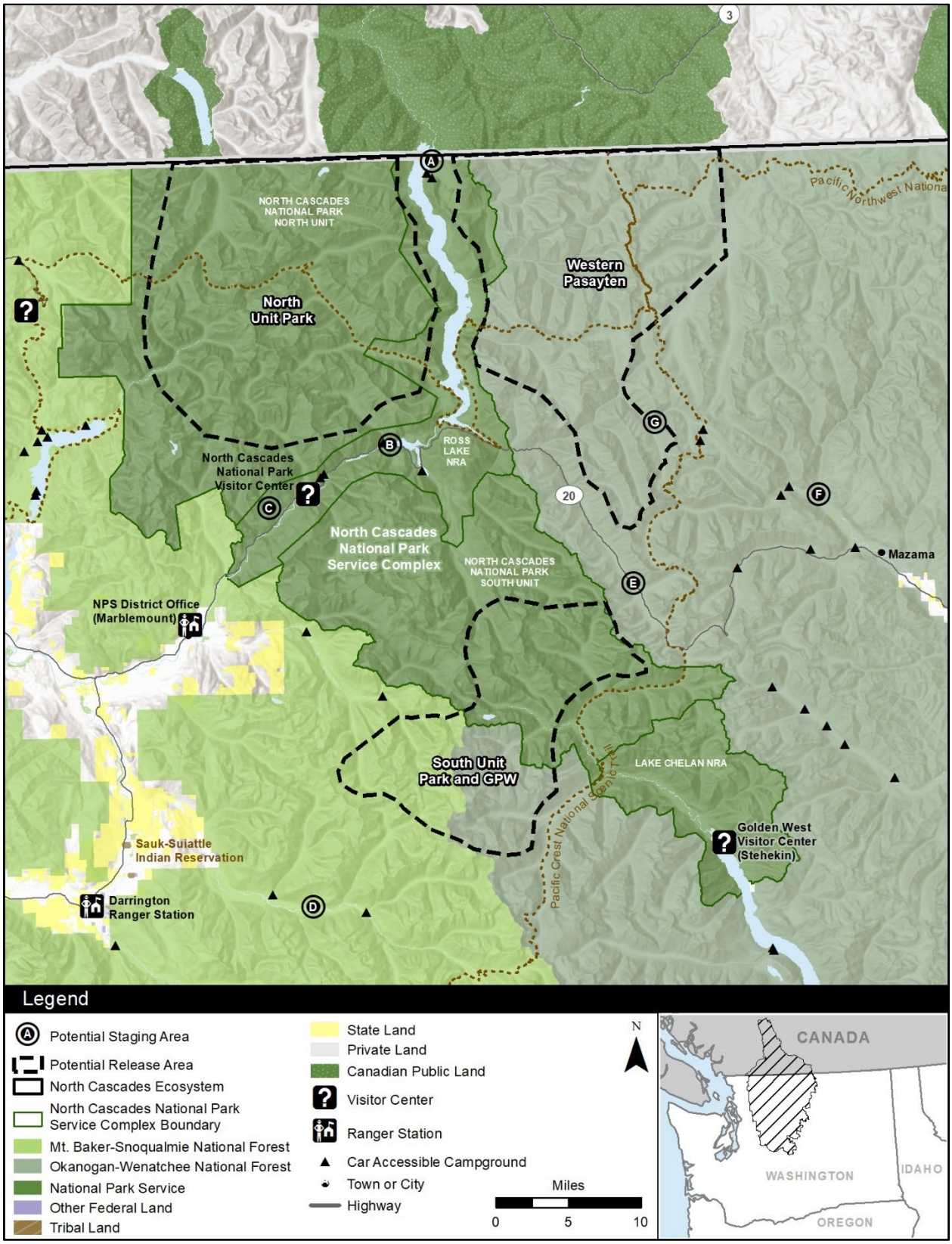


FIGURE 13. POTENTIAL RELEASE AREAS AND RECREATIONAL SITES IN THE NORTH CASCADES ECOSYSTEM

Helicopter operations are not uncommon in the NCE. As discussed under the "Wilderness" section of chapter 3, there were approximately 125 flight hours over wilderness in 2022 for non-fire-related flights and an additional 100 flight hours for wildfire-related flights. Flight operations related to active fire management operations varies based on the intensity of annual wildfires. In North Cascades National Park, helicopter crews for fire related management efforts are fully staffed 120 days every season, and helicopter flights are for fire suppression, as well as detection, observation, monitoring, infrared imaging, and mapping. As noted above, grizzly bear helicopter operations are expected to take place over 5 to 10 years, which would limit impacts on individual visitors at any given time in any given location. Some visitors may perceive the noise and frequency of helicopter operations as an impact on the tranquility and ecology of the setting. Adverse impacts on the natural visual landscape resulting from such operations would be temporary, intermittent, and would vary based on an individual's position on the landscape and distance from ongoing restoration activities. Because the release of grizzly bears would take place from June through September, visitors would not experience helicopter-related noise impacts during the winter and spring.

The potential frequency and duration of additional grizzly bear capture and release activities in the adaptive management phase is unknown and would be influenced by the population size, distribution relative to visitor use on the landscape, and other management considerations. However, the impacts would be similar to those described above. The intensity of adverse impacts would vary based on the location, frequency, and timing of restoration activities, but are generally anticipated to be localized and infrequent.

Some frontcountry areas that may be highly desirable to visitors (i.e., ranger stations, highways, roads used by visitors to access frontcountry areas, and locations proximate to bathroom facilities, picnic grounds, campsites, and boat launches) are not typically preferred habitat for use by grizzly bears because of the high visitor use and activity in these frontcountry areas; therefore, during the primary phase, adverse impacts are not expected, especially given the small number of grizzly bears to be released over a 5- to 10-year period. However, as grizzly bear populations are restored and numbers increase, the likelihood for an encounter with a grizzly bear would also increase. Initially, closure of park or forest facilities and main roads is not expected to occur nor would access to visitors be limited because of grizzly bear restoration. For example, the agencies do not anticipate the need to institute trail closures along the Pacific Crest Trail or other high-use trails. However, trail closures in ecosystems with grizzly bears for a few days at a time have occurred under certain situations (grizzly bear on a carcass near a trail; grizzly sow with cubs frequenting a trail), which could also occur in the NCE. The potential for closures to occur would increase as the population size increased over a 60- to 100-year period. Impacts on users of the Pacific Crest Trail are anticipated to be infrequent. Users of the Pacific Crest Trail are required to follow food storage regulations, and hikers are expected to be prepared to hike in remote wilderness areas, where bear encounters could occur.

Closures in other national parks from grizzly bear activity have occurred, with the longest closure at Yellowstone National Park. On average, Yellowstone National Park implemented 20 trail or area closures annually between 2013 and 2022. The duration of closures ranged from a few hours to as long as 3 months in extreme cases. Most closures range from 3 to 14 days (NPS, Gunther pers. comm. 2023i). However, unlike the NCE, Yellowstone National Park has areas of high concentrations of ungulates (e.g., elk and moose) where grizzly bears congregate during certain times of the year (i.e., calving). An ecosystem that would be more representative would be the NCDE. At Glacier National Park, there were 4 instances in 2022 where frontcountry campgrounds were restricted to hard-side camping only due to bear activity (2 for black bears and 2 for grizzly bears), 3 instances of backcountry campground closures (1 for black bears and 2 for grizzly bears), and 18 instances of trail closures due to grizzly bear activity (NPS, Waller pers. comm. 2023j). Based on comparable situations, it is reasonable to assume that any trail and

area closures would be temporary (lasting days), localized, and limited but would be likely to increase as the grizzly bear population increased over time.

In the event of a human-grizzly bear conflict, the 4(d) rule would govern actions (see discussion in chapter 2). When a conflict is reported, a conflict specialist would investigate the report, while engaging the FWS and land management agencies. Human conflicts with grizzly bears can occur in diverse locations (residential, rural, agricultural, and backcountry), so regular monitoring and updated information is essential for management to quickly and effectively address any conflicts. Analysis of habitat use would help NPS, USFS, FWS, and WDFW personnel determine what makes certain areas conducive to grizzly bear activity and how to prevent conflicts from occurring in the future. Because all bears released in the primary phase of restoration under alternative B would be fitted and tracked with GPS collars, habitat use and human-grizzly bear conflict would be monitored. Decisions for future releases during the primary phase would be made in the context of reducing the probability of human-grizzly bear conflict, as well as preferred habitat. As grizzly bears increase in number over time and begin to use habitat over a larger area of the NCE, the potential for seeing a grizzly bear would exist over a greater geographical range, which could provide benefits for those visitors hoping to experience grizzly bears in the natural environment, while dissuading some other visitors from recreating in the NCE. Given the amount of recreation that occurs in other grizzly bear ecosystems associated with Glacier National Park and Yellowstone National Park, the presence of grizzly bears is not expected to limit overall visitor use and experience of the NCE.

The potential impacts on recreation from monitoring bear movements and habitat use would be restricted to the potential for fixed-wing flights, similar to those currently occurring for other purposes; however, the use of GPS collars reduces the need for fixed-wing flights for monitoring. Therefore, bear monitoring is unlikely to adversely affect visitor use or recreational experience to the point that experiences are diminished.

Areas Outside the NCE. Although grizzly bears would be released into remote wilderness areas of the NCE, some bears would likely move outside the recovery zone into areas adjacent to the NCE. No management action (e.g., relocation, lethal take, deterrence) would be taken on bears that move outside the NCE unless a conflict is imminent; the bears are lingering in a human-occupied area or involved in a conflict; or they demonstrate an immediate threat to human safety, livestock, or property. As the population grows over 60 to 100 years, bear dispersal could increase. Wildlife managers would continue to implement the 4(d) rule to govern actions allowed to address bears involved in conflicts. Closures of trails and campsites might be necessary to avoid conflict. Any closure for safety purposes is expected to last only a few hours to a few days until the grizzly bear has left the vicinity.

Cumulative Effects. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the “Current and Expected Future Conditions of the Environment” section. Impacts would generally be beneficial in the long term with some short-term, adverse impacts related to temporary road or trail closures. Under alternative B, restoration activities would produce a combination of beneficial and adverse impacts on visitor use and experience associated with increased temporary noise during restoration activities and the restoration of grizzly bears in the NCE. Benefits would be derived from the restoration of the grizzly bear population and the opportunity provided to visitors to see grizzly bears in their natural setting. Adverse impacts would include the potential for temporary closures lasting from a few hours to a few days, requiring some visitors to adjust their stay to avoid closed areas, and noise associated with helicopter operations. Compared to current conditions, these impacts, in addition to past, present and reasonably foreseeable planned actions, would be beneficial with alternative B contributing a small, beneficial increment.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Under alternative C, impacts on visitor use and recreational experiences would be the same as those described for alternative B with the addition of 10(j) designation, which would allow for greater wildlife management flexibility in the event of human-bear conflicts and would also allow for relocation of grizzly bears to avoid these conflicts. Under alternative C, the FWS would authorize additional allowance of conditioned lethal take by an individual under specific situations in Management Area C when deemed necessary for human safety or to protect property. As a result, the potential for adverse impacts from human-bear conflicts under alternative C would be somewhat lower compared to alternative B.

Cumulative Effects. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the "Current and Expected Future Conditions of the Environment" section. Impacts would be the same as those described under alternative B. Under alternative C, the 10(j) designation would allow for greater wildlife management flexibility that would benefit visitor use and recreational experiences by minimizing human-bear conflicts. Compared to current conditions, these impacts, in addition to past, present and reasonably foreseeable planned actions, would be beneficial with alternative C contributing a small, beneficial increment.

BEAR-RELATED PUBLIC AND EMPLOYEE SAFETY

Affected Environment: Current Status and Expected Future Conditions

The affected environment is focused on safety issues related to both black bears, which exist in the NCE, and grizzly bears, which are currently considered extirpated from the NCE. Many of the current programs and efforts in bear management have been applied to black bears, although they are applicable to both species. While grizzly bears are likely not present in the NCE at this time, safety measures in place for black bears would be similar for both species. For the purposes of this section, "bear" refers to both black bears and grizzly bears, unless otherwise specified.

Public and Employee Safety in the North Cascades National Park Service Complex

North Cascades National Park provides bear safety information on its website and also posts signage and provides interpretive materials at park visitor centers (NPS 2021b). This information was initially generated with a focus on black bear management, but similar safety information and guidance would apply to grizzly bears. To date, no incidents of visitor or employee injury because of encounters with bears have been reported in the park (NPS, Braaten pers. comm. 2023h).

Education is an important part of managing bears and humans within the same environment. The park provides a list of safety precautions to reduce the risk of conflicts with bears. These include instructions on safe hiking protocol; proper camp sanitation, cooking, and food storage procedures; proper procedures for camping with pack animals; proper procedures for boat camping; and proper responses to bear encounters. The safety precautions promoted by the park also help to achieve a fundamental goal of the NPS: to keep the wildlife in the protected areas of the NCE wild and neither attracted to nor dependent on people (NPS 2021b).

To reduce the safety risk to humans by bears and other wildlife, the NPS requires proper storage of food and other attractants (Title 36 CFR chapter 1, section 2.10(d) and section 2.2(a)(2)) anywhere within park complex boundaries. Visitors obtaining permits for backcountry camping receive information about food storage, safety, and wildlife concerns, including bears, as a part of the permitting process. Because bears are opportunistic, omnivorous eaters who take advantage of easily available food sources, proper food

storage reduces the chances that a bear would be drawn to areas occupied by humans and reduces the potential for a human-bear conflict. Bear-resistant food storage canisters are available for loan at the Wilderness Information Center in Marblemount; visitor contact stations in Sedro-Woolley and Glacier; and the Golden West Visitor Center (NPS, Braaten pers. comm. 2023h). Many of the developed campgrounds are equipped with bear-resistant trash receptacles, and NPS is continually replacing all standard trash receptacles with bear-resistant units. Most of the solid waste infrastructure in the frontcountry campgrounds is bear-resistant (NPS, Braaten pers. comm. 2023h). Developed campgrounds, including all boat-in campgrounds, are also equipped with food storage lockers (NPS 2021b). In addition, some of the backcountry campgrounds are equipped with poles or wires, provided for hanging food out of the reach of bears (NPS 2021b). Not all backcountry campgrounds are equipped with bear-resistant infrastructure; however, when campsites are moved or upgraded they are designed to have separate cooking and food storage areas roughly 100 feet from tent pads (NPS, Braaten pers. comm. 2023h).

The park encourages reporting of bear encounters and implements a number of procedures to respond to bears, particularly bears that have become habituated to humans or conditioned to human foods. Typically, the response to a confirmed safety issue between a visitor and a bear could involve the following (NPS, Braaten pers. comm. 2016b):

- Finding and removing or securing a bear attractant (always done).
- Increased public outreach efforts in areas where human-grizzly bear conflict has been reported, by means of signage and increased visitor interaction with interpretive, wilderness, and law enforcement staff (always done).
- Campground closures; temporary (2–4 weeks) closures have been used previously in some backcountry areas (rarely necessary) as authorized by the Superintendent's Compendium (Title 36, CFR, Chapter 1, Parts 1–7).
- Use of aversive conditioning and/or on-site release if the bear returns (infrequently done; it is not typical for a bear to return once an attractant has been removed). The NPS has obtained assistance from the WDFW's Karelian bear dog program to provide aversive conditioning to black bears frequenting frontcountry areas (NPS, Braaten pers. comm. 2016b).
- Relocation of bears involved in a conflict. Relocation is very rarely used and occurs only when no other options are available. Relocations are less effective and lead to higher mortality rates than remediating the source of the problem and employing on-site releases (Clark, van Manen, and Pelton 2002, 2003; Landriault et al. 2009).

Public and Employee Safety on National Forest System Lands

The WDFW has primary responsibility for black bear management and bear conflict response on national forest system land, and the FWS has primary management authority for grizzly bear management. The WDFW implements a number of ongoing efforts to educate the public about bear safety, including providing bear safety information and materials on the agency website and community engagement by district biologists and assistant biologists. The WDFW also maintains online system for collecting dangerous wildlife incident reports and makes enhanced efforts to promote bear safety when notified about specific incidents, such as bears near schools or neighborhoods (WDFW, Gardner pers. comm. 2016b).

The WDFW works with property owners and renters, homeowner and neighborhood associations, schools, and others living and working in bear country to educate them about black bears and black bear biology and to remove attractants to prevent bears from foraging for food on these properties. As communities continue to expand into bear habitat and the wild-urban interface increases, some bears and

other wildlife are expected to use developed sites. Black bears that are not foraging for human foods or exhibiting dangerous behaviors but are in proximity to houses, schools, parks, and/or other public areas can be successfully and preemptively encouraged to avoid human activity by use of on-site releases, less-lethal ammunition and specially trained Karelian bear dogs. Black bears involved in conflict may receive aversive conditioning via the same methods. On-site releases of black bears involved in conflict are highly effective when attractants have been secured, and this method is used when and where possible. The removal of attractants is critical to the success rate for keeping black bears out of conflicts.

Relocation is used when a black bear is captured in areas where there is no clear route from the point of capture for the bear to move to appropriate bear habitat or wilderness areas. The WDFW Wildlife Program has designated release areas for relocation of black bears. Karelian bear dogs are used at the point of release when black bears are captured and relocated to condition the bear and for WDFW employee safety (WDFW, Gardner pers. comm. 2016b).

The USFS also provides safety information on various subjects, including bear safety, at the forest headquarters and district ranger stations. Mount Baker-Snoqualmie and Colville National Forests have implemented food storage orders, and the Okanogan-Wenatchee National Forest is planning to develop a food storage order in 2024. The NPS and USFS are continuing to install bear-resistant garbage containers and food storage lockers at campgrounds and other developed locations. Signs placed at developed campgrounds and most trailheads provide information about bears, keeping a clean camp, and how to behave in the event of a bear encounter. All employees, contractors, permittees, outfitters, and guides are required to store food, garbage, and other attractants using proper bear-resistant techniques. Employees are responsible for providing information to the public on proper storage techniques for food and garbage. Information on public safety tips and warnings is provided on the forest websites and at times is covered during weekly radio interviews. If a black bear is frequenting a campground, trailhead, or other national forest system facility where it is frequently being encountered by humans at close range, the USFS notifies and works cooperatively with the WDFW to resolve the conflict. In some instances, temporary closures of campgrounds have been enforced until a bear involved in conflict is captured by the WDFW or moves on (USFS, Rohrer pers. comm. 2016c).

Trends and Planned Actions

Under current management, there would likely be no new public safety risk associated with human-grizzly bear encounters because the grizzly bear population has been functionally extirpated. The influence of landscape change due to increased climate variability could affect the incidence of human-bear conflicts as habitat changes and bears move to use different resources (Lyons et al. 2017). Predicted increasing minimum temperatures, vegetation shifts, decreasing snowpack, decreasing summer precipitation, and increasing spring precipitation are likely processes that will influence grizzly bear habitat by making some food sources more abundant and others less abundant. Changes in habitat availability could lead to increased human-bear conflict and potential disturbance, habitat loss, and changes in denning locations and timing (later den entrance and earlier den exit), which may expose humans to the potential for human-bear encounters for longer periods each year. Tools to reduce potential conflicts, including signage, educational materials, sanitation efforts, regulations on food storage, and visitor outreach would continue to be employed to further reduce the potential for adverse impacts from human-bear conflicts.

Adverse impacts related to injuries to employees who are conducting grizzly bear habitat management or monitoring activities in the backcountry are possible and could involve foot travel over difficult terrain and in very rare circumstances, transportation by helicopter. The potential for employee accidents and injuries would continue to be mitigated, but not completely eliminated, through proper staff training and adherence to safety protocols, including the *North Cascades National Park Service Complex Backcountry*

Travel Procedures (NPS 2016f). Because grizzly bears are likely not present in the NCE, efforts spent on monitoring have already diminished and would continue to diminish over time, reducing the potential for adverse impacts.

Planned actions with the potential to affect bear-related public and employee safety include forest plan updates and the implementation of food storage orders, which provide a long-term benefit on bear-related public and employee safety from the safe storage of attractants. Forest plan updates for the national forests would have beneficial impacts on safety because they would clarify existing policies and provide specific direction on bear- and human-avoidance techniques.

Environmental Consequences

Methods and Assumptions

The analysis of impacts on public and employee safety considers risks to the NPS, FWS, USFS, and WDFW staff, residents in and around the NCE, visitors, and the general public associated with human-grizzly bear encounters, as well as the potential employee safety risks associated with grizzly bear restoration activities proposed under each alternative. Impacts for this resource topic were analyzed qualitatively using information provided by the NPS, FWS, and USFS staff familiar with current grizzly bear management within the NCE; IGBC and WDFW guidance on the management of bears involved in conflicts; and the nature of the different types of restoration activities proposed under each alternative. The analysis also considered the types and level of visitor use taking place in areas where human-grizzly bear encounters could take place as well as impacts on residents.

Analysis Area. The area of analysis for impacts of the alternatives on public and employee safety includes the source population areas and lands within the NCE grizzly bear recovery zone, including residential areas. In addition, the analysis also assesses potential impacts that could occur if grizzly bears move outside the NCE, including in all three management areas under alternative C.

Issues Analyzed. The analysis of impacts on public and employee safety under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* The restoration of grizzly bears in the NCE has raised concerns about safety risks to backcountry recreationists, residents, and other visitors as a result of grizzly bear conflicts.
>
> *Issue Statement.* The capture, release, and monitoring of grizzly bears could affect employee safety given the dangerous nature of the activity.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts to human health and safety related to bear safety; therefore, this issue would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Employee Safety Impacts Related to the Primary Phase. Under alternative B, grizzly bear restoration activities would have the potential for adverse impacts on the safety of agency employees and contractors

because of the activities involved in capture, transport, and release of grizzly bears during the primary phase.

Agency staff, including Canadian counterparts, would seek to locate areas with high grizzly bear densities in the NCDE, portions of the GYE, and interior part of British Columbia, Canada, to maximize their potential for capturing bears that fit the demographic criteria. These activities would result in risks to staff safety. However, through implementation of required safety measures, such as only using staff that meet the minimum standards of training and qualifications for handling wildlife as well as US Department of Interior aviation protocols, the likelihood of safety risks would be minimal, although they would not be eliminated, as described below. If staff were subject to a grizzly bear attack as a result of their efforts, the injury or death of the employee would be catastrophic for the individual employee and their families and friends.

During capture activities, grizzly bears would be immobilized, minimizing impacts from the bears on employee safety. During transport, the effects of any drugs would be allowed to wear off to allow grizzly bears the opportunity to recover from anesthesia before they are released. During capture, transport, and release, both bear and human safety is protected (e.g., the timing of the anesthesia is managed to protect both employee safety and the health of a released bear). Based on the immobilization of grizzly bears and adherence to applicable safety protocols and precautions, impacts on employee and contractor safety during capture and release would be minimized.

Helicopter flight operations associated with capture and transport of grizzly bears and takeoff and landing operations, which could take place in potentially difficult backcountry terrain, would pose a risk to the safety of employees and contractors involved in these operations. Pilots and personnel who participate in helicopter capture and release operations would be properly licensed and trained and use all required safety equipment and US Department of Interior aviation protocols, which require intensive helicopter training. Release sites would be reviewed for safety concerns prior to use. Flights would take place only during favorable weather to avoid potentially dangerous flight conditions. Helicopter operations in the NCE are common. If an accident involving the operation of a helicopter leads to human injury or loss of life, impacts would be catastrophic for the individual employee or employees involved; however, with the extensive safety precautions that would be in place, the potential for adverse impacts on employee safety from helicopter operations during the primary phase would be minimized.

Release of grizzly bears from culvert traps would involve using a door release system that allows personnel to be located a safe distance away to minimize potential adverse safety impacts on employees (NPS, Ransom pers. comm. 2016g). In the event of an encounter between an employee and a grizzly bear during capture or release that leads to human injury or loss of life, impacts would be catastrophic for the individual employee or employees involved. However, with the extensive safety precautions that would be in place, including not releasing a bear until all personnel were in a secure position, the potential for adverse impacts on employee safety from handling of grizzly bears during capture and release during the primary years of restoration would be minimized.

Employee Safety Impacts Related to the Adaptive Management Phase. In the adaptive management phase, agency employee actions under alternative B would largely consist of monitoring grizzly bears through satellite tracking, which is not anticipated to result in any adverse impacts on employee safety. The occasional use of fixed-wing aircraft for aerial monitoring could result in the potential for adverse impacts on employee safety. However, when flights for aerial monitoring occur, all personnel and activities would follow safety standards set forth by the US Department of the Interior's Office of Aviation Services and other applicable safety protocols, and all pilots and operators would be properly trained, minimizing potential impacts. Adaptive management activities could involve the periodic release of additional grizzly bears into the NCE to replace grizzly bears that have been lost due to mortality,

emigration, or removal from the NCE by other means (e.g., zoo placement for orphaned cubs); to reduce genetic limitations; or to improve the population distribution and sex ratio. Additional grizzly bears may also be released as necessary to influence genetic and demographic diversity. These additional release activities would be undertaken in the same way as primary capture and release activities; therefore, they would have the same potential impacts related to the operation of helicopters and the capture, handling, transport, and release of grizzly bears as described above. Similar to the primary phase of restoration, impacts on employee safety during the adaptive management phase could be adverse, but the opportunities for such impacts to occur would be limited and infrequent because of the intermittent nature of additional release activities. Adverse impacts could be substantial if a helicopter-related incident or a grizzly bear conflict results in human injury or loss of life; however, with the extensive safety precautions that would be in place, the potential for adverse impacts on employee safety from additional releases of grizzly bears during the adaptive management phase would be minimized.

Impacts on employee safety under alternative B could also result from hazing, relocation, or removal of grizzly bears involved in conflict. These activities would involve many of the same components as capture and release activities, including using helicopters to transport agency employees, placing traps, and relocating grizzly bears, and would therefore have the same potential adverse impacts on employee safety that the release of grizzly bears would have. The potential for these adverse impacts on employee safety to occur would be limited and infrequent because the need for these types of human-grizzly bear conflict management activities is expected to be minimal during the primary phase due to extensive habitat and limited competition; however, the potential for adverse impacts could increase as the population grows and grizzly bear relocation may occur more frequently. Adverse impacts could be substantial if a helicopter-related incident or a grizzly bear conflict results in injury or loss of life; however, with the extensive safety precautions that would be in place, the potential for adverse impacts on employee safety would be minimized.

Public Safety Impacts Associated with the Primary Phase. Public safety impacts were analyzed as they related to staging areas, grizzly bear release activities, and from the restoration of grizzly bears to the NCE. Under alternative B, the staging areas used for grizzly bear restoration activities would be closed temporarily to the public; therefore, impacts on public safety, including the safety of visitors and residents, would be avoided.

In the primary phase, the potential for public safety impacts related to active grizzly bear release operations would be minimized because the identified release sites would be in locations that are remote from high human-use areas. The greatest potential for adverse impacts on public safety related to the presence of grizzly bears in the ecosystem and the associated risk of human-grizzly bear encounters during the primary phase would be highly localized because of the limited number of grizzly bears and the remote release sites within designated wilderness in the northern portion of the NCE. General grizzly bear awareness, education, sanitation measures, and backcountry/wilderness use permitting requirements, in addition to other bear safety measures already in place on federal lands in the NCE as described in chapter 2, are expected to mitigate public safety risks. Grizzly bears released into the NCE would be monitored for habitat use, reproduction, mortality, and incidence of conflict. Increased outreach efforts, including grizzly bear-specific education and updates to the public on general locations of collared bears and project progress are expected to provide further mitigation by increasing public awareness and allowing people the option of avoiding an area where a grizzly bear may be present.

Under alternative B, there could be some adverse impacts on residents who reside in or close to the NCE during both the primary and adaptive management phases; however, the exact location and potential future movement patterns of grizzly bears released into the NCE are difficult to predict. Therefore, impacts on specific communities cannot be determined. However, Concrete, Darrington, Marblemount, Stehekin, and Mazama are located closer to the potential release sites than other communities. Therefore,

if any impact were to occur, it would be more probable that impacts would first occur in these communities. Communities located farther from the release sites would be less likely to be affected, especially those communities located outside the NCE. However, the likelihood that any safety conflict would occur as a result of human-grizzly bear encounters would be very low in the primary phase because only 25 grizzly bears would be released into the NCE over a 5- to 10-year period. The potential for safety conflicts would increase as the grizzly bear population increases. The potential for safety conflicts with grizzly bears based on experiences in other areas in the lower-48 states is discussed below.

In Yellowstone National Park, between 1991 and 2020, 6,734 grizzly bear encounters were reported in both the front and backcountry, and 92% of incidents resulted in the bear fleeing or exhibiting neutral behavior. Of the 6,734 events, 23 (or less than 1%) resulted in an attack, and all occurred in the backcountry (USGS et al. 2021). During this period, Yellowstone National Park averaged approximately 41,700 backcountry overnight stays annually (NPS 2024). Additionally, one of the key requirements of grizzly bears captured for restoration purposes is that the grizzly bears have no history of conflict with humans and no history of positive attraction to humans, human-use areas, or human-related foods (Kasworm et al. 2011; MacHutchon and Austin 2004). These selection criteria should further reduce any expected interaction between grizzly bears and local communities. Overall, the potential for adverse impacts on communities would be very small in the primary phase because of the small number of bears released into the NCE and the continued use of preventive grizzly bears-human conflict measures described above.

Current management actions, such as providing food lockers and bear-resistant garbage containers and visitor education on backcountry food preparation and storage, contribute to maintaining the safety of both grizzly bear and human populations. These proactive measures would continue under alternative B and are intended to prevent conflicts between human populations and grizzly bears. Ongoing community education regarding the removal or management of attractants, similar to that currently provided by the WDFW and a small number of nongovernmental organizations would also be essential. Another proactive measure includes the establishment of electric fencing around community or home gardens, which are effective in preventing damage to these facilities (Gunther et al. 2004).

Public Safety Impacts Associated with the Adaptive Management Phase. Under alternative B, the population of grizzly bears and the probability of human-grizzly bear encounters are anticipated to remain low for several decades following primary restoration activities because of the low density of the population of grizzly bears released in the area and the relatively few members of the public present in the area. As an example, in the CYE and Selkirk Ecosystem, where there are low-density recovering populations of grizzly bears (55–60 and 90–100, respectively), 2 human injuries caused by a grizzly bear have been recorded in the last 38 years (FWS, Kasworm pers. comm. 2023b; IGBC 2018). Given these statistics, it is reasonable to assume that the grizzly bear population projected in the larger NCE under alternative B would present a comparable potential risk to public safety as the population grows. Grizzly bear awareness and safety education, sanitation measures, backcountry/wilderness use permitting requirements, and other grizzly bear safety measures described in chapter 2 and under the “Affected Environment” section are expected to mitigate safety risks under alternative B. Grizzly bears released into the NCE would be monitored for habitat use, mortality, and incidences of human conflict. Increased outreach efforts are expected to provide further mitigation by increasing visitor and resident awareness and allowing visitors and residents the option of avoiding an area where a grizzly bear may be present. In addition, all applicable NPS and USFS policies and state laws (see appendix B) regarding proper food storage would be adhered to as noted in the no action alternative. In the event of a human-grizzly bear conflict, the 4(d) rule would be implemented to quickly resolve the source of conflict. Management of all grizzly bear conflict situations would first emphasize removal of the human cause of the conflict (such as a food source) when possible, and management and education actions would be implemented to prevent future conflicts. Temporary area closures required to manage the human-grizzly bear conflict may be

implemented lasting from a few hours to a few days. Aversive conditioning measures would be implemented to deter grizzly bears that may become habituated to human presence and/or food conditioned. Grizzly bears may be preemptively relocated if they are in areas where they are likely to come into conflict with humans and human-related attractants that cannot be secured at a quick enough pace to prevent grizzly bears from becoming food conditioned. Grizzly bears displaying unacceptable aggression or a conflict resulting in a serious human injury or fatality would be removed from the population upon first incidence of such a conflict.

In the event of an encounter between a member of the public and a grizzly bear resulting in human injury or fatality, adverse impacts on public safety would be substantial, and the impacts to the individual and their friends and family would be catastrophic. However, given the population size (ranging from 25 to 200) that would be present on the landscape, the availability of grizzly bear habitat, and the proactive measures and human-grizzly bear conflict response actions discussed above, the probability of such impacts occurring is considered minimal. The probability that a member of the public would encounter a grizzly bear would remain low, with the probability of conflict or human injury being further reduced. As a point of comparison, since 1979, more than 118 million people visited Yellowstone National Park, which is the core of the GYE grizzly bear recovery zone and makes up approximately 37% of its land area. During the same period, 44 people were injured by grizzly bears in the park, which contained a portion of the overall GYE population of 1,069 bears in 2021 (NPS 2022g). The vast majority of injuries were attributable to defensive aggression by grizzly bears during surprise encounters with hikers. For all visitors to Yellowstone National Park combined, the chances of being injured by a grizzly bear are approximately 1 in 2.7 million (table 8) (NPS 2022g). The risk is significantly lower for people who do not leave developed areas or roadsides, and higher for anyone hiking in the backcountry. Since it was established in 1872, seven people have been killed by grizzly bears in Yellowstone National Park, and one additional person was killed by a bear whose taxonomy was not specified (i.e., the animal was not specifically identified as a grizzly bear). As noted above, since 1991, backcountry overnight stays at Yellowstone National Park have averaged approximately 41,700 annually (NPS 2024). During that same time frame at Yellowstone National Park, 125 people have died from drowning, and 23 from thermal burns from falling into thermal pools, highlighting the rarity of deaths from grizzly bear attacks at Yellowstone National Park (NPS 2022g). Mace and Waller (1996) conclude that the low number of human-grizzly bear conflicts in the Jewel Basin Hiking Area in the Swan Mountains of Montana is attributable to low visitor use levels, trail placement, an educated public, and negative conditioning of bears toward a variety of human activities. Other research indicates that the majority of conflicts occur in small areas, where concentrations of attractants exist that overlap with bear habitat (Wilson et al. 2005). Management of attractants, as described above, would further reduce the potential safety risk.

TABLE 8. TYPE OF RECREATION ACTIVITY AND RISK OF GRIZZLY BEAR ATTACK IN YELLOWSTONE NATIONAL PARK

Type of Recreational Activity	Risk of Grizzly Bear Attack
Remain in developments, roadsides, and boardwalks	1 in 59.5 million visits
Camp in roadside campground:	1 in 26.6 million overnight stays
Multi-day backcountry trips:	1 in 232 thousand overnight stays
All park activities combined	1 in 2.7 million visits

Source: NPS 2022g

For relative comparison purposes, Yellowstone National Park receives approximately 4 million visitors annually, while the North Cascades National Park Service Complex receives less than 1 million visitors annually, the majority of whom remain within the State Highway 20 corridor. While the NCE is located near a larger urban population than the GYE, Yellowstone National Park serves as a major tourist

destination that attracts a higher level of visitation compared to the park complex. Over the last decade, backcountry overnight stays at North Cascades National Park and Ross Lake National Recreation Area have averaged 45,500 annually, which likely double counts some stays, as noted in the "Visitor Use and Recreation Experience" section, above (NPS 2024). Given the level of backcountry visitation and the lower population density of grizzly bears, potential injuries and fatalities within the NCE are expected to be comparable to or lower than those presented for Yellowstone National Park during both the primary and adaptive management phases, all resulting in a decreased potential for grizzly bear and visitor conflicts.

In frontcountry areas or portions of the NCE that are distant from release areas (such as the southernmost portion of the NCE located between US Highway 2 and Interstate 90), the probability of adverse impacts on public safety related to the restoration of grizzly bears in the NCE under alternative B is expected to be near zero. As grizzly bears increase in number over time and begin to use habitat over a larger area of the ecosystem, the potential for humans to encounter grizzly bears would exist over a greater geographical range. It should be noted that only a very small fraction of human-grizzly bear encounters are negative; most involve the avoidance of people by the bear(s).

Under alternative B, the presence of an increased number of grizzly bears in the NCE could result in adverse impacts on public safety related to human-grizzly bear conflicts in the adaptive management phase and beyond. In addition, as grizzly bears increase in number over time and begin to use habitat over a larger area of the ecosystem, the potential for humans to encounter grizzly bears would exist over a greater geographical range. The probability that not only a visitor or resident would encounter a grizzly bear, but that there could be a human injury, is nonetheless expected to remain low, as illustrated by the examples provided under the analysis above.

In the adaptive management phase, coordinated interagency efforts to promote grizzly bear awareness through education and outreach would be intensified, sanitation measures would continue to be implemented, and backcountry/wilderness use permitting requirements would continue to enforce safety precautions. The grizzly bear 4(d) rule would continue to govern the implementation of human-grizzly bear conflict avoidance/mitigation measures and the management, relocation, or removal of grizzly bears involved in conflicts, as described above.

Areas Outside the NCE. Although grizzly bears would be released into remote wilderness areas of the NCE, they could move outside the area into other parts of Washington adjacent to the NCE. No management action (e.g., relocation, lethal take, deterrence) would be taken on bears that move outside the NCE unless a conflict is imminent; the bears are lingering in a human occupied area or involved in a conflict, or they demonstrate an immediate threat to human safety, livestock, or property. As the population grows, bear movement could increase. In the event grizzly bears become conditioned to humans and are a threat to human safety, they would be removed. Recapturing activities would increase the risks to employee safety. Grizzly bears could be taken in cases of self-defense or defense of others, in human-bear conflict situations, and for scientific research activities not resulting in the death or permanent injury of the animal. If bears were not posing an immediate threat to human safety, they would be deterred using nonlethal techniques or captured and released on sight, or released into a remote area agreed upon by the management agencies.

Cumulative Impacts. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the "Current and Expected Future Conditions of the Environment" section. Impacts would be generally adverse in the short term with long-term, beneficial impacts from improved food storage. Alternative B would contribute adverse impacts on public and employee safety in terms of potential conflicts with grizzly bears and risks associated with implementing restoration actions during the primary and adaptive management phase and into the future; however, the probability of adverse

impacts occurring would be low, as detailed above. Compared to current conditions, these impacts, in addition to past, present, and reasonably foreseeable planned actions, would be adverse, with alternative B contributing minimal effects.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Under alternative C, impacts on public safety related to the capture, transport, and releases of grizzly bears during the primary phase would be the same as those described for alternative B. Under alternative C, however, additional management measures would be available to authorized agencies to use lethal and nonlethal measures to reduce impacts from grizzly bears that move outside NCE or to mitigate human-grizzly bear conflicts, including those associated with public safety. Under a 10(j) designation, authorized agencies could implement all actions available under alternative B, but they could also authorize deterrence, preemptively relocate any grizzly bear to prevent a conflict that appears imminent or in an attempt to break habituated behavior of bears lingering near human-occupied areas, relocate grizzly bears under specific conditions, and authorize additional conditioned lethal take in Management Area C to protect public safety, livestock, or property. Authorizations for lethal take would only be issued after other nonlethal deterrence, attempts at capture and relocation, or agency removal have failed. Also, individuals could lethally take grizzly bears in Management Area C if the bear is in the act of attacking livestock (including working dogs) on private lands. Like alternative B, members of the public would retain the ability to take a grizzly in defense of life. These management actions could further reduce the potential for human-bear conflicts under alternative C and would contribute a reduced potential for adverse impacts on visitor and employee safety when compared to alternative B.

Cumulative Impacts. Overall, the impacts of past, present, and reasonably foreseeable planned actions are described above in the "Current and Expected Future Conditions of the Environment" section. Impacts would be the same as those described under alternative B. Alternative C would contribute adverse impacts on public and employee safety in terms of potential conflicts with grizzly bears and risks associated with implementing restoration actions during the primary and adaptive management phase and into the future; however, alternative C would also provide additional management flexibility to reduce the potential for conflict, including deterrence, preemptive relocation of grizzly bears, and conditioned lethal take, if necessary. Compared to current conditions, these impacts, in addition to past, present, and reasonably foreseeable planned actions, would be adverse, with alternative B contributing minimal effects.

SOCIOECONOMICS

Affected Environment: Current Status and Expected Future Conditions

It is possible that grizzly bear restoration in the NCE could result in socioeconomic impacts within the NCE and the surrounding region. The regional economic context for these potential impacts is described below. The region of influence (ROI) for this socioeconomic analysis includes the seven counties that fall within the boundaries of the NCE because any impacts associated with grizzly bear restoration within the NCE are most likely to be perceptible in these counties. In addition, these seven counties represent the area within which the predominant primary and secondary economic impacts of the project are likely to occur. Furthermore, the NPS defines gateway regions that are affected by parks as communities located within 20 miles of a park, which this seven-county ROI encompasses. The seven-county ROI includes Chelan, King, Kittitas, Okanogan, Skagit, Snohomish, and Whatcom Counties. While these counties contain several larger cities, including Bellingham, Everett, Seattle, and Wenatchee, the NCE is located in a predominantly rural area away from large urban areas. The area that covers the NCE makes up approximately 52% of the total land area of the ROI. In addition, information on the state of Washington is presented below to provide overall context associated with areas within and adjacent to the NCE where

bears may move. Impacts for areas outside the ROI, including Management Area C, are included in the analysis, but the potential for adverse impacts is anticipated to decrease farther from the NCE. Similar to other impact topics, activities within the Colville National Forest that are within the NCE and were previously administered by Okanogan-Wenatchee National Forest are included as part of the Okanogan-Wenatchee National Forest discussion.

Human Activity in the Region of Influence and Influence on Bears

Population. Table 9 provides the total population count for the state of Washington and for each of the counties within the ROI. Between 2000 and 2021, the population of the ROI grew by 31.5% from approximately 2.75 million to 3.6 million people, making up a little less than half the state's total population (US Census Bureau 2021). King County was the most populated county in the ROI between 2000 and 2021, representing 62.7% of the total population of the ROI on average, annually, between 2017 and 2021.

The majority of the population base of the ROI lives closer to Puget Sound and urban areas such as Bellingham, Mount Vernon, Everett, and Seattle. The NCE and the areas immediately surrounding it are sparsely populated, as indicated by figure 14, which shows the population density of the NCE and the surrounding area.

TABLE 9. TOTAL POPULATION

Geographic Area	2000	2013[a]	2021[b]	% Change 2000–2021
Washington	5,894,121	6,819,579	7,705,281	30.7%
ROI	2,752,393	3,175,527	3,619,517	31.5%
Chelan	66,616	73,047	79,074	18.7%
King	1,737,034	1,974,567	2,269,675	30.7%
Kittitas	33,362	41,291	44,337	32.9%
Okanogan	39,564	41,143	42,104	6.4%
Skagit	102,979	117,641	129,523	25.8%
Snohomish	606,024	724,627	827,957	36.6%
Whatcom	166,814	203,211	226,847	36.0%

Source: US Census (2013, 2021)

[a] These numbers represent average, annual statistics from 2009 through 2013.
[b] These numbers represent average, annual statistics from 2017 through 2021.

Gateway Communities. Gateway communities are those cities and towns that are geographically close to the NCE and derive some measurable economic benefit from tourism and related activities within the NCE. For the purposes of this document, these communities are generally located within approximately 20 miles of the NCE (figure 15). Table 10 provides a list of gateway communities within the ROI, and respective population counts.

Gateway communities differ from other communities within the state of Washington largely because of their relationship with the park complex and national forests. Some of these communities have a history of tourism, while others are a stop for travelers enroute to destinations within the NCE. Historically, a number of these communities relied on agriculture, timber, and mining, but have shifted their focus to tourism and related activities against the backdrop of the current economic landscape. That is, these historic industries are less lucrative and/or less available given changes in resource demand, technology,

and growing dependency on non-local resources (Washington State Employment Security Department 2022).

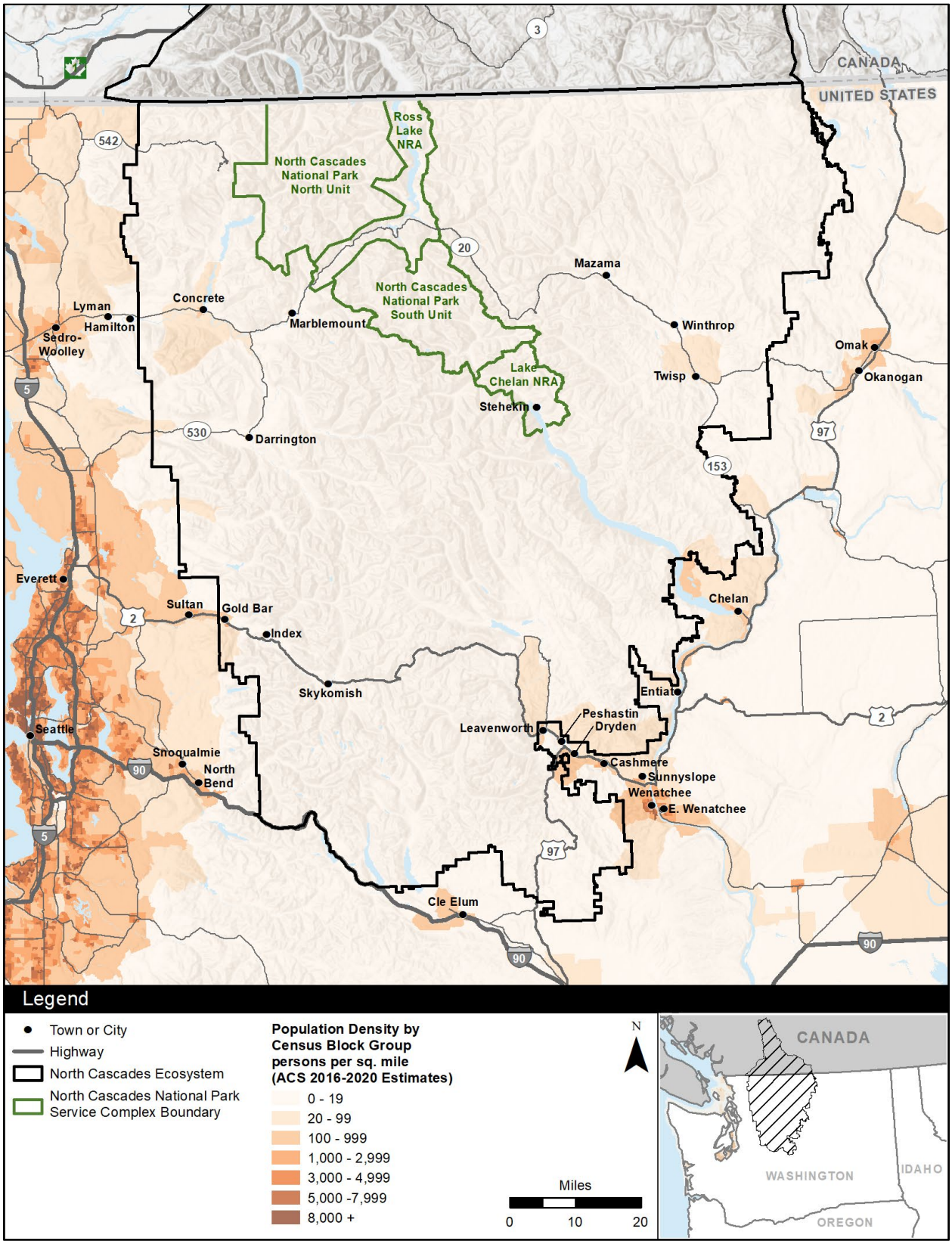


FIGURE 14. POPULATION DENSITY IN THE NORTH CASCADES ECOSYSTEM

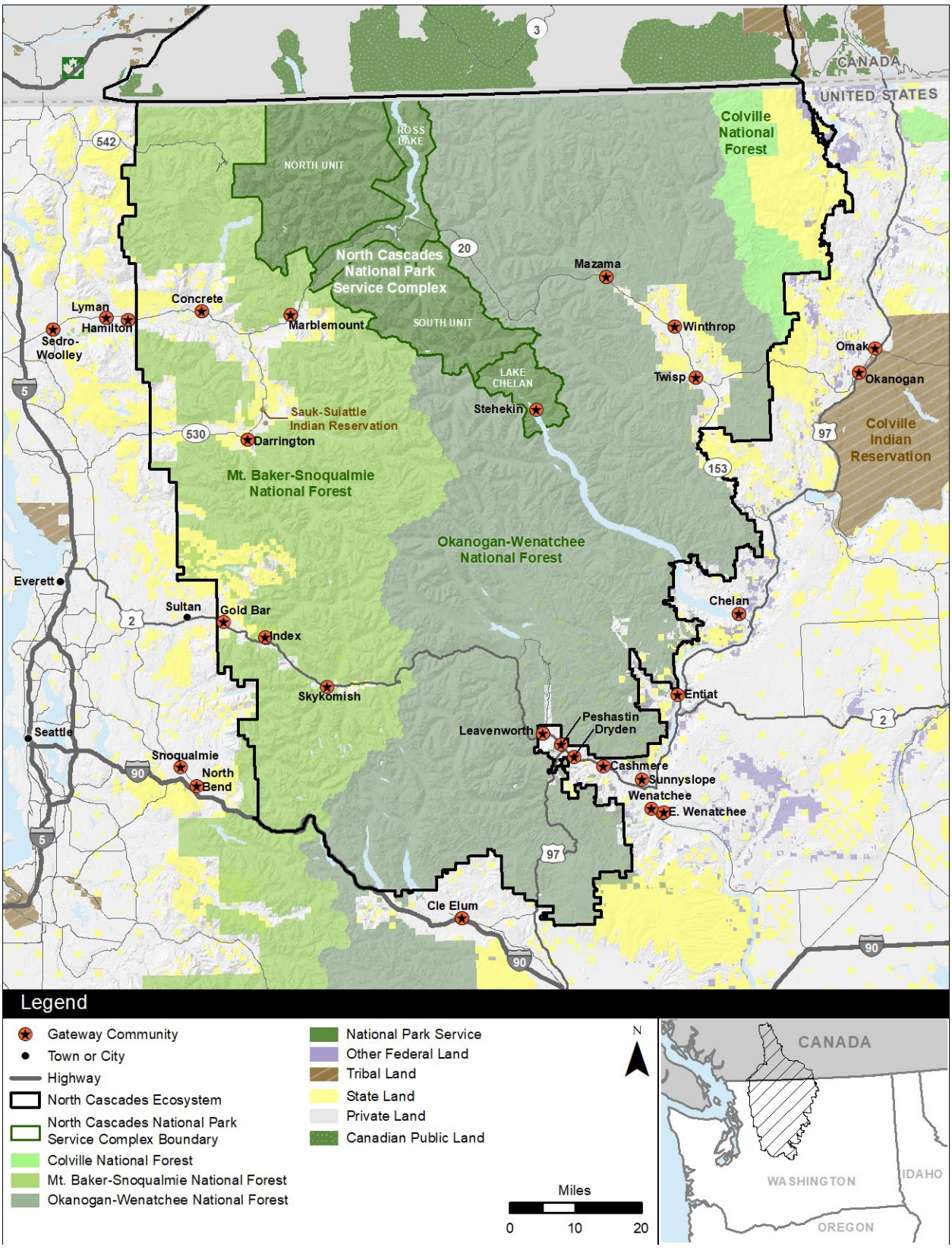


FIGURE 15. GATEWAY COMMUNITIES IN THE NORTH CASCADES ECOSYSTEM

TABLE 10. POPULATION OF GATEWAY COMMUNITIES IN OR ADJACENT TO THE NORTH CASCADES ECOSYSTEM

Name	Population (2017–2021)
Cashmere	3,215
Chelan	4,327
Cle Elum	2,147
Concrete	908
Darrington	1,116
Dryden	N/A*
East Wenatchee	14,113
Entiat	914
Gold Bar	2,172
Hamilton	326
Index	156
Leavenworth	2,395
Lyman	348
Marblemount	167
Mazama	N/A*
North Bend	7,393
Okanogan	2,990
Omak	4,869
Peshastin	N/A*
Sedro-Woolley	12,266
Skykomish	104
Snoqualmie	13,718
Stehekin	85*
Sunnyslope	3,505
Twisp	1,211
Wenatchee	35,086
Winthrop	351

Source: US Census Bureau (2021)

*Note: The census does not provide population data for the towns of Dryden, Mazama, Peshastin, or Stehekin in the state of Washington; however, the NPS provided the population of Stehekin. Population statistics are presented as the annual average population between 2017 and 2021.

Tourism. Travel spending in Washington state generated $3.6 billion in local, state, and federal tax revenues in 2018 (Dean Runyan Associates 2019). More than 264,000 jobs in Washington were supported by outdoor recreation spending. About 177,800 jobs (67%) were from expenditures associated with outdoor recreation on public lands (Earth Economics 2020). As described in the "Visitor Use and

Recreational Experience" section, both Mt. Baker-Snoqualmie and Okanogan-Wenatchee National Forests offer horseback riding and stock trails in designated areas (USFS n.d.[d]). The WDFW issues hunting permits for both national forests and for the Lake Chelan and Ross Lake Recreation Areas, which include several game management units within the NCE (USFS n.d.[e]). Tourism spending associated with hunting and horseback riding supports local jobs and income in the ROI.

NPS data show that there were 914,292 visitors to the park complex in 2021, and that these visitors spent $46,653,000 in gateway communities near the park complex (NPS 2022e,f). In 2016, visitor spending supported 544 jobs in the local area and had an aggregate benefit to the local economy of $53,918,700. According to the NPS, most park visitor spending was for lodging (31.2%), followed by food and beverages (27.2%), gas and oil (11.7%), and admissions and fees (10.2%) (NPS 2017b). Spending segments differed markedly in the amount of spending per party. In general, visitors from outside the local area spent more than those from the local area. Visitors on overnight trips typically incur lodging expenses (hotel or campground fees), whereas those on day trips do not. Overnight visitors also generally need to purchase more food and fuel during their trip than those on day trips (NPS 2015e). Many people use State Highway 20 as a route to travel east to west through the mountains, coincidentally passing through the park complex, and being counted as visitors.

Agriculture and Livestock Grazing. There were 9,142 farms in the ROI in 2017. This represents approximately one-quarter of the total number of farms in the state of Washington (35,793) in that year. Washington had approximately 14.7 million acres of land dedicated to farming in 2017, while the ROI had approximately 1.8 million acres or 12.2% of the state's total acreage (USDA 2017). Within the NCE, agricultural operations exist along low-lying valley bottoms and consist primarily of irrigated pastureland, alfalfa, wheat, some corn, and other feed crops in western areas and fruit orchards along the eastern border of the ROI (USDA 2017).

In 2017, there were approximately 11,311 cattle and calf farms in the state of Washington with 1,155,544 head of cattle. The ROI contributed approximately one-fourth of the number of the cattle and calf farms within the state with 232,308 head of cattle in that same year. Net cash farm income from operations equaled $227.6 million in 2017 in the ROI, compared to $1.70 billion for the state of Washington. The average net cash farm income from operations per farm in the ROI was almost $25,000. This is approximately half of the average net cash farm income from operations per farm in the state of Washington (about $47,000) (USDA 2017).

As of 2015, 773,788 acres of land were actively under permit for cattle and sheep grazing on Okanogan-Wenatchee National Forest. Permits were distributed among six ranger districts: Methow Valley, Tonasket, Entiat, Wenatchee River, Cle Elum, and Naches. The majority of the acreage under permit for grazing within the NCE (320,044 acres) was in the Methow Valley Ranger District. The Chelan District has nine grazing allotments, but they are all vacant (no permit) as of 2015. Most of the acreage permitted on Okanogan-Wenatchee National Forest was for cattle grazing. The annual grazing fee in 2015 was $1.69 per animal unit month (AUM). One AUM is defined as the amount of forage required to feed an animal unit for one month. Fees for 2016 were $2.11 per AUM. There are no grazing permits on Mt. Baker-Snoqualmie National Forest.

The 2015 Okanogan-Wenatchee Allotment Information Sheet reports that there were 4,151 AUMs of permitted sheep and 47,686 AUMS of permitted cattle grazing on national forests within the NCE. In 2015, 4,100 ewe/lamb pairs were grazing, and there was authorization for 4,552 cow/calf pairs to graze during the summer on national forest service allotments within the NCE. No livestock were present within the park complex as of 2015. Figure 16 details agricultural leases located within the NCE.

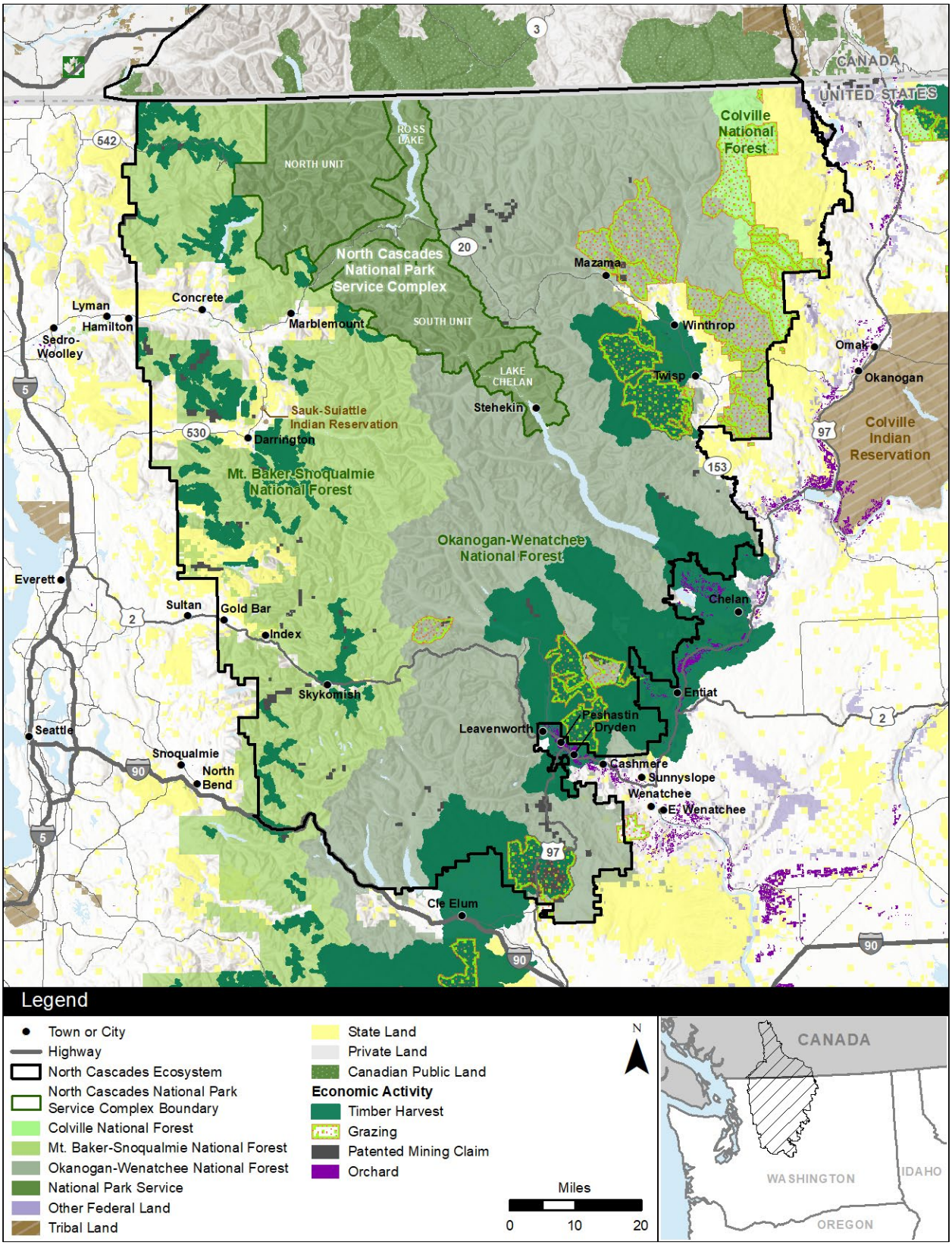


FIGURE 16. ECONOMIC ACTIVITY IN THE NORTH CASCADES ECOSYSTEM

Timber Harvest. Since 2010, the annual volume of timber harvested within Mt. Baker-Snoqualmie National Forest has varied from a low of approximately 7.2 million board feet to a high of approximately 17.7 million board feet, averaging approximately 10.2 million board feet per year. Annual timber sale values, over the same period, reached a low of $236,420 and high of $1,965,025, averaging $920,768 per year. Based on USFS projections, approximately 8.0 million board feet of timber was estimated to be harvested in 2016. Timber harvest activity on these lands includes thinning and regeneration of early-seral forest habitat (USFS, Plumage pers. comm. 2016d). In the 10-year period between 2006 through 2015, the annual volume of timber harvested within Okanogan-Wenatchee National Forest varied from a low of 22.3 million board feet in 2014 to a high of 54 million board feet in 2008, averaging 39.4 million board feet per year. Annual timber sales over the same period reached a low of $689,954 in 2015 and a high of $3,266,667 in 2006 (USFS, Rohrer pers. comm. 2016c).

Timber harvest occurs largely on private lands at lower elevations along the periphery of the ecosystem, rather than on federal lands. This is due in part to conservation policies and federal endangered species protection. According to US Geological Survey, there has been a general decline in logging activity since 1992 (USGS 2016). Figure 16 details timber harvest leases located within the NCE. Additionally, a number of private companies have timber operations located within or close to the northwestern NCE, including Weyerhaeuser, Sierra Pacific Industries, Hampton Lumber Company, and Merrill and Ring.

Mining. Locatable minerals are those minerals which, when found in valuable deposits, can be acquired under the General Mining Laws of 1872 (as amended). Examples of locatable minerals occurring on Mount Baker-Snoqualmie National Forest include copper, gold, molybdenum, tungsten, olivine, chromite, nickel, zinc, silver, lead, and uncommon varieties of limestone, gemstones, and other minerals having unique and special values (USFS, Plumage pers. comm. 2016e).

Mount Baker-Snoqualmie National Forest has a history of mining, dating back to the late 1800s. A total of 148,187 acres within the forest have a moderate to high potential for development of locatable minerals (USFS 1990a). There are approximately 207 unpatented mining claims on the forest, with the majority of these located in the Middle and North Fork Snoqualmie, Finney Block, Sultan Basin, and the Twin Sisters area (USFS, Plumage pers. comm. 2016e). Approximately 60 unpatented mining claims are within grizzly bear core areas (USFS, Plumage pers. comm. 2016e).

The Okanogan-Wenatchee National Forest has more than 13,000 mining claims, covering more than 250,000 acres. Mineral resources on Okanogan-Wenatchee National Forest include but are not limited to asbestos, coal, copper, geothermal, gold, iron, lead, limestone, oil and gas, sand and gravel, silver, stone, and zinc. Additionally, more than 375,000 tons of sand, gravel, and stone are mined on Okanogan-Wenatchee National Forest annually (USFS, Rohrer pers. comm. 2016c). Figure 16 details mining claims with the NCE.

Trends and Planned Actions

Although the human population has increased substantially in the ROI over the last few decades, most people live closer to Puget Sound and urban areas; the NCE and the areas immediately surrounding it remain sparsely populated. A number of gateway communities within the NCE that historically relied on agriculture, timber, and mining have shifted their focus to tourism and related activities against the backdrop of the current economic landscape. Tourism spending associated with outdoor recreation on public lands currently supports the majority of local jobs and income in the ROI. The focus on agriculture, timber, and mining has shifted. The average net cash farm income from operations per farm in the ROI in 2017 was approximately half of the average net cash farm income from operations per farm in the state of Washington, and the US Geological Survey reports a general decline in logging activity since 1992 (USGS 2016). Changes in climate could alter resource conditions and their availability,

including timber and grazing forage. Increases in wildfire occurrences could affect tourism spending and timber and mining operations in the NCE.

Ongoing and planned actions with the potential to impact socioeconomics include ongoing NPS trail maintenance and repairs, monitoring activities, NPS fire management operations, forest vegetation management, motorized travel management projects, CERCLA mine cleanup projects on national forest lands, mining operations on national forest lands, cattle and sheep grazing on national forest lands, a domestic/bighorn sheep interaction EIS, issuance of special-use permits, ongoing USFS trail maintenance and repairs, and USFS wildfire suppression efforts.

NPS trail maintenance and repairs, fire management and suppression activities, motorized travel management projects, and issuance of special-use permits would all continue to benefit visitors of the NCE and subsequently the local tourism industry. However, some trails, roads, and sections of the NCE may need to be closed occasionally to motorized vehicles for maintenance or fire suppression activities, which could result in temporary reductions in tourism as these areas are closed for a short time for these activities.

CERCLA mine cleanup projects and mining leases on national forest lands provide local jobs and income to the ROI. Cleanup of mine sites also provides new economic opportunities for future land uses at these sites and provides a cleaner environment for tourists visiting the NCE, which could encourage additional visitation and visitor spending within the ROI. The development of the domestic and bighorn sheep interaction EIS could result in a change in the number of domestic sheep leases on national forest lands, which could adversely affect agricultural income in the ROI. Additionally, future cattle and sheep grazing allotments on national forest lands support local jobs and income by allowing ranchers to graze their cattle and sheep on national forest lands.

Environmental Consequences

The CEQ regulations implementing NEPA state that when economic or social effects and natural or physical environmental effects are interrelated, the EIS discusses these effects on the human environment (40 CFR 1508.1(m)). The CEQ regulations further state that the “human environment means comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment.” This socioeconomic analysis evaluates how the action alternatives could affect elements of the human environment such as employment, tourism, agriculture, cattle grazing, timber harvesting, and mining.

Methods and Assumptions

The analysis of socioeconomic impacts considers potential effects on employment, population, and revenue from natural resource-related activities and revenue from park and national forest visitation that may result from grizzly bear restoration under each alternative. Impacts for this resource topic were analyzed using information on population, employment, and key regional industry sectors provided by the US Census Bureau; information on the economic contribution of national park visitation in the NCE provided by the NPS; and information on timber sales and grazing leases provided by the USFS. A qualitative analysis was performed by subject matter experts based on professional judgment supported by the information described above.

Analysis Area. The area of analysis for socioeconomic impacts resulting from the alternatives includes the seven counties that, in whole or in part, make up the NCE grizzly bear recovery zone. The seven-county ROI includes Chelan, King, Kittitas, Okanogan, Skagit, Snohomish, and Whatcom Counties. The area occupied by the NCE grizzly bear recovery zone makes up approximately 52% of the total land area

of the ROI. The area of analysis for socioeconomic impacts is expanded beyond the boundaries of the NCE grizzly bear recovery zone because the population and employment centers that could potentially experience socioeconomic impacts from grizzly bear restoration are, in many instances, located outside the recovery zone. Where appropriate, specific communities or industries located closer to the NCE may be discussed in detail if more acute impacts on these communities or industries are expected as a result of potential future grizzly bear movement outside the NCE.

Issues Analyzed. The analysis of impacts on socioeconomics under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* The restoration of grizzly bears in the NCE has raised concerns about economic impacts on natural resource-based industries such as mining and logging. Concerns have been raised about potential for depredation of livestock or agriculture such as fruit orchards.
>
> *Issue Statement.* Revenue may be impacted because of changes in tourism and hunting revenue resulting from grizzly bear restoration.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts to socioeconomic resources; therefore, socioeconomics resources would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Existing Endangered Species Act Protections

Employment. Alternative B could result in impacts on employment related to tourism, agriculture, livestock grazing, mining, timber harvest, wildlife management, or federal land management. Impacts on all of these sectors, except wildlife and federal land management, are described separately in the sections below. Most increases in employment in wildlife management and federal land management resulting from this alternative would likely occur as wildlife and federal land managers capture and release grizzly bears and educate the public. More NPS, FWS, and USFS staff time would likely be needed during this phase to successfully release and monitor the population of grizzly bears and educate the public at large about grizzly bears in the NCE. Once grizzly bears are released into the NCE, the WDFW would be involved in managing the population.

Tourism. Under alternative B, no closures to wilderness areas are expected; however, occasional, localized wilderness closures for public safety during release activities could occur, but these closures would be site-specific and short (hours to days). These closures are not expected to substantially affect tour operators or recreational visitors, including hunters or horseback riders, because the release areas would be remote, closures would be publicized, and operators and the public could avoid these areas and travel elsewhere within the extensive wilderness of the NCE if necessary. Predictable recreational activities have also been shown to allow individual bears to adapt to the presence of humans, temporally avoid humans, or spatially avoid humans (Fortin et al. 2016). This indicates that as grizzly bears reside longer in the NCE they would better adapt to human recreational activity. Additionally, increased public outreach and education efforts to promote general bear awareness and provide education on clean camping and the use of bear repellant spray containing capsicum would be provided for tourists and hunters to mitigate impacts when they are in the grizzly bear habitat. Any area closures are anticipated to be infrequent and small in scope; therefore, revenue and employment associated with tourism, including

hunting, horseback riding, hiking, sightseeing, and tour operations, would not be noticeably affected as a result of this alternative in or adjacent to the ROI.

As described in the impact analysis in the "Other Wildlife and Fish" section, reestablishment of a grizzly bear population would have no lasting adverse impacts on other wildlife or fish populations, and the reestablishment of grizzly bears as part of the ecosystem would improve long-term ecosystem health. In states like Wyoming and Montana, populations of wildlife and fish flourish where grizzly bears are found and provide hunters and anglers with excellent harvest opportunities. Recent participation trends for angler and hunter participation in Wyoming have remained relatively stable among both resident and nonresident population segments, showing sustained participation in both hunting and angling even with the existence of grizzly bears in the area. From July 2016 through June 2021, Wyoming residents and nonresidents expended an average of 1,241,250 hunter days and 2,757,254 angler days. Hunter days in between July 2020 and June 2021 were 12.1% above the target of 1.1 million hunter days. Angling days in that same period were 26.4% above the target of 2.3 million angler days (Wyoming Game and Fish Department 2021). Hunters, in particular, supported 3,100 jobs and $85.6 million in income in 2015 (Southwick Associates 2017). This shows that a sustained level of hunting and angling exists in other areas of the country that have grizzly bear populations, even when the number of grizzlies is far greater than what is expected in NCE at the restoration population, and that grizzly bear restoration would not adversely affect the socioeconomics associated with hunting and angling.

It is possible that restoration of grizzly bears into the NCE could attract tourists who are interested in seeing grizzly bears from a distance, which would benefit the local economy through increased spending that supports local jobs and income. However, any positive change in tourism is not expected to be measurable, as it could be offset by the loss of the visitors who are hesitant to visit the NCE due to the perceived safety concerns surrounding grizzly bears. In the long term, backcountry backpackers are anticipated to become more accustomed to hiking in grizzly bear habitat, and public outreach and education would make most visitors comfortable with backpacking in the NCE. Therefore, impacts on backpacking-related revenues are not likely to be noticeable. For example, Glacier National Park has had human-grizzly bear conflicts but has also seen visitor spending increase from $172 million in 2012 to $384 million in 2021 (NPS 2022f). Similarly, Yellowstone National Park has seen an increase in visitor spending from $400 million in 2012 to $630 million in 2021 (NPS 2022f), despite a population of more than 1,000 grizzly bears.

Coordination with potential user groups and public outreach and education would likely mitigate many potential tourism-related concerns as wilderness users become accustomed to backcountry practices that reduce chances for conflicts with grizzly bears. Therefore, potential adverse tourism-related impacts in and adjacent to the ROI would be mitigated to the extent that no adverse impacts on tourism are expected under alternative B.

Agriculture and Livestock Grazing. Grizzly bear depredation is highly variable between and among years and area (DOI 2000). Projections of depredation rates based on other areas is difficult because of differences in terrain, vegetation, size of farms, livestock husbandry practices, and food abundance (DOI 2000). A study conducted by Gunther et al. (2004) between 1992 and 2000 found that most of the livestock depredations in the GYE by grizzly bears were cattle—311 cattle out of 436 livestock depredation incidents. Montana's Board of Livestock's data shows the loss of cattle from grizzly bears in the NCDE ROI averaged around 65 annually from 2019 to 2022; an average of 34 sheep depredations occurred annually over the same period (Montana Department of Livestock 2023). According to Gunther et al. (2004), permanent removal of chronic depredators was the most effective method of alleviating livestock losses, while Wells et al. (2018) found that the presence of bull cows or horses was associated with a 50% decrease in depredation in the GYE. Incidents of damage to orchards and beehives represented less than 10% of all depredation incidents during this period. Gunther et al. (2004) also found

that damage to gardens, orchards, and beehives and depredation of sheep was relatively easy to prevent using electric fencing; however, installation of electric fencing may be cost-prohibitive for some large apiary and orchard operations. According to a study by Wilson et al. (2006), most human-grizzly bear conflicts were associated with concentrated attractants located within productive bear habitat. These attractants include orchards, beehives, livestock boneyards, and cattle and sheep calving areas. The study found that the likelihood of human-grizzly bear conflicts was greater where multiple attractants were located within close proximity to one another.

Estimates of potential grizzly bear depredation were generated using grizzly bear population estimates for the NCDE and livestock losses of cattle and sheep. Grizzly bear population estimates for 2021 were estimated at 1,092 (Costello and Roberts 2022), and livestock losses attributed to grizzly bears in 2021 were provided by the Montana Livestock Loss Board (Montana Department of Livestock 2023). Livestock loss attributed to grizzly bears in the counties that compose the NCDE in 2021 were 102 cattle and 21 sheep. Using those numbers, the annual rate of livestock loss per grizzly bear was 0.093 cattle and 0.019 sheep. When these rates were applied to a NCE grizzly bear population of 25, annual livestock loss estimates were 2 to 3 cattle and up to 1 sheep. When these rates were applied to a NCE grizzly bear restoration population of 200, annual livestock loss estimates were 18 to 19 cattle and 3 to 4 sheep. Rates developed with these data may represent overestimates of expected livestock loss in restored populations of grizzly bears in the NCE if bears do not occupy private lands where more livestock may be present. Additionally, ranchers could be compensated for cattle and sheep killed as the result of a grizzly bear depredation, if private funds are available, as authorized by state law under the Revised Code of Washington 77.36, further reducing potential impacts.

It is probable that the actual number of cattle and sheep killed per year would fall within the range of the two estimates (1–19 cattle per year and 1–4 sheep per year). The amount of depredation would vary within that range based on a number of factors, including juxtaposition of bear habitat and grazing; type of grazing operation; distribution and abundance of other predators; and abundance and distribution of prey. There is also the potential for nonlethal impacts on livestock in the NCE. Grizzly bears, like other wide-ranging, large carnivores, could force cattle into less desirable grazing areas or increase stress, leading to poorer nutrition and possibly illness (Anderson et al. 2002). However, grizzly bears would not be the first large carnivore in the NCE, and they would represent an incremental increase in the potential for livestock stress, not a new impact. Even with this uncertainty, the total number of cattle and sheep depredated within the NCE would result in minimal, adverse impacts on agriculture and the livestock grazing industry, contributing to less than 0.01% of the total number of cattle and sheep in the ROI.

The extent of depredation would be most influenced by the extent that livestock overlap with grizzly bears, the size of the grazing operation, and the presence of attractants. Any impacts on grazing operations could potentially result in reduced employment in cattle ranching in the NCE area or increased costs of operating cattle ranching operations within the NCE. The size of the operation would also influence the intensity of the adverse impact, with a larger adverse impact on smaller grazing operations because they operate on smaller margins and would feel a greater proportional impact from depredation of any livestock. Similarly, the cost of securing attractants and implementing bear safety measures would represent a larger adverse impact on smaller agriculture and livestock grazing operations. Grizzly bear mitigation measures may represent a new cost to some agricultural producers in the NCE, but measures may already be in place to reduce attractants and other potential human-wildlife conflicts. Impacts would be somewhat mitigated because ranchers could be compensated for cattle and sheep killed as the result of a grizzly bear depredation, if private funds are available, as authorized by state law under the Revised Code of Washington 77.36. Figure 17 shows current, active grazing leases in the NCE closest to the potential release areas.

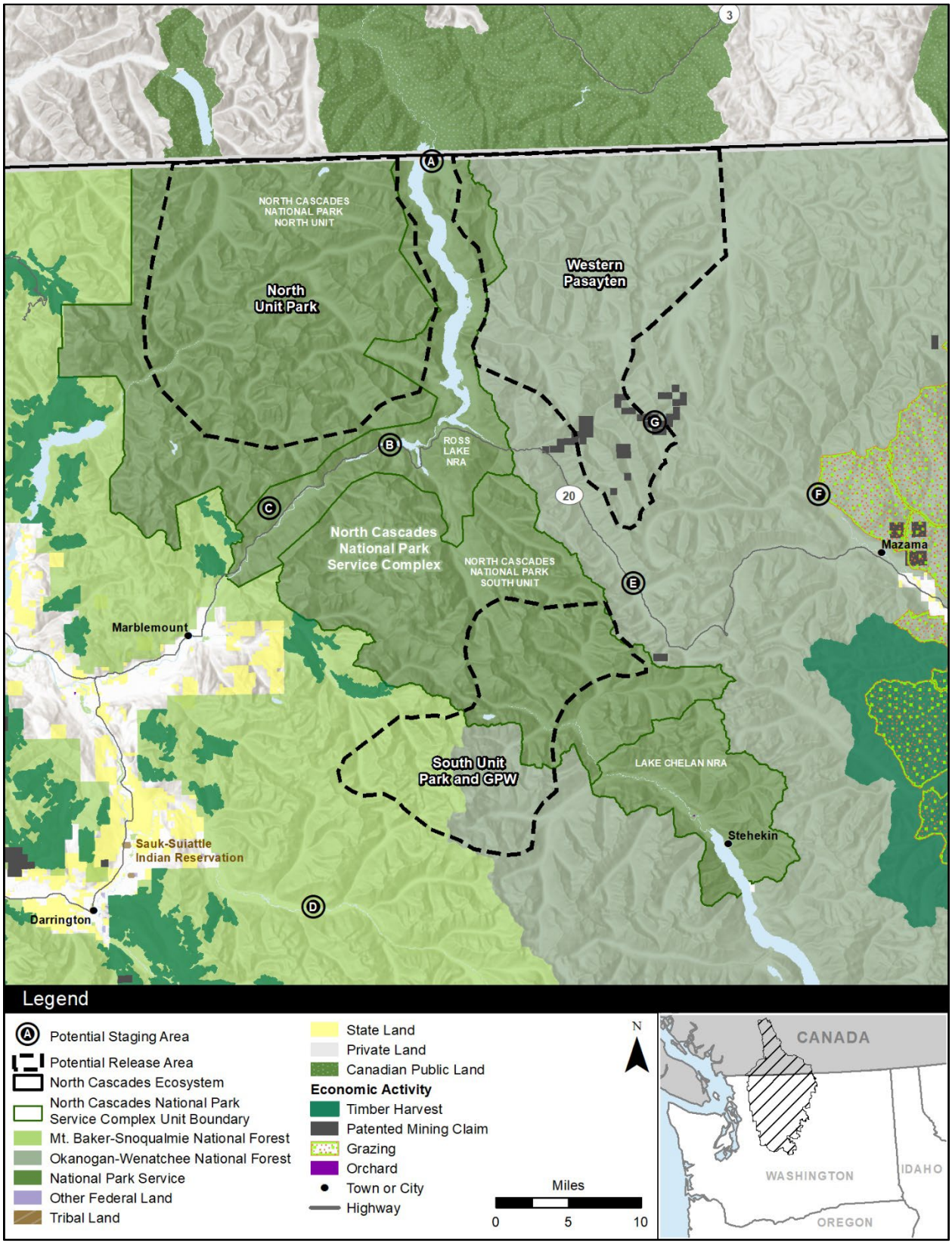


FIGURE 17. AGRICULTURE, TIMBER, AND MINING OPERATIONS IN RELATION TO GRIZZLY BEAR RELEASE AREAS

As of 2017, 4,100 ewe/lamb pairs and 4,552 cow/calf pairs are authorized to graze during the summer on USFS allotments within the NCE. Few livestock are present within the central portion of the NCE because it is national park. Because only approximately 3 to 7 bears per year would initially be released into the NCE under alternative B, depredations are expected to be low during the primary phase; however, depredation is likely to increase in frequency as the population grows over time during the adaptive management phase.

Adverse impacts on agriculture and livestock grazing would therefore be limited compared to the number of livestock present in or adjacent to the NCE. However, as noted above, some smaller agricultural operations may be disproportionately affected by a single depredation event, resulting in relatively high impacts on their personal operation from even a single depredation. The potential for impacts could be reduced by assisting with conflict prevention efforts, including the use of electric fencing and managing boneyards. If a bear frequents an allotment area, the FWS and WDFW would work with the USFS and livestock owners to determine the best course of action to minimize bear-livestock conflicts. Agriculture and grazing operations located closest to release areas or high-quality grizzly bear habitat would be the most likely to be affected under this alternative. Under alternative B, agriculture and livestock grazing operations on national forest lands would also be subject to ESA consultation requirements under section 7(a)(2), which requires the USFS to avoid jeopardizing the continued existence of a listed species like the grizzly bear. As a result of the consultation process, efforts to minimize or avoid those adverse effects may be required. These efforts, such as requiring removal of cow carcasses quickly to avoid attracting grizzly bears, could adversely affect grazing and agriculture activities seasonally. Additionally, adhering to no net loss of core bear habitat has the potential to continue to affect use of motorized activities to manage cattle, such as restricting road development. In the event a grizzly bear depredates agriculture or livestock, appropriate FWS-approved guidelines for the NCE would be followed, and the rancher may be compensated for the loss as described in the discussion of compensation for grizzly bear depredation in chapter 2.

Timber Harvest. The release of grizzly bears could adversely affect leaseholders of timberlands if grizzly bears move through leased lands while leaseholders are harvesting timber. Under alternative B, timber harvest on national forest lands would also be subject to ESA consultation requirements under section 7(a)(2), which requires the USFS to avoid jeopardizing the continued existence of a listed species like the grizzly bear. This means that if a proposed timber harvest is likely to adversely affect grizzly bears, including the potential for incidental take of a grizzly bear, efforts to minimize or avoid those adverse effects may be required. Those minimization or avoidance measures could adversely impact harvesting and could preclude logging activities seasonally. However, these effects are expected to be rare, at least in the early stages of restoration, because grizzly bears would most likely avoid areas of active timber harvest because they tend to avoid humans, roads and traffic (Proctor et al. 2020). Impacts on timber operations from grizzly bears would be temporary and intermittent because timber is not harvested all the time, and timber harvests are generally located along the periphery of core grizzly bear habitat.[2] Under alternative B, there would be little to no potential for lost work hours and employment in the primary phase based on the small number of bears released. If a timber company chooses to stop work temporarily because of safety considerations of their workers, any lost time would be minimal. Any impacts could be mitigated by allowing workers to harvest other lands if available, although some small, temporary, and intermittent impacts on employment and income of site workers could be possible in the adaptive management phase when the potential for conflict would increase as the population increases.

[2] As mentioned in "Chapter 1: Purpose of and Need for Action," core areas are defined as areas with the following characteristics: (1) no motorized use of roads and trails during the non-denning period; (2) no roads or trails that receive nonmotorized, high-intensity use (an average of 20 or more parties per week); and (3) a minimum of 0.3 miles (500 meters) from any open motorized access route or high-use nonmotorized access route.

The no net loss commitments within the NCE could also continue to limit timber harvest within the NCE. The NNLA requires maintenance of the core area and limits expansion of the road network for timber harvest within the NCE. Construction of a new road in the core is conditioned upon closing an existing road so that no net loss to the core area can be maintained, which could adversely impact USFS-proposed harvest operations by timber companies under alternative B; however, this adverse impact would not be a change from existing conditions.

Mining. Similar to impacts described for timber harvests, holders of mining claims may be adversely affected if grizzly bears pass through leased lands while mining is in progress. However, because of the small number of bears released under the primary phase of alternative B, the likelihood of these impacts would be very low. In addition, even with a fully restored population, grizzly bears would most likely avoid areas of active mining because of the presence and noise of humans and machinery. If grizzly bears are present in or near mining leases, they are expected to move through in minutes to hours; therefore, these impacts are anticipated to be temporary and intermittent if they occur at all. Some lost work hours and employment could occur if a mining company chooses to stop work temporarily for safety reasons related to workers working around grizzly bears. Similar to the timber and agricultural operations, mining operations would also be subject to ESA consultation requirements under section 7(a)(2), which requires the USFS to avoid jeopardizing the continued existence of a listed species like the grizzly bear. USFS review and approval of proposed mining operation plans as part of ESA consultation may require avoid or minimization measures that could impact mining operations.

County Operations. Representatives of county governments within the NCE expressed concerns about potential impacts on local communities, including public safety, economic development, recreational opportunities, and the overall livelihood of rural communities. In addition to human-bear conflict, the counties' public safety concerns include human safety during grizzly bear viewing (i.e., bear jams) and limited emergency response resources in many locations.

Economic development concerns related to the continued viability of agriculture and timber harvest are discussed in detail above. Additionally, counties were concerned that management of no net loss of core area lands in the NCE would negatively affect the counties' efforts to expand regional trail systems for visitors and could restrict road access to private inholdings within federal land areas. However, the NNLA has been in place since 1997 and represents a continuation of baseline conditions. The NNLA pertains to NPS- and USFS-managed lands only.

County representatives also were concerned that increased visitation and the presence of grizzly bears could result in additional law enforcement incidents as well as more search and rescue efforts, which would strain the existing available resources. Should an ambulance be needed for a visitor rescue effort, counties were concerned that the availability of emergency personnel for non-visitor needs would be reduced, noting that any emergency incident would affect local communities and their available resources. There were also concerns that if a grizzly bear is encountered, visitors may post the location to social media, which could result in a sudden concentration of visitors and associated road congestion or vehicle incidents. Outreach to residents and visitors, including hikers and hunters, would help reduce the potential for adverse impacts on county resources by helping visitors and hunters avoid encounters with grizzly bears. Additionally, overall visitation is not expected to measurably increase as a result of grizzly bear restoration efforts, as discussed under the "Visitor Use and Recreation Experience" section, further reducing the potential for adverse impacts. Continued coordination with the counties during development of the implementation strategy would provide additional opportunities to ensure local resources are not strained by grizzly bear restoration activities.

Cumulative Effects. Ongoing and reasonably foreseeable future actions with the potential to contribute to cumulative effects on socioeconomics under alternative B are the same as described in the "Trends and

Planned Actions" section. Overall, cumulative actions would result in both adverse and beneficial impacts on employment, income, and sales in the ROI based on shifts in tourism spending and increased local employment and wages for new projects and potential long-term, adverse impacts should domestic sheep allotments be reduced. Alternative B would contribute to adverse and potentially beneficial impacts as described above associated with the release of approximately 36 bears over 5 to 10 years and periodic subsequent releases in the future. Alternative B is not likely to contribute noticeable impacts on tourism, and it may contribute some benefits in the form of slight increases in tourism from tourists visiting the NCE who are interested in learning about or seeing grizzly bears. Alternative B would contribute an immeasurable increment to cumulative impacts with regard to employment. There could also be beneficial impacts on employment as additional staff time or contractors would be brought on for monitoring activities. Alternative B is not likely to result in any impacts on mining or timber operations within the NCE in the primary phase because of the small number of grizzly bears being released and the distance between these release sites and the operations. However, as the grizzly population grows, some restrictions on mining or timber operations on national forest lands could occur as a result of the USFS obligation to consult under ESA section 7 and address impacts to grizzly bears.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Under alternative C, restoration of grizzly bears would occur as a NEP under the ESA. Similar to alternative B, up to 36 grizzly bears would be released over 5 to 10 years along with periodic subsequent releases in the future and would eventually result in a restored population of 200 grizzly bears. Therefore, the potential for increased adverse impacts on tourism, mining, timber, agriculture, livestock grazing, and local employment and populations would be similar to those described for alternative B. Overall impacts on jobs, income, and sales in the ROI would be the same during the primary phase.

However, alternative C would include a section 10(j) designation that would provide wildlife managers with additional management tools to intervene if grizzly bears enter human areas and affect property or livestock. These 10(j) management tools would allow for conflict management, which would reduce the potential for adverse impacts. The 10(j) designation would also reduce the ESA section 7 consultation requirements for otherwise legal activities on national forest lands.

Employment. Alternative C could result in impacts on employment related to tourism, agriculture, livestock grazing, mining, timber harvest, wildlife management, or federal land management. These impacts would likely be similar to those described for alternative B because both alternatives would involve the same restoration population and translocation strategy. This alternative would result in the need for a similar number of wildlife managers and federal land managers as alternative B because, as wildlife and federal land managers capture and release grizzly bears and educate the public under alternative C.

Tourism. Impacts on tourism would likely be similar to those described for alternative B.

Agriculture and Livestock Grazing. Alternative C would result in similar adverse, temporary impacts on agriculture and livestock grazing as alternative B because the same number of grizzly bears would be released in the same time frame, leading to the potential for similar impacts to occur to these resources as under alternative B. With the 10(j) designation, grizzly bears that demonstrate an ongoing threat to livestock, working dogs, domestic animals, crops, beehives or other property could be lethally removed with written authorization from FWS. Additionally, the 10(j) designation under alternative C would eliminate the requirement for the USFS to consult under section 7(a)(2) of the ESA for livestock grazing on national forest lands, and under the 10(j) rule, incidental take of grizzly bear could occur on national forest lands within the NEP area under certain circumstances. As a result, implementation of the 10(j) designation for grizzly bears would reduce the potential costs and the operational constraints that may

have temporarily affected regular business operations, for impacted businesses such as ranches from the presence of grizzly bear, including for removal of a grizzly bear involved in a conflict and preemptive relocation to prevent a conflict that appears imminent or in an attempt to prevent habituation of bears. The 10(j) rule would also allow, under certain circumstances, for individuals to lethally take grizzly bears in Management Area C if a grizzly bear is in the act of attacking livestock (including working dogs) on private lands. This would reduce the potential for an adverse socioeconomic impact on human uses of the NCE and its surrounding areas, including agriculture and grazing. As a result, alternative C has the potential for fewer adverse impacts to agriculture and livestock grazing when compared to alternative B.

Timber Harvest and Mining. Impacts on timber harvesting and mining, similar to those described under alternative B, are anticipated to be intermittent and short term, lasting minutes to hours, as workers become aware of grizzly bear presence in the area, and grizzly bears avoid areas of active timber harvest and mining. Alternative C would also have fewer adverse impacts on timber harvest and mining than alternative B because of the elimination of the requirement for section 7(a)(2) consultation and associated obligations for the USFS and other federal agencies (except on national park system or national wildlife refuge system lands) under the 10(j) designation. In addition, the 10(j) designation would allow incidental take of grizzly bear in a wider range of situations than alternative B, although the allowance for incidental take as a result of actions within national forests requires the USFS to continue its no net loss of core habitat commitment within Management Area A. This commitment could affect harvest and mining proposals by restricting new road construction, as described under alternative B.

County Operations. Impacts on county operations would be similar to those described under alternative B; however, the designation of a 10(j) rule would provide additional management flexibility to reduce the potential for human-grizzly bear conflicts and associated adverse impacts on county resources and local industries. Within the NEP, deterrence of grizzly bears and the potential preemptive relocation of grizzly bears by authorized agencies would reduce the potential for human-grizzly bear conflicts and reduce the potential increase in emergency service calls or search and rescue efforts.

Cumulative Effects. Ongoing and reasonably foreseeable future actions with the potential to contribute to cumulative effects on socioeconomics under alternative C are the same as those described under the "Trends and Planned Actions" section. Overall, cumulative actions would result in both adverse and beneficial impacts on employment, income, and sales in the ROI, based on shifts in tourism spending and increased local employment and wages for new projects and potential long-term, adverse impacts should domestic sheep allotments be reduced. Alternative C would contribute adverse and potentially beneficial impacts as described above associated with the release of up to 36 bears over 5 to 10 years and periodic subsequent releases in the future; however, this alternative would also provide more management flexibility to reduce the potential for adverse impacts on nearby communities, agriculture, and grazing. As a result, when adverse and beneficial impacts of alternative C are combined with the effects of other cumulative actions in the ROI, an overall beneficial cumulative impact on socioeconomic resources is expected. Alternative C would contribute a negligible increment to the overall cumulative impact.

ETHNOGRAPHIC RESOURCES

Affected Environment: Current Status and Expected Future Conditions

The lands now considered the NCE have been occupied and stewarded by Indigenous peoples since time immemorial. NPS archeological evidence from the Northern Cascades has documented use as far back as 9,600 years ago (NPS 2012c). The traditional inhabitants of the North Cascades were well adapted to the greater ecosystem and used the landscape through seasonal rounds and established permanent villages. The archeological record in the Okanogan-Wenatchee National Forest supplements this with more than 2,500 documented heritage resources within the forest boundaries. These resources include seasonal

hunting, gathering, and fishing camps as well as large permanent villages associated with Native American peoples. The archaeological record within the national forests substantiates the use of the Cascades as far back as 9,000 years ago with permanent villages being established 2,000–3,000 years ago. Archeological sites have been documented that contain grizzly bear remains that would indicate human cultural use. These include sites that date from 10,300 to 8,000 years before present (Rine et al. 2018).

The Indigenous peoples who have long occupied regions within and around the NCE have retained an intimate knowledge of the landscape and its resources. These groups have independently defined and documented ethnographic resources within the North Cascades National Park, as well as the Ross Lake and Lake Chelan Recreation Areas. Ethnographic resources are defined as "landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life" (NPS 2022a). These types of resources are also present within national forest lands, but the USFS does not use the same terminology; instead, they are documented as heritage resources or traditional cultural properties. Previous research indicates that other ethnographic resources, such as traditional gathering, hunting and fishing areas, or areas of spiritual or ceremonial use, are also likely present within the North Cascades (Ford 1993; Boxberger 1996).

In addition to the types of resources above, ethnographic resources can also include fauna and flora, such as those that serve a prominent role in oral histories and the continuity of cultural traditions (e.g., animals hunted for meat and hides or to obtain parts important for ceremonies). Examples of ethnographic plant and animal resources to some Indigenous peoples in the NCE include huckleberries, western red cedars, mountain goats, salmon, common ravens, and grizzly bears. Ethnographic records of grizzly bears from the Upper Skagit, Sauk-Suiattle, Thompson (Nlaka'pamux), Stó:lō (Chilliwack), Chelan, and Methow First Nation groups demonstrate varying degrees of significance within their traditional subsistence practices, cultures, and landscapes (Rine et al. 2018). Grizzly bears were widely integrated in the cultural and hunting traditions of Salish groups inhabiting the North Cascades and other regions of Washington and southern British Columbia. It is difficult to infer even relative differences between the abundance of grizzly bears among different Salish territories; however, some Chelan and Sauk-Suiattle informants noted that grizzly bears were "numerous" in higher elevations of their respective drainages (Ray 1942; Dalquest 1948; Durham 1972; Smith 1988; Bedal Fish and Bedal 2000). The Upper Skagit people also hunted them at higher elevations, and while the Thompson (Nlaka'pamux) sources do not specify where they occurred, the hunting grounds were said to occur in the "tall mountains" (Collins 1974; Smith 1988; Teit 1900; Ruby and Brown 1981). Archeological evidence also suggests a cultural relationship with grizzly bears. Remains have been found at five Holocene archeological sites along the Columbia, Okanogan, and Snake Rivers of central and eastern Washington that were possibly linked to human hunting and cultural use of grizzly bears (Lyman 1986). This collection includes grizzly bear bones that were found among other food remains in a 1,000-year old First Nations house located at the mouth of the Wenatchee River (Lyman 1985).

Trends and Planned Actions

Landscape changes because of increased climate variability could affect ethnographic resources as habitat changes; specifically as vegetation shifts and fish and wildlife abundance change. These changes could affect subsistence and ceremonial hunting and gathering.

While grizzly bears are extirpated from the NCE, the USFS and NPS would continue to maintain a core area of grizzly bear habitat (per a 1997 interim agreement). Grizzly bears as an ethnographic resource would continue to be absent from this area, which could impede the connections of certain Indigenous peoples to the area and to the animal that has been maintained via oral histories and cultural practices. There is little chance that grizzly bears would move into the NCE, much less achieve the restoration population, which could result in permanent, adverse impacts on the animal as an ethnographic resource.

The exact nature of these impacts would be determined through consultation with the Indigenous communities that continue to use the area.

Planned actions that have the potential to impact ethnographic resources in the NCE are primarily occurring on national forest lands and include forest vegetation management, cattle and sheep grazing, motorized travel management, mining, CERCLA mine cleanup and abandoned mine land projects, ski area expansion, wildfire suppression, and aquatic restoration. Projects that have the potential to cause ground disturbance or remove important vegetation, such as cattle and sheep grazing, mining activities (including cleanup), ski area expansion, and wildfire suppression, could affect ethnographic resources by removing important plants or making it difficult to access and use traditional areas. Areas used for traditional purposes, either gathering plants and animals or for ceremonial use could be directly affected by ground-disturbing activities that remove plants, animals, or places or could be indirectly affected by introducing sound and visual changes that make the use of an area difficult. The agencies would consult with the Native American Tribes and First Nations to ensure that these activities and their corresponding impacts are minimized or avoided.

In general, forest vegetation management tends to consider potential impacts on ethnographic resources and can have benefits by maintaining important plants within traditional areas. Aquatic restoration and goat relocation could also benefit ethnographic resources by ensuring animal species important to certain Indigenous communities remain within traditional use areas.

Environmental Consequences

Although various federal laws and executive orders pertain to the management of cultural resources by all federal agencies (see chapter 1), some agencies provide additional guidance on resource management. For example, NPS Director's Order 28: *Cultural Resource Management* outlines the standards and requirements for managing all cultural resources on park lands and specifically, ethnographic resources, whereas USFS Handbook 2309.12 provides guidance on heritage program management. As noted in chapter 3, not all agencies use the term "ethnographic resources" to describe these types of resources. Other sources, such as Native American Tribes, have different definitions for ethnographic resources. For this purposes of this analysis, ethnographic resources are defined as "landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life" (NPS 2022a).

Methods and Assumptions

The identification and determination of impacts is best accomplished through Tribal consultation aimed at reviewing the relationship between the action alternatives and known resources. Tribal consultation has been initiated for this project and is still in progress (see chapter 4). Although some published information is available on ethnographic resources within the North Cascades, site-specific location information and traditional names or uses of areas are not included to protect confidential information.

Issues Analyzed. The analysis of impacts on ethnographic resources under each alternative is based on the following issue statements that are identified in chapter 1:

> *Issue Statement.* The grizzly bear is part of many Indigenous communities' culture and history in the Northwest. The absence or restoration of grizzly bears would be likely to affect ethnographic resources in various ways.
>
> *Issue Statement:* Grizzly bear diet includes ethnographic resources and wild foods that Native American Tribes rely on for subsistence as part of their treaty-reserved rights. The

absence or restoration of grizzly bears may affect access to these resources by introducing increased competition.

Alternative A: No Action

Under alternative A, current management would continue, and there would be no new direct or indirect impacts to ethnographic resources; therefore, ethnographic resources would remain the same as or similar to the "Current and Expected Future Conditions of the Environment" section above. Past, present, and reasonably foreseeable actions and their impacts would be the same as those described in the "Trends and Planned Actions" section.

Alternative B: Restoration with Endangered Species Act Protections and Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

The most important sources of information on ethnographic resources are the Indigenous peoples themselves. The presence of ethnographic resources and the potential impacts of the proposed alternatives on those resources are determined by the Indigenous communities that continue to use the area. Individual Native American Tribes and First Nations hold the right to define what is an ethnographic resource to them, and they may or may not wish to share some of that information outside their nation. Impacts on ethnographic resources rely on traditional ecological knowledge and consultation with each Native American Tribe and First Nation to understand how the grizzly bear is connected to the oral histories, ceremonies, and sacred areas of the Indigenous groups. The release of grizzly bears may affect the ability of some Indigenous groups to use areas important for hunting and gathering or ceremonial use under both action alternatives. The potential for restricted access to some areas or competition for resources, such as berries, could lead to adverse impacts on other ethnographic resources. The NPS and FWS have initiated outreach to Native American Tribes and First Nations regarding this project, and consultation is ongoing and will continue to be ongoing. Because the potential impacts from the proposed action vary and would be unique to each Indigenous group, the potential impacts are ongoing and developed through the Tribal consultation process that is described under the "Tribal Consultation" header in chapter 4, and includes a discussion of Tribal treaties. The potential safety impacts on Indigenous community members hunting or gathering within the NCE are considered the same as those for other visitors and are addressed in the "Bear-related Public and Employee Safety" section. It is anticipated that, while grizzly bears would impact some specific plant and animal ethnographic resources, such as huckleberries and salmon, the impacts would not be so large as to reduce the availability of these resources for Indigenous communities, especially while the grizzly bear population is small. The potential for competition could increase, however, as the grizzly bear population grows over time. The specific impacts on salmon, ungulates, and other wildlife are discussed under "Other Wildlife and Fish," above.

POSSIBLE CONFLICTS BETWEEN THE ALTERNATIVES AND THE OBJECTIVES OF LOCAL LAND USE PLANS AND POLICIES

A previous EIS process began in 2014. In 2020, the Department of the Interior terminated the process after release of a draft EIS. This is the start of a new evaluation process. Comments that were provided during the previous EIS process, however, informed this new EIS and the development of alternatives. Under the previous EIS effort, the NPS and FWS met with county representatives regarding this project over the course of several meetings beginning in 2015 and again in January 2024 (see chapter 4 for details). The agencies were informed that the draft plan/EIS was generally inconsistent with the goals of the plans of concerned counties, such the *2017–2037 Chelan County Comprehensive Plan* (Chelan County 2017), the *Okanogan County Comprehensive Plan* (Okanogan County 2014), and the *Skagit County Comprehensive Plan 2016–2036* (Skagit County 2016). Additionally, Whatcom County

requested that the agencies review the *2024 Whatcom County Comprehensive Parks, Recreation and Open Space Plan* and the *2016 Whatcom County Comprehensive Plan* (Whatcom County 2024, 2016) for consistency with county goals related to land use, economics, and recreation. Each of these plans generally seeks to promote and protect the current and future needs of agriculture, which is addressed above under "Socioeconomics." The release of grizzly bears into the NCE could affect local agriculture in terms of livestock or orchard depredation. The Whatcom County plans specifically seek to enhance recreational opportunities, which are addressed above in the "Visitor Use and Recreation Experience" section. The NPS and FWS considered the counties' comments and associated plans during the development of the current plan/EIS and adjusted portions of the proposed action. For example, the potential release sites were adjusted to reduce the potential for conflicts with local residents. However, based on the number of grizzly bears proposed to be released under the action alternatives, one of which would designate the NCE population of grizzly bears as a NEP, it is highly unlikely that agriculture or human safety in the concerned counties would be significantly affected by individual grizzly bears over the first 5 to 10 years. Some adverse impacts are more likely to occur as the population increases and approaches approximately 200 bears after 60 to 100 years. Under alternatives B and C, grizzly bears that cause conflicts or pose a threat to human safety could be lethally removed, although the specific lethal take allowances would differ by alternative. Based on agency review of the local land use plans, the restoration of grizzly bears to federal lands within the NCE grizzly bear recovery zone is unlikely to result in substantial conflicts with objectives identified in local land use plans.

UNAVOIDABLE ADVERSE IMPACTS

The NPS and FWS are required to consider if the alternative actions would result in impacts that could not be fully mitigated or avoided (43 CFR 46.415).

Alternative A: No Action

Under alternative A, there would be no unavoidable adverse impacts on any resource topic considered in the plan/EIS except grizzly bears because without active restoration, grizzly bears would continue to be extirpated from the NCE.

Alternative B: Restoration with Existing Endangered Species Act Protections

Under alternative B, there would be unavoidable adverse impacts on grizzly bears in proposed source areas from the capture and relocation of up to 36 individual bears to the NCE, but alternative B would not adversely affect the viability of the resident population of grizzly bears in the source areas. Management activities may result in unavoidable mortalities to grizzly bears during capture, transport, and release, resulting in adverse impacts. Capture and translocation of grizzly bears in wilderness would adversely affect the untrammeled and undeveloped qualities of wilderness character and temporarily disrupt opportunities for solitude in the short term. Grizzly bear restoration would also enhance the natural quality of wilderness character and other features of value over the long term in the NCE. Unavoidable short-term, adverse impacts would occur during the primary phase to the acoustic environment and to resources such as wilderness character, wildlife, visitor use, and possibly some special status species from the noise and disturbance of helicopters, crews, and vehicles needed to carry out the capture and release. Prey species like ungulates and small mammals, and other predators like cougars and black bears, may experience minor adverse impacts if and when a restored population of 200 grizzly bears is achieved after 60 to 100 years. If the federally listed northern spotted owl and marbled murrelet are nesting near staging areas in the NCE, temporary adverse effects would occur, but the species are not expected to be adversely affected in the long term.

Alternative C: Restoration with Section 10(j) Designation (Preferred Alternative)

Unavoidable impacts under alternative C would be similar to those discussed under alternative B for both source areas. However, the 10(j) designation would allow for earlier intervention by authorized agencies to redirect grizzly bears from interfering with human environments, including agriculture. As a result, alternative C would reduce potential unavoidable adverse impacts to agriculture and livestock grazing, particularly over the long term if and when a restored population of 200 grizzly bears is achieved after 60 to 100 years.

SHORT-TERM USES AND LONG-TERM MANAGEMENT

For each alternative considered in a NEPA document, considerations of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity must be analyzed. This is described below for each alternative. The NPS and FWS must consider if the effects of the alternatives involve tradeoffs of the long-term productivity and sustainability of resources for the immediate short-term use of those resources (40 CFR 1502.16(a)(3)).

Alternative A: No Action

Alternative A would trade long-term productivity for short-term use of natural resources in the NCE. Grizzly bears would continue to be extirpated and could have impacts on the long-term productivity and sustainability of an intact ecosystem.

Alternatives B and C

Under alternatives B and C, there would be a short-term commitment of human resources and short-term impacts on wilderness character, wildlife, visitor use and recreation, public and employee safety, and ethnographic resources during active grizzly bear restoration activities. The short-term use and disruption to resources and the reestablishment of a population of grizzly bears in the NCE would result in protection of the long-term productivity of the NCE's wilderness character, other wildlife and fish, and the sustainable use of public resources, and, under alternatives B and C, would support the long-term restoration of a native species in its historical habitat in the NCE.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The NPS and FWS must consider if the effects of the alternatives cannot be changed or are permanent (that is, the impacts are irreversible). The NPS and FWS must also consider if the impacts on resources would mean that once gone, the resource could not be replaced; in other words, the resource could not be restored, replaced, or otherwise retrieved (40 CFR 1502.16(a)(4)).

Alternative A: No Action

Under alternative A, continued extirpation of grizzly bears in the NCE could result in irreversible or irretrievable impacts on a threatened species and associated wilderness and ethnographic values. These impacts would not be completely irreversible because the NPS and FWS could decide at a future time to relocate grizzly bears into the NCE from other populations.

Alternatives B and C

Alternatives B and C have the potential to result in irreversible impacts during primary capture, transport, and release activities if any bears were to die during the restoration efforts or if lethal removal is authorized for a bear involved in conflict or as result of authorized incidental take from otherwise lawful activities in the future. Given the small number of bears to be restored to the NCE over time, it is unlikely that impacts on any resources would be irreversible or irretrievable. If a grizzly bear injures or kills a person or preys on livestock, those losses would be irreversible.

CHAPTER 4: CONSULTATION AND COORDINATION

National Environmental Policy Act (NEPA) regulations require an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 Code of Federal Regulations [CFR] 1501.9(a)). This section describes the public involvement process and the consultation that occurred during development of this *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS), including consultation with Tribes, scientific experts, and other agencies.

HISTORY OF PUBLIC INVOLVEMENT

The public involvement activities for this plan/EIS fulfill the requirements of NEPA and the US Department of the Interior regulations for implementing NEPA, including 43 CFR 46.235 and 43 CFR 46.435. A previous EIS process began in 2014. In 2020, the Department of the Interior terminated that process after release of a draft EIS.

The current EIS process began in November 2022 and is a new process. However, comments that were provided during the previous EIS process informed this new EIS and the development of alternatives.

The Scoping Process

The interagency planning team divided the scoping process for this plan/EIS into two parts: internal scoping and external or public scoping. Internal scoping involved discussions among the project team regarding the purpose of and need for management actions, issues, management alternatives, mitigation measures, the area of analysis, appropriate level of documentation, available references and guidance, and other related topics.

Public scoping is the early involvement of the interested and affected public in the environmental analysis process. The public scoping process helps ensure that people have an opportunity to comment and contribute early in the decision-making process. For this plan/EIS, project information was made available to individuals, agencies, and organizations early in the scoping process, and opportunities were provided to express concerns or views and to identify important issues or alternatives.

Taken together, internal and public scoping are essential elements of the NEPA planning process. The following sections describe the various ways scoping was conducted for this plan/EIS.

Internal Scoping

Internal scoping occurred in fall 2022 when the lead agencies, the National Park Service (NPS) and US Fish and Wildlife Service (FWS), and the cooperating agency, Washington Department of Fish and Wildlife (WDFW), reviewed the purpose of and need for action, management objectives, issues, and impact topics, and previously developed alternative approaches. The US Forest Service (USFS) participated in discussions but were not a formal cooperating agency at that time. The agencies refined and updated the range of alternatives during this time. Cooperating agency roles and involvement and the public scoping process were also discussed.

Public Scoping

Public scoping was conducted in November and December 2022. The publication of a Notice of Intent to prepare the plan/EIS appeared in the *Federal Register* (FR) on November 14, 2022 (80 FR 68190) and

marked the start of the public scoping period. In addition to the Notice of Intent, the NPS and FWS issued a press release to media outlets announcing the dates, times, and format of public scoping meetings. This press release was also posted on North Cascades National Park Service Complex's (park complex) website and shared on social media. Notifications were also sent to Tribes, county councils and commissions, and Congressional offices notifying them of the public scoping meetings. These announcements notified the public of public scoping meetings and of the opportunity to provide comments on the proposed action.

The public scoping comment period was open for 34 days between November 10, 2022, and December 14, 2022. During this time, four public scoping meetings were held on the following dates:

- November 15, 2022: Virtual Meeting
- November 18, 2022: Virtual Meeting
- December 1, 2022: Virtual Meeting
- December 2, 2022: Virtual Meeting

Approximately 212 people attended the four meetings, with each meeting ranging from 29 to 85 attendees.

During the scoping period, 6,207 pieces of correspondence were received. Following the public scoping period, the NPS reviewed all public comments and developed a Comment Analysis Report to compile and correlate similar public comments into a format usable by the decision-makers and the interagency planning team. The Comment Analysis Report contributes to organizing, clarifying, and addressing technical information pursuant to NEPA regulations and in identifying the topics and issues to be evaluated and considered throughout the planning process. All scoping comments were considered important and useful guidance in the plan/EIS process.

Public comments included suggestions for changes to the proposed action presented in the Notice of Intent and new impact topics and alternative elements for consideration. Some commenters suggested exploring natural recovery alternatives rather than direct reintroduction, implementing an expedited relocation process, providing more robust plans for ensuring population resiliency after reintroduction, and considering alternatives that do not implement a section 10(j) rule. Other comments included requests for further analysis and review of existing information related to human safety, coexistence with livestock, impacts to source grizzly bear populations, protection of wilderness areas, and increasing habitat connectivity.

Public Comment on the Draft Plan / Environmental Impact Statement

The draft EIS was made available for review through a Notice of Availability on September 28, 2023. The NPS and FWS held a public comment period for the draft EIS from September 28, 2023, to November 13, 2023.

In addition to the Notice of Availability, the NPS and FWS issued a press release to media outlets announcing the dates, times, and format of public meetings. Press releases were also posted on the park complex's website and shared on social media. Notifications were sent to Tribes, county councils and commissions, and Congressional offices notifying them of the public meetings. These announcements notified the public of public meetings and of the opportunity to provide comments on the draft EIS and proposed 10(j) rule.

During this time, a series of five public meetings were held at the following locations:

- October 17, 2023: Virtual Public Meeting, Microsoft Teams Live (104 attendees)
- October 30, 2023: Okanogan County Fairgrounds, Okanogan, Washington (188 attendees)
- November 1, 2023: Currier Hall, Newhalem, Washington (37 attendees)
- November 2, 2023: Darrington High School Auditorium, Darrington, Washington (215 attendees)
- November 3, 2023: Winthrop Barn Auditorium, Winthrop, Washington (220 attendees)

The public was encouraged to submit comments through the NPS Planning, Environment, and Public Comment (PEPC) website (https://parkplanning.nps.gov/NCEGrizzly). Comments were also accepted verbally and in writing at the public meetings, by US mail, and in person at the park complex. A total of 12,788 pieces of correspondence were received during the public comment period for the draft plan/EIS. All substantive comments were summarized by developing concern statements. A response was prepared for each concern statement. Agency responses to substantive comments are provided in appendix E.

AGENCY CONSULTATION

National Oceanic and Atmospheric Administration – National Marine Fisheries Service

In February 2024, the NPS and FWS sent a letter to the National Marine Fisheries Service assessing the potential impacts on for four listed salmonids: Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), Puget Sound steelhead (*O. mykiss*), Upper Columbia River spring-run Chinook, and Upper Columbia steelhead. The NPS is serving as the lead federal agency for purposes of section 7(a)(2) of the *Endangered Species Act* (ESA, 16 United States Code [USC] 153 et seq.) for consultation associated with the four federally listed anadromous salmon populations. The NPS requested informal consultation with NMFS and concurrence with its assessment that the proposed action may affect, but is not likely to adversely affect, the four listed salmonid populations occurring in the NCE. Consultation is ongoing and will be documented in the record of decision.

US Fish and Wildlife Consultation

The FWS is serving as the federal action agency for purposes of section 7(a)(2) of the ESA for the species under its jurisdiction. The FWS completed a biological opinion in support of intra-agency formal consultation on the potential effects to the grizzly bear, bull trout, and whitebark pine. The level of anticipated take is not likely to result in jeopardy to these species or destruction or adverse modification of critical habitat. The FWS determined that the proposed action may affect, but is not likely to adversely affect Canada lynx, gray wolf, marbled murrelet, wolverine, northern spotted owl, and Mount Rainier white-tailed ptarmigan. Compliance with section 7 will be documented in the record of decision.

US Forest Service

The USFS is a cooperating agency for this plan/EIS process and has participated in internal planning meetings, including the internal scoping and alternatives development meetings, although it was not a formal cooperating agencies at that time. The USFS has also contributed to the development of this plan/EIS in describing the affected environment and addressing potential impacts that could result from actions in the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests. The USFS also supported the development of responses to substantive public comments that were relevant to the agency and associated land management.

Washington Department of Fish and Wildlife

The WDFW is a cooperating agency for this plan/EIS process and has participated in internal planning meetings, including the internal scoping and alternatives development meetings. The WDFW has also contributed to the development of this plan/EIS by describing the affected environment, addressing potential impacts, and discussing the NPS and FWS actions in relation to state statutes. The WDFW also supported the development of responses to substantive public comments that were relevant to its area of special expertise.

Washington State Historic Preservation Office

In accordance with section 106 of the *National Historic Preservation Act*, the NPS and FWS have conducted consultation with the Washington Department of Archaeology and Historic Preservation concerning impacts on cultural resources. The agencies identified the area of potential effects and provided information related to the potential impacts on historic properties to the Washington State Historic Preservation Office and interested Tribes. In February 2024, the NPS and FWS sent an assessment of effect letter to the Washington State Historic Preservation Office and interested Tribes with a finding of no effect on historic properties and archeological resources. In February 2024, the Washington State Historic Preservation Office concurred with the finding.

TRIBAL TREATIES AND CONSULTATION

Tribal Treaties

The Pacific Northwest saw a dramatic shift in its political economy when European American and European-Canadian settlers reached this remote corner of North America. Following several years of joint occupation, these global powers superimposed an international border at the 49th parallel in the Treaty of Oregon in 1849. This set off a chain of events that led to fee simple ownership of lands by settlers, and in turn, dispossessed Indigenous groups of their homelands. In the 1850s, Washington Territorial Governor Isaac Stevens began a campaign to settle treaties with Native American Tribes under the authority of the US government. This process inflamed hostilities between settlers and Indigenous communities, and conflicts arose throughout the area. Under duress, many Native American Tribes eventually signed treaties and began the process of relocating to less desirable reservation lands. The NCE comprises lands ceded in the Point Elliot and Yakama Treaties of 1855. These treaties affirmed the enduring right for the Indigenous groups to hunt and gather in open and unclaimed land and to fish at all usual and accustomed places.

The Methow, Chelan, Wenatchi, Entiat, and Okanogan Tribes never ceded their rights through a treaty. Instead, following decades of continuing conflict with the US government, their traditional territories were incorporated into the Moses-Columbia Reservation by an executive order in 1879. After the forceful relocation by the US Army, the US government dissolved the Moses-Columbia Reservation, and Indigenous peoples were forced again to relocate to the Colville or Yakama Reservations. Alternatively, one square mile allotments along Lake Chelan were established for individuals who refused to relocate. Indigenous people who found themselves on the Canadian side of the border when the line was drawn never ceded lands to the US government but continue to retain ties to their traditional territories across the border (Johnson 2021).

The descendants of the peoples who traditionally used the Northern Cascades are linked to the following present-day Tribal entities: the Confederated Tribes of the Colville Reservation, the Lummi Nation, the Muckleshoot Indian Tribe, Nooksack Indian Tribe, Sauk-Suiattle Indian Tribe, the Swinomish Indian Tribal Community, the Snoqualmie Tribe, the Stillaguamish Tribe of Indians, the Tulalip Tribe, the

Upper Skagit Tribe, the Yakama Indian Nation, Suquamish Tribe, and the Samish Indian Nation. Additionally, several Canadian First Nations retain traditional lands within the US boundary, including the Stó:lō Nation and the Nlaka'pamux Nation Tribal Council. These Native American Tribes and First Nations retain important ties to the Northern Cascades either through continued use of the lands for traditional practices (e.g., hunting and fishing, ceremonies) and/or through connections to the land that are documented in oral histories that continue to be important for Tribal practices. All treaty Tribes retain rights to hunt and gather on their ceded lands where it is consistent with existing management of those lands. In addition, the NPS regulations allow federally recognized Native American Tribes that have traditional associations with the park area to issue permits to their members to gather plants within park boundaries for traditional purposes following the development of an agreement between the park and individual Tribe (36 CFR 2.6; 81 FR 45024–45039, 2016).

Tribal Consultation

The NPS and FWS recognize that the Indigenous groups relationship to lands in the NCE have endured since time immemorial, and NPS and FWS staff continue to work with Indigenous groups to ensure that sites of traditional importance are preserved and protected. NPS and FWS staff strive to create and maintain positive, productive, government-to-government relationships with these Indigenous groups (NPS 2015b).

At the start of scoping in November 2022, a joint letter inviting consultation on the EIS process and grizzly bear recovery was sent to the 29 federally recognized Native American Tribes in Washington state and to the Nez Perce Tribe of Idaho. A second letter was sent in February 2023 to federally recognized Native American Tribes in Washington state inviting consultation specifically on the topic of a 10(j) NEP designation.

Also in February 2023, a joint letter inviting consultation on the EIS process was sent to Tribes in FWS Region 6 (Mountain-Prairie Region), which is near possible source populations of grizzly bears and includes the states of Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah and Wyoming.

Coinciding with the release of the draft EIS and proposed 10(j) rule in September 2023, letters inviting consultation were sent to all federally recognized Native American Tribes in Washington state, Idaho, and FWS Region 6 (Mountain-Prairie Region).

Over the course of the EIS process, staff meetings or briefings took place with representatives from Confederated Salish and Kootenai Tribes, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Nlaka'pamux Nation Tribal Council, Okanagan Nation Alliance (Syilx), Pawnee Nation, Swinomish Indian Tribal Community, Upper Skagit Indian Tribe, Yakama Nation, and the Northwest Indian Fisheries Commission.

Responses or comment letters were received during the EIS process from: the Confederated Tribes of the Colville Reservation, Lummi Nation, Nlaka'pamux Nation Tribal Council, Snoqualmie Tribe, Sauk-Suiattle Indian Tribe, Upper Skagit Indian Tribe, and Yakama Nation. Tribal consultation will be an important and ongoing discussion over the course of the NEPA process and will continue into implementation, should an action alternative be selected.

This Tribal consultation builds on information gathered during extensive efforts during the previous EIS process and will continue.

CONSULTATION WITH FEDERAL AND STATE LEGISLATIVE OFFICIALS

The NPS and FWS sent notification of the start of the EIS process in November 2022 to Washington's two senators and ten Congressional representatives, as well as Washington State legislative officials, including members of the Senate Agriculture, Water, Natural Resources and Parks Committee, and the House Rural Development, Agriculture, and Natural Resources Committee. Notification of the release of the draft EIS and proposed 10(j) rule was sent to the same entities in September 2023.

A briefing open to Washington's congressional delegation was held in January 2023. In attendance were staff from the offices of Representatives DelBene, Larsen, Schrier, and Newhouse, and Senators Cantwell and Murray. A briefing for staff for Representative Newhouse and the Western Caucus was held in October 2023.

LOCAL GOVERNMENT CONSULTATION

The NPS and FWS initiated outreach to county governments coinciding with the publication of the Notice of Intent in November 2022. Notification was sent via email to county officials in Chelan, King, Kittitas, Skagit, Snohomish, Okanogan, and Whatcom Counties and to officials in cities and towns in the ecosystem. Notification of the release of the draft EIS and proposed 10(j) rule was sent to county and local entities in September 2023.

In April 2023, the FWS sent letters to county officials around the NCE offering informational presentations on the EIS process and 10(j) rules. Meetings took place with county councils or boards of commissioners in five different counties: Chelan, Skagit, Snohomish, Okanogan, and Whatcom.

In May 2023, Chelan, Skagit, Snohomish, Okanogan and Whatcom Counties requested cooperating agency status for the EIS. These counties participated in a January 2024 meeting related to comments received on the socioeconomic effects of the proposed action and the development of responses for the final EIS.

Consultation will continue to build on efforts from the previous EIS process, during which the NPS and FWS conducted briefings about the EIS with county and local government officials on more than 13 separate occasions.

LIST OF PREPARERS AND CONSULTANTS

Name	Title	Qualifications
National Park Service		
Joe Neubauer	Project Manager, Environmental Quality Division	BS, Biology MS, Marine Science
Don Striker	Superintendent, North Cascades National Park Complex	BS, Economics
Anne Braaten	Bear Management Biologist, North Cascades National Park Complex	BA, Biology MS, Wildlife Science
Kimberly Dicenzo	Archeologist, Cultural Resource Program Manager, North Cascades National Park Complex	BA, Anthropology- Archeology Concentration MA, Anthropology- Archeology Concentration

Name	Title	Qualifications
Erik Frenzel	Regional Wilderness Coordinator, Interior Regions 8, 9, 10, and 12	BS, Ecology and Systematic Biology MS, Ecology
Jason Ransom	Wildlife Biologist, Wildlife Program Lead, North Cascades National Park Complex	BS, Biology MS, Ecology PhD, Ecology
Ashley Rawhouser	Chief of Resource Management, North Cascades National Park Service Complex	BS, Biology MS, Environmental Science
Denise Shultz	Chief of Visitor Services and Acting Deputy Superintendent, North Cascades National Park Complex	
US Fish and Wildlife Service		
Ann Froschauer	Deputy State Supervisor, Washington Ecological Services Office	BS, Natural Resources Management MS, Natural Resources Management
Wayne Kasworm	Team Leader - Cabinet-Yaak Ecosystem Program, Grizzly Bear Biologist	BS, Fish and Wildlife Resources MS, Fish and Wildlife Management
Hilary Cooley	Grizzly Bear Recovery Coordinator	BS, Natural Resources MS, Wildlife Biology PhD, Wildlife Biology
Jesse D'Elia	Fish and Wildlife Biologist, Conservation Science and Recovery	BS, Wildlife Ecology MS, Wildlife Resources PhD, Wildlife Science
Abigail Sage	Fish and Wildlife Biologist	BS, Fisheries and Wildlife Sciences MS, Wildlife Biology
WSP USA Solutions Inc.		
Rudi Byron, AICP	Project Manager, Vice President	BS, Environmental Science and Policy MURP, Urban and Regional Planning
Michelle Bacon, MSc, RPBio	Senior Wildlife Biologist	BSc, Fisheries and Wildlife Science MSc, Ecology
Phillip Baigas	Deputy Project Manager, Wildlife Biologist	BA, Geography and GIS MS, Ecosystem Science and Management
Joe Dalrymple	Environmental Planner	BS, Environmental Science / Marine Biology MS, Marine Science
Gabor Debreczeni	Senior Lead Consultant	BA, Economics MA, International Economics and International Development
Lori Fox, AICP	Quality Assurance/ Quality Control Specialist	BS, Environmental Policy MCP, Land Use and Environmental
Linda Green	GIS Analyst	BA, Environmental Studies
Jordyn Gross	Associate Consultant	BA, Environmental Geography and Psychology

Name	Title	Qualifications
Kyle Knopff	Senior Principal Ecologist	BSc, Anthropology MA, Anthropology PhD, Ecology
Deborah Mandell	Senior Technical Editor	BA, Government MBA, Finance and Marketing
Linh Nguyen	Senior Consultant	BA, Geography MA, Urban Planning
Leslie Pomaville	Senior Recreation Planner	BS, Environmental Natural Resource Policy MS, Parks Recreation Tourism Management
Raida Uzma	Associate Consultant	BA, Finance, Accounting, and Economics MA, Economics

OTHER REVIEWERS

US Fish and Wildlife Service

Brad Thompson, State Supervisor, Washington Ecological Services Office

Andrew LaValle, Public Affairs Specialist, Washington Ecological Services Office

Ben Jimenez, Conflict Coordinator, Grizzly Bear Recovery Program

US Forest Service

David Topolewski, Forest Wildlife Biologist, Okanogan-Wenatchee National Forest

Matt Marsh, District Ranger, Colville National Forest, Tonasket Ranger District

Phillip Huber, Acting Threatened, Endangered, and Sensitive Species Program Manager, Pacific Northwest Regional Office

Andrea Lyons, Regional Wildlife Ecologist, R6 Pacific Northwest Regional Office

Washington Department of Fish and Wildlife

Hannah Anderson, Wildlife Diversity Division Manager

Scott Fitkin, District Wildlife Biologist

Eric Gardner, Assistant Director, Wildlife Program

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GLOSSARY

acid deposition: also called “acid rain”; a broad term that includes any form of precipitation with acidic components, such as sulfuric or nitric acid, that fall to the ground from the atmosphere in wet or dry forms.

adaptive management: applying management interventions, monitoring outcomes, and modifying future management actions to achieve grizzly bear restoration objectives and maximize social tolerance.

adverse: a change that moves the resource away from a desired condition or detracts from its appearance or condition.

adverse use: any use of a park or its resources that conflicts with the purpose for which the park was established. Adverse use is not as strong a term as “misuse” and does not necessarily refer to flagrant or seriously damaging departures from appropriate use.

aversive conditioning: application of negative reinforcement aimed at behavior modification of a specific animal(s) using hazing techniques on a consistent basis. Examples include the use of rubber bullets, the use of bear spray, noise-making devices (e.g., explosives), or flashing lights.

aesthetic/esthetic value: value of a property based on its appearance.

analysis area: the North Cascades Ecosystem grizzly bear recovery zone as described in the North Cascades Ecosystem Recovery Plan chapter of the FWS *Grizzly Bear Recovery Plan*.

animal unit: one mature cow of approximately 1,000 pounds and one calf up to weaning, usually 6 months of age, or equivalent.

animal unit month: the amount of forage required by one animal unit for 1 month. The Natural Resources Conservation Service uses 30 pounds of air-dry forage per day as the standard forage demand for a 1,000-pound cow and her calf (one animal unit.)

authorized agency: a federal, state, or Tribal agency designated by the FWS in a memorandum of understanding to assist in implementing all or part of the 10(j) rule.

avalanche chute: a natural channel down a steep mountain slope, the path followed by an avalanche's tumultuous racing snow and debris.

backcountry: a part or parts of a park or forest beyond main developed use areas and generally not accessible to vehicular travel. Backcountry is characteristically of primitive or wilderness nature, of considerable dimensions, and accessible, if at all, only by horse or foot trails or in some cases by unimproved roads.

bear management unit: a geographic location bounded by county, state or topographic borders with a bear subpopulation within it.

bear spray: a spray that is specifically formulated to deter aggressive or attacking bears. Bear spray is specifically labeled for use against bears, and by law, must be registered with the US Environmental Protection Agency and individual states.

beneficial: a change in the condition or appearance of the resource that moves the resource toward a desired condition.

biodiversity: diversity among and within plant and animal species in an environment.

biome: a large geographical area of distinctive plant and animal groups that are adapted to that particular environment.

board foot: a unit of wood measuring 1 inch thick by 12 inches by 12 inches. The volume of 1 board foot (BF) = 144 cubic inches.

campground: an area with an organized layout, having well-defined roads, parking spaces, and camp sites. Drinking water and sanitary facilities, including toilets and refuse containers may be furnished on a community basis.

carrying capacity: the maximum, equilibrium number of organisms of a particular species that can be supported indefinitely in a given environment.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act, otherwise known as Superfund, provides a federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment.

conditioned: describes bear behavior defined by any one or more of the following: has sought and obtained non-natural foods, destroyed property, displayed aggressive (non-defensive) behavior toward humans, or become overly familiar with humans.

conservation: those measures of park management directed toward perpetuating park resources unimpaired for the enjoyment of present and future generations.

context: may include society as a whole (human, national), the affected region, the affected interests, and the locality.

core area: areas with the following characteristics: (1) no motorized use of roads and trails during the non-denning period; (2) no roads or trails that receive nonmotorized, high-intensity use (an average of 20 or more parties per week); and (3) a minimum of 0.3 miles (500 meters) from any open motorized access route or high-use nonmotorized access route.

cumulative impact: the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions.

dedicated trail-less wilderness: a class of wilderness that is managed exclusively as a trail-less area, and user-made trails are not permitted. It may include popular attractions accessed only by cross-country travel. Human impact and influence is minimal; therefore, user restrictions may be necessary to ensure that trail-less experiences remain.

delisting: the removal of a species from the federal lists of endangered and threatened wildlife and plants.

deterrence: an intentional, nonlethal action that does not cause lasting bodily injury to haze, disrupt, or annoy a grizzly bear out of close proximity to people or property to promote human safety, prevent conflict, or protect property.

depredation: the confirmed killing or wounding of lawfully present domestic animals.

developed area: roads, parking areas, picnic areas, frontcountry campgrounds, concessions and administrative facilities, residences and/or adjacent lands.

ecosystem: a system, or a group of interconnected elements, formed by the interaction of a community of organisms with their environment.

endangered species: any species that is in danger of extinction throughout all or a significant portion of its range.

ethnographic resources: landscapes, objects, plants and animals, or sites and structures that are important to a people's sense of purpose or way of life.

experimental population: members of a translocated ESA-listed species and their progeny that are geographically separated from other nonexperimental populations of the same species, and which are specifically designated under section 10(j) of the ESA to reduce regulatory burden, promote human tolerance and acceptance, and contribute to the species' conservation.

fire control: all activities directed toward protection of the parks from fires of all kinds and from all causes. Fire control includes the three sub-activities or functions of fire prevention, presuppression, and suppression.

food economy: refers to the dominant foods available to bears in a given area.

forest visits: a term preferred (rather than "visitation") to express the concept of the volume of public entry and use of forests or of the number of people coming to forests. Similar to park visits.

frontcountry: areas near well-developed trails, sites with picnic tables, areas proximate to ranger stations and/or visitor centers, and designated campgrounds (i.e., those with fireplaces, water pumps, and/or bathrooms).

gateway communities: those cities and towns that are geographically close to the NCE and derive some measurable economic benefit from tourism and related activities within the NCE. For the purposes of this document, these communities are generally located within 60 miles of the NCE.

general trail-less wilderness: a class of wilderness that includes areas not falling into the other classes. It attracts very low use because of a relative lack of trails or destination spots. The area is unmodified, and user-made trails are not encouraged, but may exist.

glacial retreat: when the terminus of a glacier does not extend as far down valley as it previously did.

guided recreation: activities or sports where individuals participate under the direction of an experienced guide.

grizzly bear involved in conflict: a grizzly bear that has caused substantial property damage, obtained anthropogenic foods (e.g., pet food, livestock feed, garbage), killed or injured lawfully present livestock,

damaged beehives, breached an intact structure or electrified perimeter to obtain fruit or crops (e.g., greenhouse, garden, orchard, field, stackyard or grain bin), shown repeated and persistent signs of habituation (e.g., repeatedly hazed or previously relocated) in proximity to human-occupied areas, exhibited aggressive behavior (i.e., not acting in defense of offspring or food, or in response to a surprise encounter), or has been involved in a human-grizzly bear encounter resulting in substantial human injury or loss of human life.

habitat: the natural place where plants, animals, or other organisms live.

habitat assessment: a research process that seeks to document the non-monetary value of fish and wildlife resources.

habitat destruction: the process by which natural habitat is damaged or destroyed to such an extent that it no longer is capable of supporting the species and ecological communities that naturally occur there.

habitat modification: actions that physically remove or add elements that change the native habitat.

habituated: bear behavior that includes one or more of the following circumstances: has become accustomed to frequenting developed areas, backcountry campgrounds, trails or roadsides, but has retained its natural foraging behavior. Habituated bears have not necessarily become overly familiar with humans but are comfortable in the presence of humans.

human-occupied areas: any structures or areas currently used or inhabited by humans (e.g., homes, residential areas, occupied campgrounds or trailheads, job sites).

impounding: confining within an enclosure or within limits.

intensity: the severity or magnitude of an impact. The CEQ identifies 10 factors to be considered in evaluating the intensity of an impact.

interpretive activity/program: an activity that presents the inspirational, educational, and recreational values of the parks in such ways that visitors may derive the utmost in understanding, appreciation, and enjoyment from their experience.

interspecific competition: a form of competition between members of different species inhabiting the same ecological area.

invasive species: those species that are not only nonnative, but also negatively impact the environment.

Karelian Bear Dogs: a type of dog used at the point of release when bears are captured and relocated, in order to condition the bear and for Washington Department of Fish and Wildlife employee safety.

lasting bodily injury: any permanent damage or injury to a grizzly bear that limits the bear's ability to effectively move, obtain food, or defend itself for any length of time.

less-lethal ammunition: specially formulated ammunition, such as rubber bullets, that is designed to stop a bear with less chance of fatally injuring them or innocent bystanders.

locatable minerals: those minerals which, when found in valuable deposits, can be acquired under the General Mining Laws of 1872 (as amended). Examples include copper, gold, tungsten, nickel, zinc, silver, and lead.

management action: Any action taken by management due to bear activity that directly affects the bear and/or the public. This includes, but is not limited to trail postings, trail closures, campground closures, bear relocations and bear removals.

mortality limit: the maximum allowable number of incidental mortalities per calendar year assigned unless a shorter time period is specified.

natural wilderness: an area that shows minimal effects of modern civilization upon the ecological systems and their biological and physical components. A natural wilderness comprises landforms, soils, waterways, habitats, species, and terrestrial food webs that are largely intact in their natural state and not influenced by human activities and external threats.

nonnative species: those species that have been introduced into new areas that have not historically been part of their native range.

North Cascades Ecosystem Grizzly Bear Recovery Zone: an area in Washington State that encompasses approximately 9,800 square miles, or 6.1 million acres, within the US portion of the North Cascades Ecosystem (NCE). It includes all of the park complex and most of the Mount Baker-Snoqualmie and Okanogan-Wenatchee National Forests.

North Cascades National Park Service Park Complex: an area that includes North Cascades National Park, and Ross Lake and Lake Chelan National Recreation Areas.

noxious plant: vegetation poisonous or irritating to people or animals. (Exotic and noxious are not synonymous.)

ozone: a colorless, odorless reactive gas comprising three oxygen atoms.

pack animal: a mule, donkey, burro, or horse bred for vigor and hardiness and used for carrying heavy loads.

park visits: a term preferred (rather than "visitation") to express the concept of the volume of public entry and use of the parks or of the number of people coming to the parks. Similar to forest visits.

particulate matter: also known as "particulate pollution"; a complex mixture of extremely small particles and liquid droplets.

permit: a special written permission by the NPS or USFS authorizing access to specific remote, wilderness areas and the backcountry.

phenology: the science dealing with the influence of climate on the recurrence of such annual phenomena of animal and plant life as budding and bird migrations.

predation: a relation between animals in which one organism captures and feeds on others.

preservation: protection of the parks from damage, defacement, exploitation of their natural resources, or impairment of the natural or historic scene they present. Preservation is a more restrictive practice than conservation; the two terms should not be used synonymously.

primitive/trailed areas: areas characterized by an unmodified natural environment with a minimum of on-site controls and restrictions and, where present, controls are subtle. Facilities are only provided for protection of wilderness resource values.

pristine/trail-less areas: areas characterized by an extensive unmodified natural environment where natural processes are not measurably affected by the actions of visitors.

public scoping: the early involvement of the interested and affected public in the environmental analysis process.

range curtailment: the contracting or reducing of areas for use by a specific species. This could occur through habitat destruction and modification as well as by the introduction of nonnative species.

record of decision: the formal, legal decision document that is recorded for the public.

recovery priority: refers to a number, ranging from a high of 1 to a low of 18, whereby priorities to listed species and recovery tasks are assigned.

recreation: a broad term that may refer to enjoyment of park features and values.

release site: a remote, designated area within National Park Service (NPS) or US Forest Service (USFS) lands where bears will be released.

relocation: to move the bear to another area within NPS or USFS administered lands.

region of influence: the physical area that bounds the environmental, sociological, economic, or cultural feature of interest for the purpose of analysis.

removal: to relocate the bear to an area outside specific NPS or national forest lands or destroy it.

restoration: returning a site or area in a park as nearly as possible to the natural condition in which it was before some artificial alteration took place. Also, renewing or bringing back the elements of an existing historic scene, building, or object as nearly as possible to their original form.

riparian: of, relating to, or situated or dwelling on the bank of a river or other body of water.

self-sustaining: able to continue in a healthy state without outside assistance.

special status species: see species of concern.

species: a biological group of similar plants or animals with common characteristics that are capable of interbreeding.

species of concern: in Washington, these include those species listed as state endangered, state threatened, state sensitive, or state candidate, as well as species listed or proposed for listing by the US Fish and Wildlife Service (FWS) or the National Marine Fisheries Service.

subalpine: growing on mountains below the limit of tree growth, and above the foothill, or montane, zone.

threatened species: any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

threat to human safety: a grizzly bear that exhibits aggressive, non-defensive behavior toward humans. Grizzly bear presence alone does not constitute a threat to human safety. Grizzly bears younger than 2 years of age with no history of food-conditioning are not considered a threat to human safety.

trailed wilderness: a class of wilderness that includes all managed system trails. It extends beyond the transition class. This class extends at least 500 feet on either side of the trail, but may be wider around lakes or heavily used areas.

transition wilderness: a class of wilderness that includes system trails that have a travel-way worn to mineral soil over long distances, and is characterized by having a large proportion of day-users, often mixed in with overnight and long-distance travelers.

undeveloped wilderness: an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, with the imprint of man's work substantially unnoticeable.

ungulate: a hoofed mammal. Several species of ungulate occur in the NCE, including mule deer, mountain goats, bighorn sheep, elk, and moose.

untrammeled wilderness: an area wherein ecological systems and their biological and physical components are autonomous, free from human intervention. Human actions that restrict, manipulate, or attempt to control the natural world within wilderness degrade the untrammeled quality.

viable: when monitoring efforts indicate recruitment and mortality are at levels supporting a stable or increasing population, and reproducing females are distributed throughout the recovery zone.

watershed: a region or area drained by a river, stream, etc.

wilderness: wild, undeveloped, and relatively unfrequented portions of a park—back country. Also used in reference to any area where processes of nature are left to develop unmanaged and undisturbed by humans.

wilderness character: a holistic concept based on the interaction of (1) biophysical environments primarily free from modern human manipulation and impact, (2) personal experience in natural environments relatively free from the encumbrances and signs of modern society, and (3) symbolic meanings of humility, restraint, and interdependence that inspire human connection with nature.

wilderness use: visitor use of undeveloped, backcountry areas. A type of park use and occupancy by visitors without benefit of any facilities or services other than possibly foot or horse trails for access.

APPENDIX A: POTENTIALLY AFFECTED FEDERAL AND STATE-LISTED SPECIES

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POTENTIALLY AFFECTED FEDERAL AND STATE-LISTED SPECIES

FEDERALLY THREATENED AND ENDANGERED SPECIES

The North Cascades Ecosystem (NCE) contains a variety of habitats suitable for special-status species. Plants and animals listed under the Endangered Species Act (ESA) that could be present or have designated critical habitat within the NCE are listed below in table A-1. All of these species are also on the list of species for U.S. Forest Service (USFS) Region 6 as either documented or suspected in the Okanogan-Wenatchee, Mt. Baker-Snoqualmie, and/or Colville National Forests.

TABLE A-1. ESA-LISTED SPECIES PRESENT IN THE NORTH CASCADES ECOSYSTEM

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat within NCE	Potentially Affected by Grizzly Restoration
Mammals					
Canada Lynx	*Lynx Canadensis*	Threatened	Endangered	Yes[a]	Yes
Gray Wolf	*Canis lupus*	Endangered in Western 2/3 of Washington	Endangered	No	Yes
Wolverine	*Gulo gulo*	Threatened	Candidate	No	Yes
Birds					
Marbled Murrelet	*Brachyramphus marmoratus*	Threatened	Endangered	Yes[b]	Yes
Mt. Rainier white-tailed ptarmigan	*Lagopus leucura rainierensis*	Proposed Threatened	None	No	No
Northern Spotted Owl	*Stix occidentalis caurina*	Threatened	Endangered	Yes[c]	Yes
Yellow-billed Cuckoo	*Coccyzus americanus*	Endangered	Endangered	No	No
Insects					
Monarch butterfly	*Danaus plexippus*	Candidate	None	No	No
Western bumble bee	*Bombus occidentalis*	Under Review	Candidate	No	No
Fish					
Bull Trout	*Salvelinus confluentus*	Threatened	Candidate	Yes[d]	Yes
Chinook Salmon (Puget Sound ESU)	*Oncorhynchus tshawytscha*	Threatened	None	Yes[e]	Yes
Chinook Salmon (Upper Columbia River spring-run ESU)	*Oncorhynchus tshawytscha*	Endangered	None	Yes[f]	Yes
Chum salmon (Columbia River ESU)	*Oncorhynchus keta*	Threatened	None	No	Yes
Steelhead (Middle Columbia River DPS)	*Oncorhynchus mykiss*	Threatened	Candidate	Yes[g]	Yes

Common Name	Scientific Name	Federal Status	State Status	Critical Habitat within NCE	Potentially Affected by Grizzly Restoration
Steelhead (Puget Sound DPS)	*Oncorhynchus mykiss*	Threatened	Candidate	Yes[h]	Yes
Plants					
Showy Stickseed	*Hackelia venusta*	Endangered	Endangered	No	No
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	Endangered	No	No
Wenatchee Mountains Checkermallow	*Sidalcea oregana* var. *calva*	Endangered	Endangered	Yes	No
Whitebark Pine	*Pinus albicaulis*	Threatened	Threatened	No	Yes

Sources: FWS 2023; USFS 2021; WDFW 2022

[a] A map of critical habitat for Canada lynx is available at https://ecos.fws.gov/ecp/species/A073?

[b] A map of critical habitat for marbled murrelet is available at https://ecos.fws.gov/ecp/species/4467

[c] A map of critical habitat for northern spotted owl is available at https://ecos.fws.gov/ecp/species/1123

[d] A map of critical habitat for bull trout is available at https://ecos.fws.gov/ecp/species/8212

[e] A map of critical habitat for the Puget Sound Chinook Salmon ESU is available at https://media.fisheries.noaa.gov/2022-05/ch_2021mapseries_SalmonChinook_PugetSoundESU.jpg

[f] A map of critical habitat for the Upper Columbia River spring-run Chinook Salmon ESU is available at https://media.fisheries.noaa.gov/2022-05/ch_2021mapseries_SalmonChinook_UpperColumbiaRiverspringrunESU.jpg

[g] A map of critical habitat for the Middle Columbia River steelhead DPS is available at https://media.fisheries.noaa.gov/2022-05/ch_2021mapseries_Steelhead_MiddleColumbiaRiverDPS.jpg

[h] A map of critical habitat for the Puget Sound steelhead DPS is available at https://media.fisheries.noaa.gov/2022-05/ch_2021mapseries_Steelhead_PugetSoundDPS.jpg

STATE OF WASHINGTON, DEPARTMENT OF FISH AND WILDLIFE LISTED SPECIES

In addition to the federally threatened and endangered species listed above, the NCE is home to additional Washington State species that are listed as state endangered, state threatened, state sensitive, or state candidate. State special-status species found in the NCE are shown in table A-2.

TABLE A-2. WASHINGTON STATE SPECIES OF CONCERN IN THE NORTH CASCADES ECOSYSTEM

Common Name	Scientific Name	State Status	Likely to be Affected by Grizzly Restoration?
Mammals			
Cascade red fox	*Vulpes cascadensis*	Endangered	No
Fisher	*Pekania pennanti*	Endangered	Yes
Keen's long-eared bat	*Myotis evotis keenii*	Candidate	No
Townsend's big-eared bat	*Corynorhinus townsendii*	Candidate	No
Western gray squirrel	*Sciurus griseus*	Endangered	No

Common Name	Scientific Name	State Status	Likely to be Affected by Grizzly Restoration?
Birds			
American white pelican	*Pelecanus erythrorhynchos*	Sensitive	No
Black-backed woodpecker	*Picoides arcticus*	Candidate	No
Clark's grebe	*Aechmophorus clarkii*	Candidate	No
Columbian Sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	Endangered	No
Common loon	*Gavia immer*	Sensitive	No
Flammulated owl	*Otus flammeolus*	Candidate	No
Golden eagle	*Aquila chrysaetos*	Candidate	No
Northern goshawk	*Accipiter gentilis*	Candidate	No
Sandhill crane	*Grus canadensis*	Endangered	No
Western grebe	*Aechmophorus occidentalis*	Candidate	No
White-headed woodpecker	*Picoides albolarvatus*	Candidate	No
Fish			
Pygmy whitefish	*Prosopium coulteri*	Sensitive	Yes
River lamprey	*Lampetra ayresi*	Candidate	No
Steelhead	*Oncorhynchus mykiss*	Candidate	Yes

Sources: WDFW 2013, 2018

USFS REGIONAL FORESTER SENSITIVE SPECIES

In addition to the federally threatened and endangered species listed above, the NCE is home to several sensitive species within USFS Region 6. Sensitive Species are defined as those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density and habitat capability that would reduce a species' existing distribution. Regional Forester Sensitive species found in the NCE are shown in table A-3.

TABLE A-3. REGIONAL FORESTER SENSITIVE SPECIES OF IN THE NORTH CASCADES ECOSYSTEM (REGION 6)

Common Name	Scientific Name	Likely to be Affected by Grizzly Restoration?*
American peregrine falcon	*Falco peregrinus anatum*	No
Astarte fritillary	*Boloria astarte*	No
Bald eagle	*Haliaeetus leucocephalus*	No
Blue-gray taildropper	*Prophysaon coeruleum*	No
Broadwhorl tightcoil	*Pristiloma johnsoni*	No
California bighorn sheep	*Ovis canadensis sierrae*	No

Common Name	Scientific Name	Likely to be Affected by Grizzly Restoration?*
Cascade red fox	*Vulpes vulpes*	No
Chelan mountainsnail	*Oreohelix sp. nov.*	No
Common loon	*Gavia immer*	No
Freija fritillary	*Boloria freija*	No
Giant palouse earthworm	*Driloleirus americanus*	No
Grand coulee mountainsnail	*Oreohelix junii*	No
Gray flycatcher	*Empidonax wrightii*	No
Great basin fritillary	*Speyeria egleis*	No
Harlequin duck	*Histrionicus histrionicus*	No
Inland Columbia Basin redband trout	*Oncorhynchus mykiss gairdneri*	Yes
Johnson's hairstreak	*Callophrys johnsoni*	No
Labrador sulphur	*Colias nastes*	No
Lake Chub	*Couesius plumbeus*	Yes
Larch mountain salamander	*Plethodon larselli*	No
Lewis's woodpecker	*Melanerpes lewis*	No
Little Brown myotis	*Myotis lucifugus*	No
Lustrous copper	*Lycaena cupreus*	No
Mardon skipper	*Polites mardon*	No
Masked duskysnail	*Lyogyrus spb.*	No
Meadow fritillary	*Boloria bellona*	No
Melissa arctic	*Oeneis melissa*	No
Mountain goat	*Oreamnos americanus*	No
Northern goshawk	*Accipiter gentilis*	No
Pacific fisher	*Pekania pennanti (Outside West Coast)*	No
Pacific lamprey	*Entosphenus tridentatus*	Yes
Peck's skipper	*Polites peckius*	No
Puget oregonian	*Cryptomastix devia*	No
Pygmy whitefish	*Prosopium coulterii*	Yes
Rocky Mtn. bighorn sheep	*Ovis canadensis canadensis*	No
Sandhill crane	*Grus canadensis*	No
Sharp-tailed grouse	*Tympanuchus phasianellus*	No
Shiny tightcoil	*Pristiloma wascoense*	No
Striped whipsnake	*Coluber taeniatus*	No
Subarctic bluet	*Coenagrion interrogatum*	No
Subarctic darner	*Aeshna subarctica*	No

Common Name	Scientific Name	Likely to be Affected by Grizzly Restoration?*
Tawny-edged skipper	*Polites themistocles*	No
Townsend's big-eared bat	*Corynorhinus townsendii*	No
Van dyke's salamander	*Plethodon vandykei*	No
Washington duskysnail	*Amnicola sp.*	No
Western bumblebee	*Bombus occidentalis*	No
Western gray squirrel	*Sciurus griseus*	No
Western pond turtle	*Actinemys marmorata*	No
Westslope Cutthroat trout	*Oncorhynchus clarkii lewisi*	Yes
White-headed woodpecker	*Picoides albolarvatus*	No
Zigzag darner	*Aeshna sitchensis*	No

Source: USFS 2021

* Yes = May impact individuals, but is not likely to cause a trend toward federal listing or a loss of population viability.

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APPENDIX B: FRAMEWORK OF RELEVANT FEDERAL AND STATE LAWS, POLICIES, AND PLANS

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FRAMEWORK OF RELEVANT FEDERAL AND STATE LAWS, POLICIES, AND PLANS

FEDERAL LAWS AND REGULATIONS

***Endangered Species Act* (ESA)**

As noted in chapter 1, the purpose of the ESA (16 USC 1531 et seq.) is to protect and recover imperiled species and the ecosystems upon which they depend. The US Fish and Wildlife Service (FWS) reaffirmed that the North Cascades Ecosystem (NCE) grizzly bear population, currently listed under the ESA as threatened, is warranted for uplisting from threatened to endangered status under the ESA, but that uplisting is warranted but precluded, by higher priority listings through the FWS Candidate Notice of Review process through 2022 (85 FR 26152, May 3, 2022). The FWS noted in its Candidate Notice of Review in 2022 and in several prior reviews that based on a number of grizzly bear observations in the past few decades, the NCE may no longer contain a population (85 FR 26152, May 3, 2022). While the actions described in the action alternatives are not by themselves expected to lead directly to delisting of the grizzly bear in the NCE, part of the need for this *North Cascades Ecosystem Grizzly Bear Restoration Plan / Environmental Impact Statement* (plan/EIS) is to support the recovery of the grizzly bear to the point where it can be removed from the federal list of threatened and endangered wildlife species. The potential designation of grizzly bears in the NCE as a non-essential experimental population under section 10(j) of the ESA is intended to aid in this effort by providing managers with additional flexibility. Additional detail on the delisting process and section 10(j) is provided below.

Delisting of a Species under the ESA

Delisting of a species under the ESA is an extensive process that requires a finding of fact by FWS based on an assessment of the population by experts both inside and outside the agency that takes into account five factors:

- Is there a present or threatened destruction, modification, or curtailment of species' habitat or range?
- Is the species subject to overutilization for commercial, recreational, scientific, or educational purposes?
- Is disease or predation a factor?
- Are there inadequate existing regulatory mechanisms in place outside the ESA (taking into account the efforts by the States and other organizations to protect the species or habitat)?
- Are other natural or manmade factors affecting its continued existence?

If the FWS determines that the threats have been sufficiently reduced, the agency may consider delisting. When delisting a species, FWS first proposes the action in the Federal Register. At this time, FWS also seeks the opinion of independent species experts, other federal agencies, state biologists, and the public. After analyzing the comments received on the proposed rulemaking, FWS decides whether to complete the delisting (FWS 2002).

Section 10(j) Experimental Population

Section 10 of the ESA, entitled “Exceptions,” offers an avenue to authorize activities that would otherwise be prohibited. To relieve concern that reintroductions of ESA-listed species may result in

restrictions on the use of private, tribal, or public land, Congress added the provision for experimental populations under section 10(j) in a 1982 amendment to the ESA. Section 10(j) provides for the reintroduction of experimental populations under special regulations. Prior to addition of section 10(j), the FWS had authority to introduce threatened and endangered species into unoccupied historic range, but such efforts were often met with resistance. One reason for public resistance was that the FWS could not assure private landowners, other federal agencies, and state and local governments that a transplanted population would not disrupt future land management options. Under section 10(j), the Secretary of the Department of the Interior can designate reintroduced populations established outside the species' current range, but within its historical range, as "experimental." An experimental population is a group of reintroduced plants or animals that is geographically isolated from other populations of the species and is typically not considered essential to the survival of the species as a whole. Experimental populations are afforded additional regulatory flexibility regarding management of the species.

Wilderness Act of 1964

With the signing of the *Wilderness Act* by President Lyndon B. Johnson on September 3, 1964, the National Wilderness Preservation System was established to "secure for the American people of present and future generations the benefits of an enduring resource of wilderness."

The *Wilderness Act* states, "In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." Although there is great similarity between the National Park Service (NPS) *Organic Act* and the *Wilderness Act*, Congress applied the *Wilderness Act* to the NPS to strengthen its protective capabilities.

Under the *Wilderness Act*, the park must apply the "minimum requirement" concept to all management activities that affect the wilderness resource and character at the park. "Minimum requirement" is a documented process used to determine the appropriateness of all actions affecting wilderness. This concept is intended to minimize impacts on wilderness values and resources. Managers may authorize (using a documented process) the generally prohibited activities or uses listed in section 4(c) of the *Wilderness Act*, if deemed necessary to meet the minimum requirements for the administration of the area as wilderness and where those methods are determined to be the "minimum tool" for the project. An analysis of helicopter use as the minimum tool to be used for the release of grizzly bears into wilderness in the NCE is included in appendix F.

National Historic Preservation Act of 1966, as Amended (2000)

The National Historic Preservation Act was signed into law on October 15, 1966, and directs federal agencies to take into account the effect of any undertaking (e.g., federally-funded project) on historic properties. Historic property is defined as any district, structure, site, or object that is eligible for listing in the *National Registry of Historic Places*. Properties or sites having traditional religious or cultural importance to Native American Tribes are considered traditional cultural properties (TCP) and require consultation in adherence of section 106 of the act. The agencies have initiated consultation with the Washington State Historic Preservation Office and local tribes to determine if any TCPs or other historic properties could be adversely affected.

National Trails System Act (1968)

Congress passed the *National Trails System Act's* "in order to provide for the ever-increasing outdoor recreation needs of an expanding population and in order to promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation." This law establishes four classes of trails: national scenic trails, national historic trails, national recreation trails, and side and connecting trails. Since 1968, 45 long-distance trails have been studied for inclusion in the system, and 30 have been designated. The National Park Service administers 21 of the national scenic trails, which are continuous, primarily non-motorized routes of outstanding recreation opportunity (NPS 2018) The NCE includes portions of two national scenic trails, the Pacific Crest Trail and the Pacific Northwest National Scenic Trail.

Organic Act

In 1916 Congress created the NPS through the National Park Service Organic Act (16 U.S.C. 1) in the Department of the Interior to promote and regulate the use of federal areas known as national parks, monuments, and reservations. The new agency's mission as managers of national parks and monuments was clearly stated:

> "....*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."*

The Organic Act authorized NPS to manage natural and cultural resources within the national park system, including maintaining parts of the natural ecosystems of parks and all plants and animals native to park ecosystems (NPS Management Policies, Section 4.4 Biological Resource Management, described further below).

North Cascades National Park Enabling Legislation

President Lyndon B. Johnson signed the enabling legislation for North Cascades National Park into law on October 2, 1968, establishing North Cascades National Park and Ross Lake and Lake Chelan NRAs (16 USC 1 § 90 – 90e-3). The enabling legislation's statement of purpose states that the park is established to:

> *...preserve for the benefit, use, and inspiration of present and future generations certain majestic mountain scenery, snowfields, glaciers, alpine meadows, and other unique natural features in the North Cascade Mountains of the State of Washington…*

and to

> *...provide for the public outdoor recreation use and enjoyment … [and] for the conservation of the scenic, scientific, historic, and other values contributing to public enjoyment of such lands and waters…*

The purposes of the two national recreation areas are to complement North Cascades National Park and conserve the scenic, natural and cultural values of the Upper Skagit River Valley, the Lower Stehekin Valley, Lake Chelan, and the surrounding wilderness for outdoor recreation and education, while respecting the remote Stehekin community and the hydroelectric reservoirs and development on Ross Lake (NPS 2012).

NPS Regulations for Food Storage

Title 36, Code of Federal Regulations (CFR) is the principal set of rules and regulations governing federal agencies of the United States with respect to parks, forests, and public lands.

Title 36, CFR, chapter 1, section 2.10(d) contains NPS regulations for proper food storage and prohibits anyone from leaving food unattended or stored improperly where it could attract or otherwise be available to wildlife, stating:

> *The superintendent may designate all or a portion of a park area where food, lawfully taken fish or wildlife, garbage, and equipment used to cook or store food must be kept sealed in a vehicle, or in a camping unit that is constructed of solid, non-pliable material, or suspended at least 10 feet above the ground and 4 feet horizontally from a post, tree trunk, or other object, or shall be stored as otherwise designated. Violation of this restriction is prohibited.*

Title 36, CFR, chapter 1, section 2.14(a) contains NPS regulations governing proper disposal of waste and prohibits the disposal of refuse in other than refuse receptacles, stating:

> *The following are prohibited: (1) Disposing of refuse in other than refuse receptacles. (2) Using government refuse receptacles or other refuse facilities for dumping household, commercial, or industrial refuse, brought as such from private or municipal property, except in accordance with conditions established by the superintendent. (3) Depositing refuse in the plumbing fixtures or vaults of a toilet facility. (4) Draining refuse from a trailer or other vehicle, except in facilities provided for such purpose. (5) Bathing, or washing food, clothing, dishes, or other property at public water outlets, fixtures or pools, except at those designated for such purpose. (6) Polluting or contaminating park area waters or water courses. (7) Disposing of fish remains on land, or in waters within 200 feet of boat docks or designated swimming beaches, or within developed areas, except as otherwise designated. (8) In developed areas, the disposal of human body waste, except at designated locations or in fixtures provided for that purpose. (9) In nondeveloped areas, the disposal of human body waste within 100 feet of a water source, high water mark of a body of water, or a campsite, or within sight of a trail, except as otherwise designated.*

Title 36, CFR, chapter 1, section 2.2(a) contains NPS regulations governing prohibitions related to wildlife stating:

> *(a) The following are prohibited:(1) The taking of wildlife, except by authorized hunting and trapping activities conducted in accordance with paragraph (b) of this section. (2) The feeding, touching, teasing, frightening or intentional disturbing of wildlife nesting, breeding or other activities. (3) Possessing unlawfully taken wildlife or portions thereof.*

NATIONAL PARK SERVICE MANAGEMENT POLICIES 2006

Chapter 4 of the *National Park Service Management Policies 2006* (NPS 2006), "Natural Resource Management," provides direction regarding the implementation of NPS activities to further the purposes of the ESA:

> *The Service manages the natural resources of parks to maintain them in an unimpaired*

> *condition for present and future generations in accordance with … environmental laws such as the … Endangered Species Act of 1973 …*

The NPS *Management Policies 2006* states that whenever possible, natural processes will be relied upon to maintain native plant and animal species and influence natural fluctuations in populations of these species; however, the Service may intervene to manage individuals or populations in order to protect rare, threatened, or endangered species.

Section 4.4.2.2, Restoration of Native Plant and Animal Species, states,

> *The Service will strive to restore extirpated native plant and animal species to parks whenever all of the following criteria are met:*

- *Adequate habitat to support the species either exists or can reasonably be restored in the park and if necessary also on adjacent public lands and waters; once a natural population level is achieved, the population can be self- perpetuating.*
- *The species does not, based on an effective management plan, pose a serious threat to the safety of people in parks, park resources, or persons or property within or outside park boundaries.*
- *The genetic type used in restoration most nearly approximates the extirpated genetic type.*
- *The species disappeared or was substantially diminished as a direct or indirect result of human-induced change to the species population or to the ecosystem.*
- *Potential impacts upon park management and use have been carefully considered.*

Section 4.4.2.3 Management of Threatened or Endangered Plants and Animals, states,

> *the Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species.*

To meet these obligations, it is NPS policy to cooperate with FWS to

- ensure NPS actions comply with the ESA;
- undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats;
- manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;
- cooperate with other agencies to ensure that delineation of critical habitat, essential habitat, and/or recovery areas on park lands provides needed conservation benefits to recovery efforts being conducted by all the participating agencies;
- participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;
- cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and
- conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

U.S. FOREST SERVICE STATUTES, POLICIES, AND PLANS PERTINENT TO THE NCE GRIZZLY BEAR RESTORATION PLAN

A summary of the statutes, policies and plans that direct and guide management on the Mt. Baker-Snoqualmie, Okanogan-Wenatchee, and Colville National Forests. The statutes, policies and plans summarized below are only those that are applicable to grizzly bear restoration activities proposed in this EIS/plan, pending additional USFS compliance efforts.

Laws

Endangered Species Act.

Section 5 of the Act directs the Secretary of Agriculture to "establish and implement a program to conserve fish, wildlife, and plants," including federally listed species.

National Forest Management Act.

Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.

In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species. . . . . because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

Wilderness Act.

Fish and wildlife management activities in wilderness will be planned and implemented in conformance with the Act's purpose of securing an "enduring resource of wilderness" for the American people. Reintroductions of wildlife species should only occur if the species was once indigenous to an area and was extirpated by human induced events, and then shall be made in a manner compatible with the wilderness environment.

Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and except as necessary to meet minimum requirements for the administration of the area for the purposed of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area. See appendix F for the Minimum Requirements Decision Guide determination.

Wild and Scenic Rivers Act (1968).

Potential impacts of transplants and reintroductions on fish and wildlife populations on the Outstandingly Remarkable Values (ORVs) of any Wild or Scenic river should be considered. The NCE includes the Skagit Wild and Scenic River with fish, wildlife, and scenery ORVs; the Middle Fork Snoqualmie Wild and Scenic River with recreation, fish, and wildlife ORVs; and the Pratt Wild and Scenic River with recreation, geologic, fish, wildlife and ecological ORVs. As wildlife is a common ORV for these rivers, the restoration of the grizzly bear, a native species, will enhance the overall values of the areas.

Policy and Directives

- U.S. Department of Agriculture Departmental Regulation 9500-4 directs the Forest Service to:
    - Manage "habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species."
    - Conduct activities and programs "to assist in the identification and recovery of threatened and endangered plant and animal species."
    - Avoid actions "which may cause a species to become threatened or endangered."

- Forest Service Manual 2670.21 – Threatened and Endangered Species includes:
    - Manage National Forest System habitats and activities for threatened and endangered species to achieve recovery objectives so that special protection measures provided under the Endangered Species Act are no longer necessary.

- Forest Service Manual 2670.31 – Threatened and Endangered Species
    - Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats through relevant National Forest System, State and Private Forestry, and Research and Development activities and programs.
    - Review, through the biological evaluation process, actions and programs authorized, funded, or carried out by the Forest Service to determine their potential for effect on threatened and endangered species and species proposed for listing.

- Forest Service Manual 2670.32 - Sensitive Species
    - Review programs and activities as part of the National Environmental Policy Act of 1969 process through a biological evaluation, to determine their potential effect on sensitive species.

- Forest Service Manual 2670.44 – Regional Foresters
    - 14. Approve the introduction or translocation of any federally listed species on National
    - Forest System lands.

- Forest Service Manual 2673.5 – Translocation
    - Translocation to achieve recovery objectives of listed species may be desirable to meet purposes of the Endangered Species Act.

- Forest Service Manual 2674 – Reintroduction
    - The Forest Service shall encourage the reintroduction of listed wildlife, fish, and plants on to suitable unoccupied habitat when such actions promote recovery of the species.

- Forest Service Manual 2676.13
    - Cooperate with state agencies, the U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, and other agencies and groups to carry out active programs to conserve the grizzly bear over the long term.

- Forest Service Manual 2676.14a – Regional Forester

- Coordinate as appropriate proposed decisions on wildlife damage management activities in grizzly bear habitat (FSM 2676.16e), grizzly bear translocation (FSM 2676.17a), and the use of helicopters for grizzly bear management in wilderness (FSM 2676.17b, FSM 2326.04b).

National Forest Land and Resource Management Plans

This plan/EIS is tiered to the Final Environmental Impact Statement for the Mt. Baker-Snoqualmie National Forest Land and Resource Management Plan, as amended (USDA Forest Service 1990), the Final Environmental Impact Statement for the Okanogan National Forest Land and Resource Management Plan, as amended (USDA Forest Service 1989), the Final Environmental Impact Statement for the Wenatchee National Forest Land and Resource Management Plan, as amended (USDA Forest Service 1990), and the Colville National Forest Land Management Plan, as amended (USDA Forest Service 2019). Site-specific objectives and guidelines are identified in each of these four Forest Plans. Amendments to these three Forest Plans include standards and guidelines described in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (Northwest Forest Plan; USDA Forest Service and USDI Bureau of Land Management 1994). Key elements of the Northwest Forest Plan include the establishment of Late Successional Reserves to help protect and enhance late successional habitats, and the establishment of Riparian Reserves and the Aquatic Conservation Strategy to help protect and enhance riparian and aquatic habitats. The three older Forest Plans were also amended with the *Pacific Northwest Invasive Plant Program Final Environmental Impact Statement, Record of Decision* (USDA-FS November 2005) which includes direction from the *Guide to Noxious Weed Prevention Practices (USDA-FS 2001)* supporting the February 3, 1999 Executive Order on Invasive Species, and the *National Strategy and Implementation Plan for Invasive Species Management* (USDA-FS October 2004).

The current Forest Plans for the Mount Baker-Snoqualmie, Okanogan, and Wenatchee National Forests[3] were written prior to the North Cascades Ecosystem being designated as a grizzly bear recovery zone in 1991 and thus include no direction specific to grizzly bear recovery. In 1997 the Forest Supervisors of these 3 National Forests agreed to and established an "interim standard" until superseded by a Forest Plan amendment or revision. This interim standard included:

- No net loss of existing core area within any Bear Management Unit (BMU), with core area defined as area >0.3 miles from any open motorized access route or high use nonmotorized access route.

This interim standard is still in place and will be until the current Forest Plans are revised.

Forest Management Goals and Forest-wide Standards and Guidelines

Land and Resource Management Plan goals, standards and guidelines relevant to the proposed grizzly bear restoration activities are listed below for each Forest.

[3] As of October 2020, the Colville National Forest includes the Tonasket Ranger District, which was previously part of the Okanogan–Wenatchee National Forest. The 2019 Land Management Plan for the Colville National Forest did not include the Tonasket District.

Colville National Forest

Forest Wide Desired Conditions:

- FW-DC-WL-01. Proper Storage of Human Food, Garbage, and Other Wildlife Attractants. All administrative sites, developed recreation sites, and dispersed recreation sites where garbage disposal services are provided, are equipped with animal-resistant food and waste storage devices so that food, garbage, and other attractants can be made inaccessible to wildlife. Forest visitors are aware of the need to properly store all wildlife attractants through one-on-one contacts with campground hosts and agency employees, signage, and the media. Compliance with the Forest's food storage order is increasing.

- FW-DC-WL-02: Habitat Conditions for Threatened and Endangered Species. Habitat conditions (amount, distribution, and connectivity of habitat) are consistent with the historical range of variability (see also FW-DC-VEG-04 and 05) and contribute to the recovery of federally listed threatened and endangered species.

- FW-DC-WL-05. Grizzly Bear Recovery Area – Key Habitat Components for Grizzly Bear. Key grizzly bear habitat components (such as whitebark pine, riparian habitats, berry-producing shrubfields, natural meadows, and forest cover) are available within core areas and in quantities that contribute toward a recovered bear population.

- FW-DC-WL-06. Grizzly Bear Recovery Area – Core Areas. The amount of core areas available to grizzly bears within each grizzly bear management unit meets the standards in [the land use plan]. Core areas are expanded where other forest access priorities or obligations can also be met.

Forest Wide Objectives:

- FW-OBJ-WL-03. Grizzly Bear Recovery Area – Habitat Restoration. During the expected 15 years of plan implementation, maintain or restore grizzly bear seasonal habitats on 900 acres in the following bear management units.

- FW-STD-WL-07. Grizzly Bear Recovery Area -Road Densities. Within the grizzly bear recovery area, federal actions shall not result in a net reduction of core habitat below the levels in the [the land use plan]. Discrete core areas shall remain in place for a minimum of 10 years for bears to find and use these areas. Federal actions shall not result in a net increase in open or total road densities above the levels [in the land use plan]. Total road densities do not include physically undrivable roads (e.g., bermed, brushed-in).

- FW-STD-WL-08. Proper Storage of Human Food, Garbage, and Other Wildlife Attractants. Forest Service contracts, permits, and agreements that include camping on national forest lands shall incorporate the requirement to follow the current Food Storage Order for the Colville National Forest. Apiaries shall not be placed where they would increase the potential for human-bear conflicts.

Forest Wide Guidelines:

- FW-GDL-WL-11. Grizzly Bear Recovery Area. Forest Management Activities Management activities (such as timber harvest, road building, blasting, etc.) and helicopter use that may

displace grizzly bears should be scheduled to occur outside of the critical period of den emergence.

- FW-GDL-WL-12. Grizzly Bear Recovery Area – Hiding Cover. Hiding cover for grizzly bears is defined as topography or vegetation capable of screening 90 percent of a bear at a distance of 200 feet. Within the grizzly bear recovery area, no point in a created opening should be farther than 600 feet from forested hiding cover. Blocks of forested cover retained within harvest units specifically for grizzly bears should be at least 600 feet across. Hiding cover should be maintained where it exists along open roads. Roadside cover can be provided by topography, or by strips / patches of shrubs / trees retained within harvest units.

Mt Baker-Snoqualmie National Forest

Forest Management Goals:

- Wilderness 1. Manage wilderness for the use and enjoyment of people in such a manner as will leave wilderness values unimpaired for future.

- Wildlife and Fish 1. Maintain the vitality, distribution and abundance of animal populations. At a minimum, maintain viable populations of existing native and desired non-native vertebrate species on National Forest lands. No species should be eliminated from an area. Maintain the long term productivity of wildlife habitats.

- Wildlife and Fish 2. Identify threatened, endangered, and sensitive plant and animal species habitat. Protect, maintain and/or enhance this habitat in accordance with Recovery Plans. The overall goal is to prevent the Federal listing of Sensitive species and/or, to pursue the delisting of Federally listed species. Develop management guides for T & E species which carry out these goals.

- Long term Productivity and Diversity 1. Maintain native and desirable non-native plant and animal species and communities.

Forest Wide Standards and Guidelines:

- General Procedures 1. Activities affecting forest system lands and resources will be analyzed through NEPA analysis.

- General Procedures 4. Management of forest system lands, resources, and activities will be coordinated with appropriate local, State, Federal agencies, private landowners, Indian tribes, and interest and user groups.

- American Indian Religious and Cultural Uses 6. Present information about planned project activities in all management areas to religious and political leaders of tribal groups whose traditional practices might be affected.

- Wilderness – Fish and Wildlife 3. Native species shall be maintained, with special emphasis on the preservation of threatened or endangered species, plus designated management indicator species and their habitats. Fish or wildlife indigenous to an area, may be re-established if previously eliminated by the influence of man.

- Wilderness – Aircraft 3. The landing of aircraft within the wilderness is prohibited. Air dropping supplies is also prohibited. Exceptions may be granted for emergencies, significant administrative purposes, and fish stocking.

- Wildlife Habitat Management 3. Nest sites actively being used by raptors or other bird species of special concern (i.e., great blue heron) will be protected from human disturbance until nesting and fledging is completed.

- Wildlife Habitat Management 5. Programmed activities in calving, fawning, and kidding areas should be discouraged. They shall be timed to minimize disturbance to the animals. This may require restricting access and operations during certain times of the year.

- Threatened, Endangered, and Sensitive Species 1. All proposed management actions which have the potential to affect habitat of endangered, threatened, or sensitive species will be evaluated to determine if any of these species are present. Biological evaluations will be completed for all proposed management activities which could affect T & E species.

Okanogan National Forest

Forest Wide Standards and Guidelines:

- Management 1-1. Appropriate public involvement activities shall be conducted for the purposes of gaining information regarding the land and resource base upon which management decisions are made; to ensure the Forest Service understands public needs, concerns, and values, and to inform the public of Forest Service management activities associated with implementing this Forest Plan.

- Management 1-2. Appropriate coordination with other federal agencies, state and local governments, and Native American tribes shall occur on an ongoing basis in the planning, designing, executing, and monitoring of projects associated with implementing the Forest Plan.

- Wildlife 6-8. Manage disturbing activities so they occur outside of critical periods to protect wildlife (e.g., identified parturition areas, nesting sites, wintering areas).

- Wildlife 6-11. Raptor nest sites should be protected; during the active nest season certain project activities may be limited.

- Wildlife 6-17. Threatened and endangered species shall be managed according to recovery plans. Coordinate management with U. S. Fish & Wildlife Service and Washington Dept. of Fish and Wildlife.

- Wildlife 6-18. Consultation with U. S. Fish & Wildlife Service shall be initiated when threatened or endangered species may be affected by resource proposals.

- Research Natural Areas 8-6B. Reintroduction of native species may be permitted as long as the goals of the RNA are met.

- Wilderness 15A-6A and 15B-6A. Fish and wildlife indigenous to the wilderness shall be maintained with emphasis on threatened and endangered species.

Wenatchee National Forest

Forest Management Goals:

- Wilderness – Manage designated wilderness to perpetuate wilderness character, natural ecologic processes, and to provide outdoor recreation opportunities appropriated in wilderness.

- Wildlife, Fish, and Sensitive Plants – Manage critical wildlife habitat to improve the status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act of 1973.

Forest Wide Standards and Guidelines:

- Proposed, Threatened, Endangered, or Sensitive Species -1. Threatened, endangered, and sensitive species will be identified and managed in cooperation with the USDI Fish and Wildlife Service and Washington Department of Wildlife.

- Proposed, Threatened, Endangered, or Sensitive Species -5. All Project Environmental Analyses will evaluate the effects of the project on threatened, endangered, and sensitive species.

- Proposed, Threatened, Endangered, or Sensitive Species –Grizzly Bear - 3. If resident grizzly bears are discovered, cooperate with the USDI Fish and Wildlife Service and Washington Department of Wildlife to appropriately manage the animals.

- Wildlife and Fisheries – 3B. To maintain viable populations of raptors, protect all active nest and roost sites.

- Wildlife and Fisheries – Big Game Management - 13. Discourage activities in key mountain goat winter and kidding range from Dec. 1 until July 1.

STATE OF WASHINGTON LAWS AND REGULATIONS

The Revised Code of Washington (RCW) is the compilation of all permanent laws now in force. RCW chapter 77.04, termed the "Fish and Wildlife Code of the State of Washington," outlines the authorities provided to the Washington Fish and Wildlife Commission and the Washington Department of Fish and Wildlife. Relevant RCWs include:

RCW 77.04.012 - Mandate of department and commission.

> *Wildlife, fish, and shellfish are the property of the state. The commission, director, and the department shall preserve, protect, perpetuate, and manage the wildlife and food fish, game fish, and shellfish in state waters and offshore waters.*

RCW 77.12.035 Protection of grizzly bears—Limitation on transplantation or introduction—Negotiations with federal and state agencies.

> *The commission shall protect grizzly bears and develop management programs on publicly owned lands that will encourage the natural regeneration of grizzly bears in areas with suitable habitat. Grizzly bears shall not be transplanted or introduced into the state. Only grizzly bears that are native to Washington state may be utilized by the department for management programs. The department is directed to fully participate in all discussions and negotiations with federal*

and state agencies relating to grizzly bear management and shall fully communicate, support, and implement the policies of this section.

RCW chapter 77.15.790 Negligently feeding, attempting to feed, or attracting large wild carnivores to land or a building—Infraction, states,

(1) A person may not negligently feed or attempt to feed large wild carnivores or negligently attract large wild carnivores to land or a building. (2) If a fish and wildlife officer, ex officio fish and wildlife officer, or animal control authority, as defined in RCW 16.30.010, has probable cause to believe that a person is negligently feeding, attempting to feed, or attracting large wild carnivores to land or a building by placing or locating food, food waste, or other substance in, on, or about any land or building, and the food, food waste, or other substance poses a risk to the safety of any person, livestock, or pet because it is attracting or could attract large wild carnivores to the land or building, that person commits an infraction under chapter 7.84 RCW. (3) Subsection (2) of this section does not apply to: (a) A person who is engaging in forest practices in accordance with chapter 76.09 RCW or in hunting or trapping wildlife in accordance with all other applicable provisions of this title or rules of the commission or the director; (b) A person who is engaging in a farming or ranching operation that is using generally accepted farming or ranching practices consistent with Titles 15 and 16 RCW; (c) Waste disposal facilities that are operating in accordance with applicable federal, state, and municipal laws; (d) Entities listed in RCW 16.30.020(1) (a) through (j) and scientific collection permit holders; or (e) A fish and wildlife officer or employee or agent of the department operating under the authority of or upon request from an officer conducting authorized wildlife capture activities to address a threat to human safety or a wildlife interaction as defined in RCW 77.36.010. (4) For persons and entities listed in subsection (3) of this section, a fish and wildlife officer, ex officio fish and wildlife officer, or animal control authority, as defined in RCW 16.30.010, may issue a written warning to the person or entity if: (a) The officer or animal control authority can articulate facts to support that the person or entity has placed or is responsible for placing food, food waste, or other substance in, on, or about the person's or entity's land or buildings; and (b) The food, food waste, or other substance poses a risk to the safety of any person, livestock, or pet because the food, food waste, or other substance is attracting or could attract large wild carnivores to the land or buildings. (5)(a) Any written warning issued under subsection (4) of this section requires the person or entity placing or otherwise responsible for placing the food, food waste, or other substance to contain, move, or remove that food, food waste, or other substance within two days. (b) If a person who is issued a written warning under (a) of this subsection fails to contain, move, or remove the food, food waste, or other substance as directed, the person commits an infraction under chapter 7.84 RCW.

RCW chapter 77.15.792 Negligently feeding, attempting to feed, or attracting large wild carnivores to land or a building—Penalty, states,

(1) A person may not intentionally feed or attempt to feed large wild carnivores or intentionally attract large wild carnivores to land or a building.(2) A person who intentionally feeds, attempts to feed, or attracts large wild carnivores to land or a building is guilty of a misdemeanor.(3) A person who is issued an infraction under RCW 77.15.790 for negligently feeding, attempting to feed, or attracting large wild carnivores to land or a building, and who fails to contain, move, or remove the food,

> *food waste, or other substance within twenty-four hours of being issued the infraction, is guilty of a misdemeanor.*

RCW chapter 77.15.240 Unlawful practices—Black bear baiting—Illegal hunting—Use of dogs—Exceptions—Penalties, states,

> *(1) Notwithstanding the provisions of RCW 77.12.240, 77.36.020, 77.36.030, or any other provisions of law, it is unlawful to take, hunt, or attract black bear with the aid of bait. (a) Nothing in this subsection shall be construed to prohibit the killing of black bear with the aid of bait by employees or agents of county, state, or federal agencies while acting in their official capacities for the purpose of protecting livestock, domestic animals, private property, or the public safety. (b) Nothing in this subsection shall be construed to prevent the establishment and operation of feeding stations for black bear in order to prevent damage to commercial timberland. (c) Nothing in this subsection shall be construed to prohibit the director from issuing a permit or memorandum of understanding to a public agency, university, or scientific or educational institution for the use of bait to attract black bear for scientific purposes.(d) As used in this subsection, "bait" means a substance placed, exposed, deposited, distributed, scattered, or otherwise used for the purpose of attracting black bears to an area where one or more persons hunt or intend to hunt them.(2) Notwithstanding RCW 77.12.240, 77.36.020, 77.36.030, or any other provisions of law, it is unlawful to hunt or pursue black bear, cougar, bobcat, or lynx with the aid of a dog or dogs.*

Washington Administrative Code (WAC) are regulations issued by Washington state agencies by authority of statutes. Regulations are a source of primary law in Washington State. For fish and wildlife, WACs are most commonly promulgated by the Washington Fish and Wildlife Commission; the Director also has some delegated authority to promulgate WACs. Relevant WACs excerpts include:

Washington State Administrative Code (WAC) 220-450-030: Live wildlife—Taking from the wild, importation, possession, transfer, and holding in captivity.

> *(3) It is unlawful to import into the state or to hold live wildlife taken, held, possessed, or transported contrary to federal or state law, local ordinance, or department rule. It is unlawful to import live wild animals, wild birds, or game fish without first presenting to the department the health certificate required by the Washington department of agriculture under WAC 16-54-180. However, raptors used for falconry or propagation may be imported if the importer has health certificates for the raptors. Importers must produce proof of lawful importation for inspection if asked to do so by a department employee.*

WAC 220-450-010: Criteria for planting aquatic plants and releasing wildlife.

> *(1) Release by persons other than the director. It is unlawful for persons other than the director to plant aquatic plants or release any species, subspecies, or hybrids of animals which do not already exist in the wild in Washington. If such species, subspecies, or hybrid does already exist in the wild in Washington, it may be released within its established range by persons other than the director, but only after obtaining a permit from the director.*

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APPENDIX C: IMPLEMENTATION COSTS

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IMPLEMENTATION COSTS

Although some expenses may not necessarily be incurred annually and some expenses could change from year to year, the estimated average annual costs for grizzly bear restoration, based on input from the interdisciplinary team, are shown in table C-1. These costs would be primarily for sanitation and human-bear conflict mitigation efforts; monitoring for grizzly bear presence and the compilation of a dataset to track population growth; public outreach and education efforts; and maintenance of a grizzly bear sighting database. Some costs would also be incurred through participation in the Interagency Grizzly Bear Committee (IGBC).

TABLE C-1. ESTIMATED AVERAGE ANNUAL COSTS ASSOCIATED WITH THE NO ACTION ALTERNATIVE

Management Action	National Park Service	US Fish and Wildlife Service	US Forest Service	Washington Department of Fish and Wildlife	Total
IGBC participation	$16,000	$35,000	$26,000	$25,000	$102,000
Sanitation [a]	$62,500	0	$50,000	$2000	$114,500
Education/interpretation	$50,000	0	$13,000	$8,000	$71,000
Monitoring	$26,500 [b]	0	$6,000	$6,000	$38,500
Endangered Species Act (ESA) consultation and compliance [c]	$12,800	$22,000	$13,000	$0	$47,800
TOTAL	$168,600	$57,000	$108,000	$36,000	$369,000

NOTE: All costs include staff time.

[a] Costs are not annual, but project based: value provided is approximate annual cost based on average across 5 years.

[b] Costs include efforts to detect presence of grizzly bears, which are part of multi-species monitoring efforts.

[c] ESA consultation includes developing biological assessments and other time dedicated to all listed species in the NCE, which includes grizzly bears.

APPROXIMATE COSTS FOR ACTION ALTERNATIVES

Table C-2 provides general costs for implementing any of the action alternatives. The costs provided in table C-2 would be in addition to the average annual costs displayed in table C-1.

TABLE C-2. APPROXIMATE COSTS FOR GRIZZLY BEAR RESTORATION ACTION ALTERNATIVES

Management Action	Cost
Capture, transport, and release (personnel, travel, helicopter capture and release)	$60,000–$140,000 per year (depending on the number of bears moved)
Monitoring (including vehicles, radio-collars, equipment)	Year one –$200,000 Annually- $100,000
NCE Coordinator	$150,000 per year

Management Action	Cost
Education and interpretation Materials	$10,000–$15,000 per year over no action alternative
Prevention Supplies	$25,000 per year per year over no action alternative
Sanitation	Same as no action alternative, except USFS costs would increase $15,000–$20,000
IGBC participation	Same as no action alternative
ESA consultation	Same as no action alternative, except USFS costs would reduce $5,000–$10,000 under alternative C only.
Grizzly Bear Conflict Management & Monitoring	
• Grizzly Bear Conflict Specialist	• 2 FTE (Approximately $200,000 per year)
• Monitoring Technicians	• 2 Seasonals (Approximately $60,000 per year)
• Livestock Damage Preventative Cooperative Measures	• Cost-share with landowners
• Grizzly Bear Depredation Compensation	• Dependent on funding

APPENDIX D: DRAFT MINIMUM REQUIREMENTS DECISION GUIDE WORKBOOK

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MINIMUM REQUIREMENTS ANALYSIS FRAMEWORK WORKBOOK

"…except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act…"

— Section 4(c), Wilderness Act of 1964

Title

NORTH CASCADES ECOSYSTEM GRIZZLY BEAR RESTORATION

Step 1: Determine If Administrative Action May Be Necessary

Issue Statement

The grizzly bear (*Ursus arctos horribilis*) was listed as threatened under the Endangered Species Act (ESA) on July 28, 1975. Following the listing, the US Fish and Wildlife Service (FWS) initiated a recovery effort directed at establishing viable populations in portions of four states where the grizzly bear was known or believed to exist at the time of listing. Grizzly bears in the western United States are managed within six recovery zones: the Greater Yellowstone Ecosystem (GYE) grizzly bear recovery zone in northwestern Wyoming, southwestern Montana, and southeastern Idaho; the Northern Continental Divide Ecosystem (NCDE) grizzly bear recovery zone in northwestern Montana; the Cabinet-Yaak Ecosystem (CYE) grizzly bear recovery zone, which includes extreme northwestern Montana and northern Idaho; the Selkirk Ecosystem grizzly bear recovery zone of northern Idaho and northeastern Washington; the Bitterroot Ecosystem (BE) grizzly bear recovery zone in central Idaho and western Montana; and the North Cascades Ecosystem (NCE) grizzly bear recovery zone of northwestern and north-central Washington (USFWS 1993).

The NCE constitutes a large block of contiguous habitat that spans the international border between the United States and Canada but is isolated from grizzly bear populations in other parts of the two countries. The NCE includes all of the North Cascades National Park Service (NPS) Complex (11% of the recovery zone) (which includes the Stephen Mather Wilderness) and large portions of the Mount Baker Snoqualmie and Okanogan-Wenatchee National Forests (which together make up 74% of the recovery zone), as well as protected lands and de facto wilderness in British Columbia, Canada. Based on a qualitative assessment by the Interagency Grizzly Bear Committee technical review team, habitat within the NCE was considered of

sufficient quality and quantity to support a population of 200 to 400 grizzly bears (Servheen et al. 1991). Recent carrying capacity modeling suggests the most plausible carrying capacity for the NCE, under current habitat conditions, is approximately 280 bears (Lyons et al. 2018). The Lyons et al. (2018) model was further developed to include effects of climate change on grizzly bear habitat quality up to 100 years in the future, and the most plausible carrying capacity for the NCE increased to 482–578 bears (Ransom et al. 2023).

Grizzly bears were decimated in the NCE by direct killing, and despite the historical presence of grizzly bears in the NCE and the availability of sufficient habitat to recover and maintain a viable population, there is no confirmed evidence of grizzly bear presence within the NCE grizzly bear recovery zone in the United States today (Rine et al. 2020). The most recent confirmed observation within the US portion of the NCE was in 1996, south of Glacier Peak. The most recent confirmed observation in the NPS Complex was 1991. There has been no verified evidence of grizzly reproduction in the NCE for at least 30 years. Therefore, the FWS considers grizzly bears to be functionally extirpated in the NCE (USFWS 2022). Grizzly bears were listed under the ESA and still present in the NCE when the Stephen Mather Wilderness was designated and their population extirpation represents a degradation of the natural quality of wilderness character through time.

Lyons, A. L., W. L. Gaines, P. H. Singleton, W. F. Kasworm, M. F. Proctor, and J. Begley. 2018. Spatially Explicit Carrying Capacity Estimates to Inform Species Specific Recovery Objectives: Grizzly bear (*Ursus arctos*) Recovery in the North Cascades. Biological Conservation 222 (2018): 21–32.

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Rine, K. M., A. M. Braaten, J. G. Oelfke, and J. L. Ransom. 2020. “Evidence for Historical Grizzly Bear Occurrence in the North Cascades, USA.” Ursus 31e17:1–16.

Servheen C., A. Hamilton, R. Knight, and B. McLellan. 1991. Report of the Technical Review Team: Evaluation of the Bitterroot and North Cascades to Sustain Viable Grizzly Bear Populations. A Report to the Interagency Grizzly Bear Committee. December 10, 1991.

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Options Outside of Wilderness

Is this issue wilderness dependent, or can an action occur outside of wilderness to properly resolve the issue now or over time?

Can the issue be resolved or addressed outside of wilderness?

Land management agencies and other regulatory agencies (i.e., NPS, FWS, USFS, and WDFW) have worked for 31 years to facilitate the natural recovery of grizzly bears within the NCE by means of habitat protection, sanitation, and education, but the population has declined to the extent that grizzly bears are now functionally extirpated from the ecosystem. The NCE Grizzly Bear Recovery Plan Supplement specifies that among the criteria to realize recovery of this population is that reproducing bears are distributed throughout the recovery area (USFWS 1997). This includes the 99% of North Cascades National Park that is now designated wilderness. Human intervention is now necessary to restore grizzly bears to the NCE. In order to maximize the probability of a successful restoration (i.e., grizzly bears establish home ranges and reproduce to establish a local population), grizzly bear translocations into the NCE would need to occur at carefully identified release sites that maximize each grizzly bear's chance of survival and future reproduction. Specifically, locations of release sites must (1) largely consist of high-quality seasonal habitat such as readily available berry-producing plants that are known grizzly bear foods, (2) be largely roadless, with limited or no motorized use and low human use, and (3) be located within Grizzly Bear Management Units (BMUs) with a high amount of core area. The North Cascades Grizzly Bear Recovery Zone is divided into 42 BMUs, only 15 of which have a high amount (>70%) of core area, and of those, 14 are primarily within wilderness. There are few potential suitable release sites for grizzly bears within the NPS Complex that are outside designated wilderness, and no NPS areas outside wilderness are sufficient in size or habitat quality to sustain a grizzly bear population on their own. Regardless of whether individual grizzly bears would be released within wilderness directly, it is assumed that grizzly bears would travel to and establish home ranges in at least portions of the Stephen Mather Wilderness that lie within the NPS Complex because the majority of high-quality habitat persists in the designated wildernesses. Monitoring grizzly bears within wilderness would be necessary to detect grizzly bears in the NCE, estimate the survival rate of released grizzly bears and their offspring, determine the number of reproducing females and the extent and location of their home ranges, and proactively manage potential human-bear conflict situations. This monitoring cannot occur outside wilderness if grizzly bears are located within designated wilderness.

Criteria for Determining Necessity

Based on the legal requirements in Section 4(c) of the Wilderness Act, one or more of the factors A-D below must be met for any action to be considered.

Do any of the criteria below apply?

A. Wilderness Character

Based on the Issue Statement, are any of the qualities of wilderness character degraded, impaired, or threatened to a degree that it is necessary to analyze potential action otherwise prohibited by Section 4(c) to address the issue?

UNTRAMMELED

Select your answer.

This action is not necessary to preserve the untrammeled (unhindered or unmanipulated) quality of the Stephen Mather Wilderness.

UNDEVELOPED

Select your answer.

This action does not include removal of existing structures or a reduction of developments. Action is not necessary to preserve the undeveloped quality of the wilderness character of the Stephen Mather Wilderness.

NATURAL

Select your answer.

The grizzly bear, indigenous to the NCE and the wildernesses within it, has been functionally extirpated from the NCE and is currently a federally and state-listed threatened species. This extirpation not only threatens the overall strength and resiliency of the species but also has had a negative impact on the NCE and the natural quality of the wilderness character of the Stephen Mather Wilderness in that effects from modern civilization, namely the removal of a keystone species, remain as long as this species is functionally extirpated from the ecosystem. Restoration of this species would therefore restore a significant aspect of the natural processes of ecological systems within the Stephen Mather Wilderness to a state in which they are substantially free from the effects of modern civilization. This restoration is therefore necessary to administer these wilderness areas as wilderness.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE or PRIMITIVE and UNCONFINED RECREATION

Select your answer.

This action is not necessary to preserve opportunities for solitude or primitive and unconfined recreation in the Stephen Mather Wilderness.

OTHER FEATURES OF VALUE

Select your answer.

Grizzly bears themselves represent a unique ethnographic resource in the NCE due to their cultural importance to some Tribes and First Nations whose traditional lands include designated wilderness in the NCE. Given the functional extirpation of grizzly bears in the NCE, this feature of value is degraded under current conditions.

B. Valid Existing Rights

Select your answer.

Is action necessary to satisfy a valid existing right? If so, cite the specific right, terms and conditions, and source.

C. Special Provisions of Wilderness Legislation

Is action necessary to satisfy a special provision in wilderness legislation (i.e., Section 4(d) of the Wilderness Act of 1964 or subsequent wilderness-enabling laws) that requires action? Cite law and section.

The Stephen Mather Wilderness was designated by the Washington Parks Wilderness Act of 1988.There are no Special Provisions in any of the legislation creating this wilderness that would require grizzly bear restoration and monitoring.

D. Requirements of Other Federal Laws

Not including special provisions found in wilderness-enabling laws, does another Federal law, by itself or as implemented or interpreted through EO, court order, etc., ***require*** *action? Cite law and section.*

Sections 2(c)(1) and 7(a)(1) of the **Endangered Species Act (ESA) of 1973** (16 USC 1531 et seq.), create an affirmative obligation "…that all federal departments and agencies shall seek to conserve endangered and threatened species" of fish, wildlife, and plants. Thus, this obligation under ESA to "…utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered and threatened species" applies to the National Park Service that manages lands within the NCE.

Sec.3(3) of the Endangered Species Act of 1973 provides additional clarity to this affirmative obligation by defining "conserve," "conserving," and "conservation" as using "and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." "Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation…"

*The **National Park Service Organic Act of 1916**, as amended by the **General Authorities Act of 1970**, directs the NPS "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." This Act has been interpreted by NPS through NPS Management Policies 2006: Section 4.4.2.3 states "The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act."*

Step 1: Determination – Is Administrative Action Necessary in Wilderness?

Based on the responses and detailed explanations in A through D above, is there a need to proceed to Step 2? If at least one criterion in B through D in Step 1 has been met, or at least one quality of wilderness character is threatened, check the "Yes" box and provide a thorough explanation of the rationale described in A through D. It may also be helpful to describe in this determination how action would be consistent with the public purposes of wilderness or satisfy a specific agency obligation. If none of the criteria have been met, action is NOT necessary. Check the "No" box, explain why the proposed project does not meet the criteria, and stop your analysis.

The grizzly bear, indigenous to the NCE and the wildernesses within it, has been functionally extirpated from the NCE and is currently a federally listed threatened and state-listed endangered species. This extirpation not only threatens the overall strength and resiliency of the species, but it also has had a negative impact on the NCE and the wilderness within it, including the "natural" and "other features of value" qualities of the wilderness character. Restoration of this species would restore a significant aspect of the biodiversity within these wildernesses to a state in which they are substantially free from the effects of modern civilization (natural quality of wilderness character) and would enhance the ecological, scientific, historical, and ethnographic values of these wildernesses, in that this action would restore this keystone species to the NCE and these wildernesses. Most high-quality grizzly bear habitat within the NCE is in these designated wildernesses, and to recover a population in the NCE under the regulatory guidance of the ESA, grizzly bears would need to be restored to these wildernesses. Because the restoration of grizzly bears is necessary to restore this important aspect of the "natural" and "other features of value" qualities of wilderness character, actions to restore (including releases and subsequent monitoring) the grizzly bear to the Stephen Mather Wilderness are necessary to administer these areas as wilderness. Application of the Wilderness Act (specifically Section 4(b) – requirement to preserve wilderness character through "Natural" and "Other Features of Value" qualities of the Wilderness Act) and Endangered Species Act (Section 7(a)) indicate that action is needed to restore the grizzly bear to the Stephen Mather Wilderness.

Because the NCE grizzly bears are at risk of local extinction, action is needed at this time to (1) restore grizzly bears to the NCE where they have been functionally extirpated from the ecosystem, (2) contribute to the restoration of biodiversity of the ecosystem to build ecological resilience and for the benefit and enjoyment of present and future generations of people, (3) enhance the probability of long-term survival of grizzly bears in the NCE and thereby contribute to overall grizzly bear recovery through redundancy in multiple populations and representation in a variety of habitats, and (4) support the recovery of the grizzly bear to the point where it can be removed from the federal list of endangered and threatened wildlife.

Step 2: Determine the Minimum Activity

Other Direction

Is there "special provisions" language in legislation or other congressional direction that explicitly allows consideration of (but does not require) a prohibited use? (Step 1 has a similar question in Section C, but that question is specific to other legislation requiring action in wilderness; this question is specific to other legislation addressing ***consideration of prohibited uses)****.*

AND/OR

Has the issue been addressed or prescribed in agency policy, management plans, or legal directive (e.g., treaty, EO, court order, or other binding agreement with federal, state, or local agencies or authorities)?

The grizzly bear was listed under the ESA as a threatened species on July 28, 1975, and the Grizzly Bear Recovery Plan was established in 1982 and revised in 1993, designating the NCE as a grizzly bear recovery zone. The NCE Grizzly Bear Recovery Plan Supplement was signed into effect on June 23, 1997, and among the specified recovery criteria is that a grizzly bear population "is well distributed throughout the ecosystem (based on Bear Management Unit occupancy by females with young)" (USFWS 1997). The North Cascades Grizzly Bear Recovery Zone is divided into 42 BMUs, only 15 of which have a high amount (>70%) of core area, and of those, 14 are primarily within wilderness.

Section 4(b) of the Wilderness Act states that "Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use." Guidance for the National Park Service, Department of Interior is stated in NPS *Management Policies 2006* (Section 4.4.2.2), which directs the NPS to take action to restore native plant and animal populations that "have been extirpated by past human caused actions," whenever all of the following criteria are met:

(1) Adequate habitat to support the species either exists or can reasonably be restored in the park, and if necessary also on adjacent public lands and waters; once a natural population level is achieved, the population can be self-perpetuating.

(2) The species does not, based on an effective management plan, pose a serious threat to the safety of people in parks, park resources, or persons or property within or outside park boundaries.

(3) The genetic type used in restoration most nearly approximates the extirpated genetic type.

(4) The species disappeared, or was substantially diminished, as a direct or indirect result of human induced change to the species population or to the ecosystem.

(5) Potential impacts upon park management and use have been carefully considered.

When restoring these species, NPS *Management Policies 2006* (Section 4.1.5) further provide "The Service will use the best available technology, within available resources, to restore the biological and physical components of these systems, accelerating both their recovery and the recovery of landscape and biological community structure and function." NPS *Management Policies 2006* (Section 4.4.2.3) also direct the NPS to intervene to manage individuals or populations to protect rare, threatened, or endangered species: "The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species....To meet these obligations, it is NPS policy to cooperate with the FWS to:

(1) ensure NPS actions comply with the ESA;

(2) undertake active management programs to inventory, monitor, restore, and maintain listed species habitats;

(3) manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;

(4) cooperate with other agencies to ensure that delineation of critical habitat, essential habitat, and/or recovery areas on park lands provides needed conservation benefits to recovery efforts being conducted by all the participating agencies;

(5) participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;

(6) cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and

(7) conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

The Wilderness Management Plan (1989) for the Stephen Mather Wilderness establishes standards for minimal tool use, stating, "Non power tools will be preferred. The Wilderness District Ranger will have final approval for the use of power tools. . .Any use of power tools will be limited as far as possible to before the 4th of July and after Labor Day. All power tools will use a modified muffler that reduces decibel level. . .Power tools will be limited to chain saws, brushers, rock drills, chain saw winches, and explosives. . .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."

NPS Guidelines for Ecological Intervention in Wilderness (2022) incorporated in Reference Manual 41 provides a framework to assist NPS unit managers in applying the provisions of NPS management policy and other guidance when determining whether or not ecological intervention is or is not favored in wilderness.

Uncontrollable Timing Requirements

What, if any, are the considerations that would dictate timing of the action?

It is necessary to release grizzly bears during early summer to early fall while there is an abundance of bear foods available and prior to the winter hibernation period. It is also necessary to translocate 3 to 7 bears per year for 5 to 10 years to build and maintain reproductive capacity of a founder population that can reach a self-sustaining trajectory given the life history characteristics of grizzly bears. Once a bear is captured for translocation, it must be transported and released immediately to promote bear animal welfare practices.

Workflow Components

What are the distinct components or phases of the action?

Component 1	Transportation of personnel from staging area to release site
Component 2	Transportation of grizzly bear in culvert trap to release site
Component 3	Release of grizzly bear
Component 4	Removal of empty culvert trap from release site
Component 5	Removal of personnel from release site
Component 6	Monitoring of grizzly bear movement, survival, and resource use
Component 7	Transport of personnel to monitor bear reproduction
Component 8	Transport of personnel to monitor bear biology (diet, etc.)

Component 9	Transport of personnel to retrieve collar and/or carcass
Component 10	Removal of radio-collars and/or carcasses
Component 11	Condition of site after project

Feasibility of Alternatives

Only include feasible alternatives in this section. Some alternatives that are not feasible may warrant documentation in the "Alternatives Considered but Dismissed" section to provide a brief description and explanation of why it was dismissed and not considered in detail.

Possible reasons for dismissal include alternatives that are impossible, have unacceptable impacts, are unsafe, are proven ineffective, have excessive costs, or whose timing would cause degradation to wilderness character.

The alternatives should also be reasonable. For example, there is no need to include helicopters in an alternative for equipment transport when that equipment can be easily carried by people or pack stock along a maintained trail.

Refer to the MRAF instructions regarding alternatives and the effects to each of the comparison criteria.

Step 2: Alternatives

Alternative 1

No action

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	NCE Grizzly Bear Recovery Plan Supplement	Implement existing guidelines for grizzly bear habitat management

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Under this alternative, existing management practices would be followed. Under the no action alternative, options for grizzly bear restoration would be limited and rely primarily on natural recovery. Current management actions would continue, focused on improved sanitation, motorized access management, outreach, and educational programs to provide information about grizzly bears and grizzly bear recovery to the public, and research and monitoring to determine grizzly bear presence, distribution, habitat, and home ranges. These actions would occur both inside and outside of wilderness and would continue to be guided by the NCE Grizzly Bear Recovery Plan Supplement (USFWS 1997).

Wilderness Character

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Implement existing guidelines for grizzly bear habitat management	0	N	N	N	N

What is the effect of each Component Method on the qualities of wilderness character? What mitigation measures will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

By not taking action to reintroduce the grizzly bear to the NCE, the NPS would be passively managing the wilderness in hopes that through which and in which these animals might travel and establish home ranges. The agencies would not be manipulating a wildlife population and would continue to document the extirpation of this indigenous species in the Stephen Mather Wilderness.

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

In order to continue to assess the presence or absence of grizzly bears in the NCE toward meeting the recovery criteria in the NCE Grizzly Bear Recovery Plan Supplement (USFWS 1997), the agencies would need to continuously implement surveys for grizzly bears using anthropogenic devices (cameras, hair snares) across the entire recovery area. This action would degrade the undeveloped quality of wilderness due to equipment installations. The

number of devices required has not been assessed because monitoring alone does not take action to recover the population and thus does not meet the need of the NCE Grizzly Bear Restoration Plan/EIS.

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

Failing to restore a functionally extirpated, federally listed threatened species would have a significant, long-term, adverse impact on the naturalness of the Stephen Mather Wilderness. Grizzly bears were listed under the ESA and still present in the NCE when the Stephen Mather Wilderness was designated, and their population extirpation represents a degradation of the natural quality of wilderness character through time.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Visitors recreating in the Stephen Mather Wilderness would continue to experience these areas without sharing the wilderness with grizzly bears. This paradigm would have a long-term, adverse impact on opportunities for primitive and unconfined recreation for visitors to the wilderness.

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Opportunities to enhance scientific and education values around grizzly bears in the NCE are currently limited because there are no bears from which to collect the data needed to understand their ecological place in the ecosystem. Grizzly bears also represent an ethnographic resource important to some Tribes and First Nations, which is currently a degraded quality in the Stephen Mather Wilderness.

Alternative 2

Maximize Efficiency, Animal Welfare, and Data Collection: Transplant bears to release sites with staff assistance via helicopter; post-monitoring activities and collar retrieval via foot and aircraft; mortalities retrieved via helicopter.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Transportation of personnel from staging area to release site	Personnel transported via helicopter (1 round trip with landing/bear)
2	Transportation of grizzly bear in culvert trap to release site	Bear transported by helicopter (1 sling load/bear)
3	Release of grizzly bear	Release grizzly bear; open culvert trap
4	Removal of empty culvert trap from release site	Trap transported by helicopter (1 sling load/bear)
5	Removal of personnel from release site	Personnel transported via helicopter (1 round trip with landing/bear)
6	Monitoring of grizzly bear movement, survival, and resource use	Deploy radio-collars
7	Transport of personnel to monitor bear reproduction	Fixed-wing aircraft (2 times/year for the duration that collars are operable; regardless of number of bears released)
8	Transport of personnel to monitor bear biology (diet, etc.)	Reconnaissance and surveys via foot (regardless of number of bears released)
9	Transport of personnel to retrieve collar and/or carcass	Personnel transported via foot as safe; helicopter when necessary to access site (potentially 1 round trip with landing/collar)

Component	Workflow Components	Component Methods for this Alternative
10	Removal of radio-collars and/or carcasses	Collect dropped radio-collars, samples from carcass, or entire carcass
11	Condition of site after project	Ample information to ensure all objectives are met

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

In this alternative, all grizzly bears released within the NCE would be transported to identified release sites via truck, boat, and/or helicopter. Individual grizzly bears would be live-trapped in other ecosystems that are ecologically similar to the NCE. The trapped bears would then be anesthetized, measured, marked, and fitted with Global Positioning System (GPS) collars and transported in a culvert trap towed by vehicle to staging areas within the NCE. Staging areas would be located outside wilderness in previously disturbed areas close to the identified release site and large enough for (a) the safe landing of a helicopter, (b) parking for a fuel truck, and (c) any other grizzly bear processing needs. Once at the staging area, personnel (including staff with animal handling/veterinary skills training) would be picked up and transported to the release site via helicopter, requiring one round trip of a helicopter flight and one landing at the release site. The helicopter would then return to the staging area to pick up the culvert trap, with a grizzly bear inside, via long line, and would transport the trap and bear back to the release site, leaving the site once the culvert trap was detached by personnel on-site (another round-trip helicopter flight). Personnel on-site would then open the trap to release the bear, in such a way as to ensure personnel safety, and would remain on-site at a safe distance to ensure the bear successfully left the trap. Following successful release, the helicopter would (1) return to the release site to pick up the empty culvert trap, via long line, and transport it back to the staging area (another round trip helicopter flight), and would then (2) return to the site to pick up the personnel (one last round trip with an aircraft landing). All flights would occur between the staging area and release site.

Helicopters would make up to four round trips per grizzly bear and would require four landings in wilderness, necessary for the release of each grizzly bear and drop-off and retrieval of staff and the culvert trap. Each release could take up to 8 hours over the course of one day; however, helicopter flight time over designated wilderness areas would vary (estimated at 0.1-4.6 hours of flight time over wilderness per release) depending on the location of the release site and

corresponding staging area. All operations would be conducted during daylight hours. Under all alternatives, capture and release activities would take place between early summer and early fall, depending on the capture and release site(s) selected and availability of natural bear foods during that particular year. Considering the sensitivity of these release activities, the NPS could also implement potential temporary local closures (up to a few days) during releases on a site-specific basis.

Following the initial release of grizzly bears into the NCE, the NPS would conduct annual monitoring activities to assess the success of restoration activities—particularly track reproduction, survival, and behavior (such as diet and genetic monitoring)—and adaptively manage for future releases. While much of the monitoring work would occur via satellite (i.e., remotely), this alternative would include two annual overflights (without landings) via fixed-wing aircraft to monitor reproduction. These flights would occur in the spring and fall and would target areas with known female grizzly bears to try to visually identify if offspring/cubs are present. On-site monitoring would also occur periodically via foot to study diet (sample scat or monitor vegetation) and genetics (obtain hair samples) within known home ranges.

As described above, collars would be attached to all released bears prior to transporting bears into wilderness. Collars are designed to fall off after three to four years of use or could be remotely triggered to fall off if necessary. Under this alternative, staff would also retrieve lost collars via foot in locations where it is acceptably safe to do so. Helicopters would be used to retrieve collars in areas that pose an unacceptable safety risk to access by foot.

Should mortalities occur during years of project implementation, reconnaissance would occur via helicopter (one round-trip flight with landing) to transport personnel to the site, complete an investigation as to the cause of death, retrieve important remains, and fly back. It is possible that personnel would determine that a more holistic examination is necessary, which would require laboratory examination of potentially the full remains. In these situations, an additional flight could occur for bears that are too heavy to lift within an internal helicopter load.

Because of these extensive monitoring procedures, NPS, FWS, USFS, and WDFW staff would likely have ample information to adaptively manage grizzly bear restoration and respond to any issues that arise in release efforts to ensure the greatest success for restoration. These monitoring procedures would allow staff to estimate survival rate, the number of grizzly bears that establish a home range, and the number of reproducing females to determine if the restored grizzly bear population is capable of surviving and reproducing by natural means. They would also be able to detect grizzly bears in the NCE to determine grizzly bear density and distribution in the ecosystem, and would furthermore expand scientific understanding regarding grizzly bear habitat use, movement, reproduction and survival.

Wilderness Character

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Personnel transported via helicopter (1 round trip with landing/bear)	0	N	0	N	0
2	Bear transported by helicopter (1 sling load/bear)	0	N	0	N	0
3	Release grizzly bear; open culvert trap	N	0	P	P	P
4	Trap transported by helicopter (1 sling load/bear)	0	N	0	N	0
5	Personnel transported via helicopter (1 round trip with landing/bear)	0	N	0	N	0
6	Deploy radio-collars	0	N	0	0	0
7	Fixed wing aircraft (2 times/year for duration collars are operable; regardless of number of bears released)	0	0	0	N	P

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
8	Reconnaissance and surveys via foot (regardless of number of bears released)	0	0	0	N	P
9	Personnel transported via foot as safe; helicopter when necessary to access site (potentially 1 round trip with landing/collar)	0	N	0	N	0
10	Collect dropped radio-collars, samples from carcass, or entire carcass	0	P	P	0	P
11	Ample information to ensure all objectives are met	0	P	P	P	P

What is the effect of each Component Method on the qualities of wilderness character? What mitigation measures will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control,

manipulate, or hinder the conditions or processes of ecological systems:

By reintroducing the grizzly bear to the NCE, the NPS would be actively managing the wilderness through which and in which these animals are expected to travel and establish home ranges. The translocation of bears is a manipulation of a wildlife population, with the intent of preventing the complete extirpation of this indigenous species in the Stephen Mather Wilderness where bears may be released, as well as other wilderness areas in the NCE where translocated bears and their offspring may travel and establish home ranges.

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

Impacts listed to the undeveloped quality of wilderness character are from the use of aircraft for transportation, and the presence of radio-collars and animal tags. The use of helicopters and aircraft landings are considered development within wilderness. Helicopter transport (4 flights per released bear, 144 round trip flights); plus the likely few flights needed to retrieve collars and mortalities, helicopter landings (4 landings per released bear); plus the likely few flights needed to retrieve collars would all have short-term, negative impacts on the undeveloped quality of wilderness character within each wilderness. Each released grizzly bear would carry a radio-collar and ear tag, for a total of up to 72 devices if all 36 bears were released over 5 to 10 years, though not all devices would be on the landscape simultaneously. Ear tags would be retained for the life of a bear and removed from the landscape if a carcass was recovered. Radio-collars would be set to detach on a timed schedule or could be remotely triggered to detach, and would be recovered by agency personnel when safe to do so. Removal of detached radio-collar devices and ear tags would be a benefit to undeveloped character. Not all actions would occur within wilderness because actions would be related to individual bears; rather impacts would occur respective to where individual bears are released and home ranges are established.

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

In ensuring successful restoration of a functionally extirpated, federally listed threatened species through transplants, monitoring, and adaptive management, this action would have a moderate, long-term, beneficial impact on the naturalness of the Stephen Mather Wilderness because it would restore the processes and biodiversity of these wilderness ecosystems by completing the native carnivore guild within these wildernesses, which would have positive cascading effects on other species present. These activities would result in the restoration of a federally threatened species and thus the natural quality of wilderness character within each of these wilderness areas. Some short-term, negative impacts would occur to the natural quality of wilderness character, such as removal of dead bears. The removal of individual dead grizzly bears would remove a potential food source for scavengers and eliminate natural decay processes (such as nutrient deposition), but the benefit of removing carcasses to determine cause of death could contribute important information toward improving overall restoration

success. Removal of detached radio-collar devices would be a benefit to natural character due to the possibility of environmental contamination if left indefinitely on the landscape.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Actual release activities have the potential to impact summer visitors to the wilderness areas because sounds from transportation to release sites and actions associated with releases will likely occur within wilderness, which would temporarily degrade the opportunities for solitude in the Stephen Mather Wilderness. Similarly, seeing/hearing fixed-wing aircraft associated with monitoring would have a short-term, negative impact on visitors' opportunities for solitude in the wilderness. Temporary closures may also occur during releases, which could briefly limit access to specific locations within wilderness.

At the same time, knowing grizzly bears have been restored to the wilderness, having the slim, though real, chance to see a grizzly bear in the wild and in its native habitat, and having enhanced opportunities to learn about grizzly bear restoration would have a long-term, beneficial impact on opportunities for primitive and unconfined recreation for visitors to the wilderness.

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Grizzly bear restoration (through reintroduction, monitoring, and adaptive management) would benefit a feature with ecological, scientific, educational, and historic value. Historical value, and specifically grizzly bears as an ethnographic resource important to some Tribes and First Nations, would be restored to the ecosystem, representing a beneficial impact.

Alternative 3:

Transplant bears to release sites with minimal staff assistance via truck, boat, or helicopter; post-monitoring activities via foot and aircraft; collar retrieval primarily via foot; mortalities retrieved via helicopter only following on-site reconnaissance.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Transportation of personnel from staging area to release site	Personnel travel via foot to assist with removal of culvert trap
2	Transportation of grizzly bear in culvert trap to release site	Bear transported by helicopter (1 sling load/bear)
3	Release of grizzly bear	Release grizzly bear; open culvert trap
4	Removal of empty culvert trap from release site	Trap transported by helicopter (1 sling load/bear)
5	Removal of personnel from release site	Personnel travel via foot to exit the release area
6	Monitoring of grizzly bear movement, survival, and resource use	Deploy radio-collars
7	Transport of personnel to monitor bear reproduction	Reconnaissance and surveys via fixed-wing aircraft (2 flights, regardless of number of bears released)

Component	Workflow Components	Component Methods for this Alternative
8	Transport of personnel to monitor bear biology	Reconnaissance and surveys via foot (regardless of number of bears released)
9	Transport of personnel to retrieve collars	Personnel transported via foot to retrieve dropped collars
10	Removal of radio-collars and/or carcasses	Collect dropped radio-collars, samples from carcass, or entire carcass
11	Condition of site after project	Ample information to ensure all objectives are met

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

In this alternative, grizzly bears released within the NCE would be transported to identified release sites either via truck, boat, or a combination of truck, boat, and helicopter. Like alternative 2, individual grizzly bears would be live-trapped in other ecosystems that are ecologically similar to the NCE. The trapped bears would then be anesthetized, measured, marked, and fitted with GPS collars and transported in a culvert trap towed by vehicle to either a release site that is accessible via road (few of these locations exist) or a staging area in the NCE.

For release sites that are accessible via road, no prohibited uses would occur within designated wilderness. However, for release sites that are not accessible via road (most of the likely suitable release locations), releases would occur via helicopter from established staging areas that meet the criteria outlined in alternative 2. Initially, releases would occur similar to those in alternative 2—except with only two flights and landings per release to facilitate the release. Personnel would need to hike to the site (as close to the timed release as possible) to release the bear once the helicopter delivers the culvert trap and then to reattach the empty culvert trap so the helicopter can return it to the staging area. In this scenario, additional staff with animal handling/veterinary training would be needed to have qualified personnel tending to the needs of a bear both at the staging area and at the release site. Continuity of animal care by the same

staff member would not be possible under this scenario because personnel cannot simultaneously attend to a bear at the staging site and hike up to several days to a release site. For the purposes of assessing impacts, helicopters would initially make up to two round trips per grizzly bear and would require two landings in wilderness. Each release could take up to 8 hours over the course of one day; however, helicopter flight time over designated wilderness areas would vary (estimated at 0.05-2.3 hours of flight time over wilderness per release) depending on the location of the release site and corresponding staging area. All operations would be conducted during daylight hours. Under all alternatives, capture and release activities would take place between early summer and early fall, depending on the capture and release site(s) selected and availability of natural bear foods during that particular year. Considering the sensitivity of these release activities, the NPS could also implement potential temporary local closures (up to a few days) during releases on a site-specific basis. Following the initial release of grizzly bears into the NCE, the NPS would conduct annual monitoring activities to assess the success of restoration activities similar to those outlined in alternative 2. While much of the monitoring work would occur via satellite (i.e. remotely), this alternative would include two annual overflights (no landings) via fixed-wing aircraft to monitor reproduction. These flights would occur in the spring and fall and would target areas with known female grizzly bears to try to visually identify if offspring/cubs are present. On-site monitoring would also occur periodically via foot to study diet (sample scat or monitor vegetation) and genetics (obtain hair samples) within known home ranges. Collars would be attached to all released bears and are expected to fall off after three to four years of use. Under this alternative, staff would retrieve lost collars via foot whenever feasible, but could retrieve collars via helicopter when in extremely remote/hazardous areas. Should mortalities occur during years of project implementation, reconnaissance would occur via staff traveling on foot to complete an investigation regarding the cause of death. It is possible that personnel would determine that a more holistic examination is necessary, which would require laboratory examination of potentially the full remains. In these situations, a helicopter flight would occur to transport the carcass back to an established helipad outside wilderness. Because of these extensive monitoring procedures, NPS, FWS, USFS, and WDFW staff would likely have ample information to adaptively manage grizzly bear restoration and respond to any issues that arise in release efforts. These monitoring procedures would allow staff to estimate survival rate, the number of grizzly bears that establish a home range, and the number of reproducing females to determine if the restored grizzly bear population is capable of surviving and reproducing by natural means. They would also be able to detect grizzly bears in the NCE to determine grizzly bear density and distribution in the ecosystem, and would furthermore expand scientific understanding regarding grizzly bear habitat use, movement, reproduction and survival. This alternative may diminish the ability of managers to determine the cause of death for deceased bears because the travel time via foot may take several days, during which time the carcass is likely to be scavenged or decompose.

Wilderness Character

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Personnel travel via foot to assist with release of bear from culvert trap	0	0	0	N	0
2	Bear transported by helicopter (1 sling load/bear)	0	N	0	N	0
3	Release grizzly bear; open culvert trap	N	0	P	P	P
4	Trap transported by helicopter (1 sling load/bear)	0	N	0	N	0
5	Personnel travel via foot to exit the release area	0	0	0	N	0
6	Deploy radio-collars	0	N	0	0	0
7	Reconnaissance and surveys via fixed-wing aircraft (2 flights, regardless of number of bears released)	0	0	0	N	P
8	Reconnaissance and surveys via foot (regardless of number of bears released)	0	0	0	N	P

Component Number	For each component number, indicate the impact the **method for this alternative** will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 *Describe in detail the impacts to each of the five qualities in the narrative section below*	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
9	Personnel transported via foot to retrieve dropped collars	0	0	0	N	0
10	Collect dropped radio-collars, samples from carcass, or entire carcass	0	P	P	0	P
11	Ample information to ensure all objectives are met	0	0	N	N	P

What is the effect of each Component Method on the qualities of wilderness character? What mitigation measures will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

By reintroducing the grizzly bear to the NCE, the NPS would be actively managing the wilderness through which and in which these animals are expected to travel and establish home ranges. The translocation of bears is a manipulation of a wildlife population, with the intent of preventing the extirpation of this indigenous species in the Stephen Mather Wilderness where bears may be released, as well as other wilderness areas in the NCE where translocated bears and their offspring may travel and establish home ranges.

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

The use of helicopters, aircraft landings, and fixed-wing flights, as well as the GPS collars, are

all considered development within wilderness. Although similar types of impacts would occur as described for alternative 2 (helicopter flights, aircraft landings, and fixed wing flights), the number and duration of impacts would be less because (1) some bears may be released via road in nonwilderness, requiring no prohibited uses within wilderness, (2) personnel would eventually not be transported to and from releases in wilderness, cutting in half the number of flights and flight hours and eliminating aircraft landings associated with releases and retrieval of mortalities, (3) collars would be retrieved via foot, and (4) investigation of dead bears would be done on foot. Like alternative 2, not all actions would occur within wilderness because actions would be related to individual bears. Impacts instead would occur respective to where individual bears are released and home ranges are established. Removal of radio-collar devices and ear tags would be a benefit to undeveloped quality; however, under this alternative, it is more likely that some radio-collars and ear tags would not be retrieved.

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

In ensuring successful restoration of a functionally extirpated, federally listed threatened species through transplants, monitoring, and adaptive management, this action would have a moderate, long-term, beneficial impact on the naturalness of the Stephen Mather Wilderness because it would restore the processes and biodiversity of these wilderness ecosystems by completing the native carnivore guild within these wildernesses, which would have positive cascading effects on other species present. These activities would result in the restoration of a federally threatened species and thus the natural quality of wilderness character within each of these wilderness areas.

Some short-term, negative impacts would occur, such as removal of dead bears, to the natural quality of wilderness character. The removal of individual dead grizzly bears would remove a potential food source for scavengers and eliminate natural decay processes (such as nutrient deposition), but the benefit of removing carcasses to determine cause of death could contribute important information toward improving overall restoration success. Removal of radio-collar devices and ear tags would be a benefit to natural character due to the possibility of environmental contamination if left indefinitely on the landscape; however, under this alternative, it is more likely that some radio-collars and ear tags cannot be safely retrieved.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Actual release activities have the potential to impact summer visitors to the wilderness areas because sounds from transportation to release sites and actions associated with releases would likely occur within wilderness, which would temporarily degrade the opportunities for solitude in the Stephen Mather Wilderness. Because fewer flights/flight hours are anticipated under this

alternative, it is assumed these impacts to solitude would be slightly less than those under alternative 2. Temporary closures may also occur during releases (a few days at most), particularly if releases occur on or near roads; these closures could briefly limit access to specific locations within wilderness. Similarly, seeing personnel more frequently in the wilderness would have a short-term, negative impact on visitors' opportunities for solitude in the wilderness.

At the same time, knowing grizzly bears have been restored to the wilderness, having the slim, though real, chance to see a grizzly bear in the wild and in its native habitat, and having enhanced opportunities to learn about grizzly bear restoration would have a long-term, beneficial impact on opportunities for primitive and unconfined recreation for both visitors to the wilderness and non-visitors alike. Under this alternative, it is likely that less information will be available to educate the public on biology and resource use of the reintroduced bears.

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

The monitoring activities that would accompany grizzly bear restoration (monitoring reproduction and behavior; studying mortalities; adaptively managing restoration efforts to ensure successful restoration) would inform future restoration efforts of native species—a long-term benefit to scientific understanding of these processes. This information could also be used to enhance education in and around the wilderness, a beneficial impact. Grizzly bears being released benefits ethnographic value because some Tribes and First Nations consider this species as culturally significant. The time to investigate carcasses on foot introduces time for scavenging and decomposition, which decreases the likelihood that an intact carcass can be found and necropsied. This delay also decreases the likelihood that any bear parts would be available for distribution to Tribes and First Nations.

Step 2: Alternatives Considered but Dismissed

What alternatives were considered but dismissed? Why were they dismissed?

Explain:

Complete All Releases via Road: As discussed in Step 1, Release areas would represent high quality grizzly bear habitat, while the release sites would be based on selected habitat criteria, connectivity to other areas, and the need to have grizzly bears in close proximity to one another to facilitate interaction and ultimately breeding. Most release sites that meet these criteria in the NCE are located within designated wilderness and are, by nature, far from most roads within the NCE. Potential suitable release sites for grizzly bears outside wilderness areas are not numerous enough to sustain the reintroduction of 25 to 36 grizzly bears that are considered within the alternatives of the plan/EIS. Under those alternatives, grizzly bears would be released in high quality grizzly bear habitat, which by definition, excludes areas within close proximity to a road or campground.

No Personnel Present for Releases: Personnel, including at least one team member with basic veterinary training, would be needed to monitor the grizzly bear's exit from the trap and its well-being after its many hours in the culvert trap (in other words, ensure that the grizzly bear was successfully transplanted). While it is planned that the trap would be opened remotely (either from the ground or from the air), the alternative to staff on-site would require the presence of a helicopter hovering overhead, waiting for the bear to depart, which would most likely prolong if not prevent a bear's exit. Any culvert trap door malfunctions on the ground would need to be dealt with in short order to ensure the bear's safety and timely exit.

Exclude the Use of Radio-collars: To determine if grizzly bears remain alive and in the NCE after release, what resources grizzly bears are using, and when grizzly bears may be approaching developed areas and could come into conflict when humans, GPS radio-collars must be used and would travel with bears in and out of wilderness. Alternatives such as having staff continually monitor each bear on foot is not feasible due to the inability of humans to locate, keep up with, and observe several (or more) bears on a daily basis from spring through fall, over potentially vast, off-trail, rugged, heavily vegetated areas of the ecosystem. Safety would also be an issue, as crews would be intentionally approaching grizzly bears on a continuous basis. Other autonomous technology, such as trail cameras and hair snag devices at the number required to track basic movements require a greater number of installations in wilderness and more human activity to maintain the devices, while not providing sufficient data to inform adaptive management actions such as proactive conflict mitigation when bears may be approaching developed areas.

Complete all Reproductive Monitoring via Foot: To determine whether this proposed restoration is successful, this project must be able to confirm successful reproduction of translocated bears. Grizzly bears are wide-ranging animals that typically avoid human activity when and where possible. They can travel many miles in a day over steep and rugged terrain. While satellite collars provide current location data, the ability of ground crews to locate, keep

up with, and observe several (or more) bears with offspring during the spring and fall over potentially vast, off-trail, rugged, heavily vegetated areas of the ecosystem would be prohibitive. Safety would also be an issue, as crews would be intentionally approaching a potentially reproductive female grizzly bear at close range (given limited visibility across the terrain, particularly in spring when grizzly bears make a lot of use of riparian and avalanche chute habitats) in order to count her cubs. For these reasons, this alternative was considered but dismissed from further analysis.

Complete all Reproductive Monitoring via Stock: In addition to those reasons mentioned above, much of the terrain across the NCE is inaccessible to stock. While bears and other wildlife do use human trails, most of their habitat use is expected in trail-less areas that are not reachable by stock. In addition, while grizzly bear attacks on horses/stock are exceedingly rare, the responses of horses to these animals adds a component of risk. Finding a grizzly bear remaining relatively stationary in an area accessible to horses might be possible some of the time, but this still runs the risk of surprise encounters with the study animal, causing unneeded energetic stress to both the female bear and any offspring, and places the crew and stock in unnecessary danger.

Abandon Collars in Place/Do Not Retrieve: Collars are expected to fall off grizzly bears after three to four years, at which time they would fall to the ground wherever the bear is located at the time. Given the habitat that bears prefer, this would likely occur in a remote area across rugged terrain that may not be accessible to humans via foot. While collars could reasonably be left in place, this alternative was dismissed for two reasons: (1) leaving collars in place would equate to a long-term impact to the undeveloped quality of wilderness character whereas retrieval could require, at worst, a short/temporary incursion into wilderness, and (2) satellite collars operate on lithium-ion batteries that could leach heavy metals into the soil wherever abandoned.

Step 2: Determination – What is the Minimum Activity?

Refer to the MRAF instructions before identifying the selected alternative and explaining the rationale for its selection.

Selected Alternative

Maximize Efficiency, Animal Welfare, and Data Collection: Transplant bears to release sites with staff assistance via helicopter; post-monitoring activities and collar retrieval via foot and aircraft; mortalities retrieved via helicopter.

Explain rationale for selection, including a comparison of the selected alternative with other alternatives:

Under alternative 1 (no action), the objectives of the NCE Grizzly Bear Restoration Plan/EIS and NCE Grizzly Bear Recovery Plan Supplement (USFWS 1997) would not be met, and the natural and other features of value qualities of the Stephen Mather Wilderness would continue to be degraded. When comparing the action alternatives considered above, the planning staff for this project noted that almost all beneficial impacts to wilderness character identified in this MRAF would have moderate to significant beneficial impacts on wilderness character that would last in perpetuity; whereas all adverse impacts to wilderness character would be mostly transient and short term (limited to the number of years of implementation), and in some cases, unlikely to occur.

In assessing the two action alternatives, it appears from the assessment that alternative 2 would have more impacts on wilderness character than alternative 3. However, most impacts would be similar between the two alternatives. The difference between the two alternatives in terms of wilderness character is because alternative 3 would reduce helicopter time over wilderness (which is relatively short in duration), but alternative 3 then would require multiple days per release of staff presence in the wilderness, which reduces the quality of solitude. Under alternative 3, releases from road-accessible locations could result in an additional type of impact to the opportunities for solitude quality of wilderness character—from potentially closing an area (for 2-3 days) around the release of a grizzly bear closer to human activity areas. If this should occur though, that specific release would not be associated with helicopter flights, which affect both the undeveloped and solitude qualities of wilderness character. While alternative 2 includes transport of personnel by helicopter, it greatly reduces the duration of impacts to solitude quality, compared to alternative 3, which would require days of staff presence in the wilderness.

While Other Features of Value includes an array of ecological, scientific, educational, and cultural values, it should be noted that alternative 3 may diminish scientific and ethnographic values more than alternative 2 due to the time needed and uncertain success rate for staff to locate females to assess reproduction and to locate and recover radio-collars and bear carcasses on foot. These scientific data are critical to informing recovery goals for the species, and thus represent the minimum tools for establishing restoration of natural quality. Failure to

recover collars and/or carcasses would result in anthropogenic items being abandoned in wilderness for perpetuity, degrading undeveloped quality. This may also limit the ability of scientists to understand cause of death as well as prevent recovery of any bear parts that could otherwise have been distributed to Tribes and First Nations who identify grizzly bears as an ethnographic resource.

Several alternatives were considered and dismissed due various aspects that would result in failure to meet the goals of the restoration and preserve the qualities of wilderness. After considering all the impacts and benefits cumulatively for each analyzed alternative, alternative 2 preserves wilderness to the greatest degree, using the minimum tool necessary to implement grizzly bear restoration in the NCE and meet all objectives.

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
☒	Mechanical Transport:	Up to 144 helicopter flights for translocations over 5-10 years; up to 36 helicopter flights for radio-collar retrieval over 5-10 years; 2 fixed-wing surveys per year for 5-10 years
☐	Motorized Equipment:	Click or tap here to enter text.
☐	Motor Vehicles:	Click or tap here to enter text.
☐	Motorboats:	Click or tap here to enter text.
☒	Landing of Aircraft:	Up to 144 landings for translocation operations and up to 36 landings for radio-collar recovery operations, over 5-10 years
☐	Temporary Roads:	Click or tap here to enter text.
☐	Structures:	Click or tap here to enter text.

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
☒	Installations:	Up to 36 radio-collars for 3-4 years deployment each; up to 36 ear tags for the life of the bear

Describe mitigation measures as well as monitoring and reporting requirements, if appropriate:

All aircraft use over wilderness would not exceed the minimum necessary to safely translocate grizzly bears and personnel, confirm safety of operations, and achieve monitoring objectives. Aircraft use would be conducted Monday through Thursday as much as possible, understanding that live capture of wildlife may not be conducive to that schedule at all times and some schedule deviations would be acceptable to prioritize animal welfare. All helicopter and fixed-wing flights, flight routes, and flight hours over the wilderness would be recorded and shared with the appropriate personnel at North Cascades National Park Service Complex on an annual basis. These reports should include flight hours, type of aircraft, and any landings (including delivery of slingloads) in wilderness. Staff at release sites would remove all equipment and supplies at the time of culvert trap extraction following each release and leave the release area in the state it was originally encountered. All mortality investigations would attempt to collect any human-made objects associated with the carcass (ear tags, radio-collars).

Approvals

Project Title (from page 2)**:**

NORTH CASCADES ECOSYSTEM GRIZZLY BEAR RESTORATION

Refer to agency policies for the following signature authorities:

Prepared by:

Name: Position:

Signature _____ Date _____

Reviewed by:

Name: Position:

Signature _____ Date _____

Reviewed by:

Name: Position:

Signature _____ Date _____

Approved by:

Name: Position:

Signature _____ Date _____

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APPENDIX E: AGENCY RESPONSES TO PUBLIC COMMENTS ON THE DRAFT PLAN / ENVIRONMENTAL IMPACT STATEMENT

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INTRODUCTION

Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations, the National Park Service (NPS) and US Fish and Wildlife Service (FWS) must assess and consider substantive comments submitted on the Draft North Cascades Ecosystem (NCE) Grizzly Bear Restoration Plan / Environmental Impact Statement (EIS) and provide responses to concerns raised in these comments. This report describes how the NPS and FWS considered public comments and provides the responses to substantive comments, which are grouped together by area of concern.

The draft EIS was made available for review through a Notice of Availability on September 28, 2023. The NPS and FWS held a public comment period for the draft EIS from September 28, 2023, to November 13, 2023. During this time, a series of five public meetings were held at the following locations:

- October 17, 2023: Virtual Public Meeting, Teams Live (104 attendees)
- October 30, 2023: Okanogan County Fairgrounds, Okanogan, Washington (188 attendees)
- November 1, 2023: Currier Hall, Newhalem, Washington (37 attendees)
- November 2, 2023: Darrington High School Auditorium, Darrington, Washington (215 attendees)
- November 3, 2023: Winthrop Barn Auditorium, Winthrop, Washington (220 attendees)

The public was encouraged to submit comments through the NPS Planning, Environment, and Public Comment (PEPC) website (https://parkplanning.nps.gov/NCEGrizzly). Comments were also accepted verbally and in writing at the public meetings, by US mail, and in-person at North Cascades National Park Service Complex (the park). A total of 12,788 pieces of correspondence were received during the public comment period for the draft EIS.

DEFINITION OF TERMS

Primary terms used in the document are defined below.

Correspondence: A correspondence is the entire document received from a commenter. This includes letters; written comment forms; comments entered directly into PEPC; and any other written comments provided either at the public meetings, by US mail, or in-person at the park.

Comment: A comment is a portion of the text within a correspondence that addresses a single subject. It could include such information as an expression of support or opposition for an alternative, additional data regarding the existing condition, or suggestions for additional considerations in the impact analysis. Comments were determined to be substantive or non-substantive using section 4.6 of the NPS *NEPA Handbook* as guidance.

Non-substantive comment: Comments in favor of or against the proposed action or alternatives, or comments that only agree or disagree with NPS policy, are not considered substantive. The NPS read and considered all substantive and non-substantive comments in the process of preparing the final EIS; however, non-substantive comments do not require a response.

Substantive comment: A substantive comment is defined as a comment that does one or more of the following:

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

In other words, substantive comments raise, debate, or question a point of fact or analysis.

Code: A code is a grouping centered on a common subject. The codes were developed based on the structure of the EIS and are used to track major subjects.

Concern: Concerns are statements that summarize the issues identified by each code. Each code was further characterized by concern statements to provide a better focus on the content of comments. Some codes required multiple concern statements, while others did not. In cases where no comments were received on an issue, the code was not identified or discussed in this report.

Response: A response has been prepared for each unique, substantive idea or issue raised in the comments. Some responses may be reflected as edits to the text of the final EIS if needed to clarify existing information or add new information.

COMMENT ANALYSIS METHODOLOGY

Comment analysis is a process used to compile and correlate similar public comments into a usable format for decision makers and the plan/EIS interdisciplinary planning team. Comment analysis helps the team in organizing, clarifying, and addressing technical information.

Comment analysis has five main steps:

1. developing a coding structure;
2. using a comment database for comment management;
3. reading and coding comments;
4. analyzing the comments to identify issues and themes; and
5. preparing a comment summary.

A coding structure was developed to help sort comments into logical groupings or topics. The coding structure was derived from an analysis of the range of topics discussed in the draft EIS and review of the correspondences received. The coding structure was designed to capture all comment content rather than to restrict or exclude any ideas.

The NPS PEPC database was used to manage the correspondences and the comments. The database stores the full text of all correspondence and allows each comment to be coded by topic. The database produces tallies of the total number of correspondences and comments received, can sort and report comments by a particular subject, and provides demographic information on the sources of the correspondences.

Analysis of the public comments involved assigning codes to comments identified within the letters, written comment forms, and PEPC correspondence entries. All comments were read and analyzed in the process of preparing the final EIS.

During the comment period, 12,788 pieces of correspondence were received. The correspondence received included several form letters. Thirty-two distinct form letters were received. Overall, 7,686 of the 12,788 correspondences received were determined to be form letters. It should be noted that some pieces of correspondence included form letter text as well as additional language/comments that required further review and consideration. These letters were counted as unique correspondence, even though the letters included the form letter text. Each copy of a form letter is considered one piece of correspondence.

Comments that repeat the same message are responded to collectively in the final EIS. All substantive comments were summarized by developing concern statements. A response was prepared for each concern statement. If changes to the draft EIS were warranted to address a concern, the response provides a brief summary of how the final EIS was changed to address that concern. If the information requested or suggested was already included in the draft EIS, the response guides readers to the appropriate location(s) within the final EIS.

CONCERN RESPONSE REPORT

The following report is organized by codes and then concern statements. A response from the NPS and FWS is provided for each concern statement. Tables at the end of this document provide demographic information on the commenters.

The draft EIS refers to the management locations under alternative C as Management Zones 1, 2, and 3. The final EIS has renamed those locations to Management Areas A, B, and C to avoid potential confusion with the Management Situations in the Interagency Grizzly Bear Committee (IGBC) Guidelines or numbered management zones in other parts of the species' range. As a result, the locations are referred to as Management Areas A, B, and C in this appendix.

	Comment	**Response**
1	One commenter requested modifying alternative B to include designation of critical habitat for the grizzly bear.	Designation of critical habitat for the grizzly bear is governed by rulemaking procedures that are outside the scope of the EIS and are not required for species such as the grizzly bear that were listed under the Endangered Species Act (ESA) prior to November 10, 1978, see 50 Code of Federal Regulations (CFR) 424.12(e).
2	One commenter requested that the NPS and FWS expand the take allowance described under alternative B. The commenter specifically requested that the following take allowance included in alternative C be added to alternative B: "Deterrence for the purposes of avoiding human-bear conflicts or to discourage bears from using areas in the immediate vicinity of homes and other human-occupied areas. Any person who deters a grizzly bear must use discretion and act safely and responsibly in confronting grizzly bears involved in conflicts."	The suggested revisions to the existing ESA section 4(d) rule governing the management and "take" of grizzly bears in the lower-48 states would require additional rulemaking, which is beyond the scope of the EIS. Implementing the section 10(j) rule under alternative C would allow for the recommended deterrence actions.
3	Commenters expressed concerns related to the costs of grizzly bear restoration in the NCE. They indicated that the flexibility under the 10(j) rule comes with potential high economic costs to private citizens and does not include guarantees of financial support for necessary management actions. The commenters emphasized uncertainties regarding long-term funding and the diversion of limited fiscal and personnel resources away from the management challenges of areas already occupied by grizzly bears. They requested clear	While not required under the NEPA, appendix C of the EIS includes an estimate of costs associated with this project, including grizzly bear conflict management. If alternative C were selected for implementation and a 10(j) final rule published, the FWS would develop memoranda of understanding (MOUs) with federal, state, and Tribal agency partners to document roles and responsibilities, and identify sources for support in implementing the rule. Funding for programs, including outreach and education, is often in partnership with other agencies, states, Tribes, and non-governmental organizations (NGOs). The NPS and FWS would work with partners to model programs in the NCE after the success of similar programs in other grizzly bear ecosystems. In the NCE, efforts are ongoing by the Washington Department of Fish and Wildlife (WDFW), US Forest Service (USFS), NPS, and several NGOs to provide resources, technical support, and education in communities.

	Comment	**Response**
	financial assurances, a reconsideration of the costs vs. benefits, and text addressing the potential impact on human lives and livelihoods.	Recovery of grizzly bears in the NCE would require continued federal funding and support from partners, increasingly over time as the grizzly bear population increases in size and distribution. The NPS and FWS would continue to work with federal, state, Tribal, and other partners to prioritize staff's time to conduct outreach and education, provide technical assistance, and assist with conflict management.
4	Commenters expressed concerns about how conflicts with grizzly bears are managed, mainly about who and how lethal removal is authorized. They also expressed concerns about potential harm to grizzlies due to the lack of more specificity and restrictions. Commenters specifically recommended: • Clearly defining the level of demonstrable threat posed by a grizzly bear before allowing lethal removal to ensure that it is not reasonably possible to eliminate the threat through nonlethal means. • Establishing a hierarchy of intervention, where other means of deterrence (as defined in the proposed rule) or relocation to a remote area precede any lethal take. • Requiring the demonstration of nonlethal deterrents prior to issuing any person a written authorization to kill a grizzly bear. • Specifying that only qualified individuals should be entrusted with managing grizzly bears involved in conflict and making determinations about whether it is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed in a remote area.	Under alternative C, the three Management Areas are based on suitability for occupancy by grizzly bears and the likelihood of human-bear conflicts, which are often associated with private lands. While management flexibilities available on private lands may provide for additional lethal take, the FWS will monitor all lethal take and it will not be considered a first resort for conflict management particularly on public lands which comprise the bulk of the NCE recovery zone. Determining whether to lethally remove a grizzly bear is a complex decision process, involving highly variable and fact-specific situations. As such, it is impossible to identify parameters to account for and describe all possible scenarios in the EIS. Decisions on lethal removal would be based on many factors, including the ability to identify a particular bear (e.g., markings, collars, track size, canine spacing), the individual bear involved (e.g., sex, age, presence of dependent young, conflict history), relevant conflict history in the immediate area, and the number of bears in the area. The FWS has a history of making well-informed and timely decisions about lethal removal across four ecosystems with multiple authorized agencies in Idaho, Montana, and Wyoming. The NPS and FWS expect to establish similar practices and protocols in the NCE, should alternative C be selected. Also, under alternative C, the FWS has revised the final 10(j) rule to improve clarity regarding the circumstances in which it would authorize lethal removal, but it retains the "not reasonably possible" language to allow for the exercise of appropriate judgment and discretion based on the circumstances. The EIS uses the term "humane" when describing requirements for lethal removal, and it means with compassion and consideration for the bear and minimizing pain and distress. The EIS under alternative C has been revised to clarify that the taking would be done in a humane manner (i.e., showing compassion and consideration for the bear and minimizing pain and distress). The NPS and FWS consider it possible to humanely treat an animal when lethally removing it and therefore decline to remove the term or the requirement.

	Comment	**Response**
	• Restricting lethal removal of grizzly bears to trained individuals. • Providing uniformity for lethal removal provisions for all zones. • Providing consistency in provisions between Management Areas B and C, suggesting that the same standards and criteria be applied in both management areas. • Considering public safety risks associated with allowing private citizens to perform authorized lethal take. • Defining the "humane manner" of lethal take as being "done in accordance with Service-approved interagency guidelines" or other clear guideline or standards. • Specifying that no grizzly bear should be preemptively relocated if the bear is not a threat to human safety, particularly if the bear has not become habituated or food-conditioned, or when nonnatural foods/attractants have not been properly secured and made inaccessible to bears. • Providing clarity about how females accompanied by young will be treated under a conditioned lethal take authorization. • Describing what actions will be taken to ensure that relocated grizzly bears remain in the relocation area.	
5	Several commenters were concerned about the impacts of black bear hunting on grizzly bears with regard to mistaken identification, while others recommended that the 10(j) rule allow grizzly bear hunting when authorized by state	The 10(j) rule does not address or authorize grizzly bear hunting. Hunting regulations in Washington are established by state or Tribal authorities. Grizzly bears are currently classified under Washington State law as endangered (Washington Administrative Code [WAC] 220-610-010), and state law (Revised Code of Washington [RCW] 77.15.120) prohibits the unauthorized taking of endangered

	Comment	**Response**
	and Tribal authorities. Concerns raised about bear hunting include the potential for hound hunting or trapping of black bears being extended to grizzly bears as allowed by recent legislation in Montana and Idaho, and that accidental killing of grizzly bears due to mistaken identity could result in prosecution under the ESA.	wildlife and establishes classes of crimes and penalties. To avoid accidental harvest of grizzly bears due to mistaken identification while hunting other species, both action alternatives in the EIS contain a component of outreach and education to increase public awareness and acceptance of living with grizzly bears in the NCE. Such efforts include increasing bear identification skills by hunters. In 2018, the WDFW implemented a regulation that requires black bear hunters to take and pass a bear identification test when hunting black bears in specific game management units within grizzly bear recovery zones, with the intent of minimizing the potential for accidental killings of grizzly bears because of mistaken identification. Black bear hunters must score 80% or higher and carry proof that they have passed the WDFW test or an equivalent test from another state. Also, neither recreational trapping, nor the use of bait or hounds for hunting bears are allowed in Washington (RCW 77.15.245). Changes to WDFW's hunting regulations in the NCE are outside the scope of the EIS. With regard to potential prosecution for mistakenly shooting a grizzly bear, the FWS retains the general prohibitions against take of members of the nonessential experimental population (NEP) other than as excepted by the 10(j) rule under alternative C. FWS retains the language that taking a grizzly bear that is wrongfully identified as another species is not considered incidental take and is not allowed. The decision to pursue prosecution is subject to the discretion of the applicable authority.
6	One commenter recommended that baited foot snares not be used to capture bears intended for restoration to the NCE. Another commenter requested that the NPS develop a humane capture and handling protocol because of the potential for injury and stress, particularly with foot snare traps.	While trapping is expected to occur largely with culvert traps, foot snares have been used safely for research captures of grizzly bears in other areas and could be the source of trapping for some bears for this restoration effort. Culvert traps are not as portable as foot snares that offer more opportunities to trap in remote locations where the agencies expect to locate bears without a history of conflicts. Agencies currently capture and handle grizzly bears humanely using the techniques described in Jonkel (1993, entire).
7	Commenters stated that neither the preamble to the proposed 10(j) rule nor the draft EIS provide a meaningful analysis of how much more lethal take would result under the 10(j) take provisions compared to the 4(d) rule. For example, commenters argued that the potential for more lethal removal allowed under the	The need for the tools and flexibilities that a 10(j) NEP designation provides was a recurring theme in public comment and community conversations during the previous North Cascades Grizzly Restoration Plan/EIS process that was terminated in 2020. Based on experience in other ecosystems, by limiting taking efforts to minimize impacts to property and safety, and providing more tools to address threats, are likely to improve the public's willingness to coexist with grizzly bears is likely to improve. In the Greater Yellowstone Ecosystem (GYE), residents involved in

	Comment	**Response**
	proposed 10(j) rule compared to the 4(d) rule would affect grizzly bear population growth and stability in the NCE, and suggested that the draft EIS and proposed 10(j) rule do not provide meaningful analysis or evidence about this impact.	resource extraction industries, such as loggers, miners, livestock operators, and hunting guides, were opposed to land use restrictions that were perceived to place the needs of the grizzly bear above human needs (Kellert 1994; Kellert et al. 1996). Surveys of these user groups have shown that they tolerate large carnivores when they are not seen as direct threats to their economic stability or personal freedoms (Kellert et al. 1996, p. 985). By increasing management flexibility, including allowing private citizens to take bears in certain situations, the 10(j) rule would reduce conflicts and increase acceptance of grizzly bears in the NCE. The NPS and FWS understand concerns and the perception that excepted incidental take provided for in the 10(j) rule could result in greater lethal take of grizzly bears and result in a slower restoration. However, as discussed during extensive outreach efforts with federal and state agencies, Tribes, local governments, and interested parties, as well as public comments received in the EIS process, a 10(j) NEP designation is a necessary tool in this instance to build social tolerance and support for grizzly bear conservation in the NCE. The Rio Grande silvery minnow, California condor, whooping crane, Oregon silverspot butterfly, and gray wolf are all examples of species where the FWS has worked with partners to designate 10(j) populations and has successfully reintroduced species into parts of their former range. Therefore, as discussed in the EIS the FWS and NPS identified Alternative C: Restoration with ESA section 10(j) Designation as the preferred approach because it allows for take in various circumstances to reduce the regulatory burden associated with restoration. The FWS *Grizzly Bear Recovery Plan* calls for maintaining human-caused mortality below 4% of the population for all recovery zones. Because it is anticipated that the NCE population would remain small for the near future, the NPS and FWS would attempt to keep human-caused mortality to zero. However, zero mortalities may not be practical given the need to protect human safety, property, and due to accidental mortalities (e.g., vehicle collisions).
8	One commenter pointed out inaccuracies in the draft EIS regarding the comparison between the 10(j) rule provisions and the 4(d) rule. Specifically, the commenter indicates that, under the 4(d) rule, lethal take is more restrictive than described in the draft EIS, suggesting that that such inaccuracies diminish	The text of the EIS in chapter 2 has been revised to match the specified exceptions to the take prohibitions specified in the existing ESA section 4(d) rule.

	Comment	**Response**
	the perceived contrast between the 4(d) and proposed 10(j) rule provisions.	
9	Commenters noted inaccuracies in the draft EIS where it states that unintentional incidental take is not prohibited "provided such take is non-negligent." The commenters suggest that the actual text of the proposed 10(j) rule does not impose such a broad limitation; rather the proposed rule only contains a limitation specific to hunting, and the draft EIS inaccurately portrays a more protective rule. The commenters contend that this misrepresentation in the draft EIS leads to a misleading comparison between the 10(j) provisions and the 4(d) protections.	The FWS revised the 10(j) rule to update the exceptions to the general take prohibition in this rule to clarify that incidental take must be unintentional and non-negligent for the incidental take exception to apply.
10	Commenters criticized the draft EIS analysis for relying on the success of other grizzly populations without considering the more stringent take provisions those populations have had. Commenters indicated that the proposed 10(j) rule provides less protection to the NCE population, especially in Management Area A, where any "depredation to lawfully present livestock" could lead to lethal removal; in contrast, the 4(d) rule for other grizzly bear distinct population segments (DPS) has only allowed removal for a "significant" depredation of livestock.	The NPS and FWS understand concerns that the proposed 10(j) rule would provide less protection to grizzly bears in the NCE compared to protection under the existing ESA section 4(d) rule governing the regulation of grizzly bears in the lower-48 states, particularly in terms of dealing with grizzly bears involved in conflicts and incidental take. A difference between the NCE and other populations is that grizzly bears were never extirpated from Wyoming, Montana, and Idaho. Thus, the social tolerance for grizzly bears in Washington differs and there is more potential for controversy surrounding grizzly bear restoration in the NCE, in particular if human interests and potential economic impacts are not also addressed. Under alternative C, the proposed 10(j) rule aims to provide greater management flexibility in addressing conflict situations to increase social tolerance for grizzly bears while ensuring that grizzly bear restoration does not result in the restriction of other land uses and resource development activities or compromise public safety. Although depredation to lawfully present livestock could result in lethal removal conducted by authorized federal, state, or Tribal authorities with prior approval by the FWS in Management Area A, the 10(j) NEP designation offers a responsive and adaptable strategy to manage situations that may threaten both grizzly bears and human interests.
11	A commenter noted that the proposed 10(j) rule	The FWS revised the proposed 10(j) rule to add a definition for "lasting bodily

	Comment	**Response**
	lacks a clear definition of "lasting bodily injury," potentially allowing severe injuries as long as they are not permanent. The commenter suggests the public could interpret this definition to believe it is broadly permissible to injure bears.	injury" as meaning any permanent damage or injury to a grizzly bear that limits the bear's ability to effectively move, obtain food, or defend itself for any length of time.
12	One commenter felt that the 5-day reporting window for injuries caused by deterrence under the proposed 10(j) rule is inconsistent with the ESA's conservation goals and increases the risk that an injured grizzly bear might die before authorities are notified. The commenter contrasted this window with the 24-hour reporting requirement for bear deaths and the 10(j) rules for the Bitterroot population.	The 5-day reporting window is consistent with FWS's practices with grizzly bears under the existing 4(d) rule for a grizzly bear outside a NEP. The FWS retained the reporting window for the proposed NCE NEP because prompt reporting helps ensure that agencies and their partners are kept apprised of interactions and potential human-safety issues or management needs. Long-term or fatal injuries from deterrence are very rare. In other grizzly bear ecosystems with this same 5-day reporting requirement, partners report this type of injury immediately. The NPS and FWS encourage reporting as soon as possible; however, up to 5-days allows personnel in inaccessible or backcountry areas where reporting within 24 hours may not be feasible to meet the requirement. The NPS and FWS anticipate the same response in the NCE. The NPS and FWS would emphasize the need for rapid reporting in their public outreach messages and encourage the same with their partners.
13	One commenter indicated that applying the 10(j) rule to any grizzly bear in the NEP regardless of origin would violate the ESA and NEPA requirements, and another requested that the draft EIS clarify the legal status of any bear that migrates into the NEP from other areas.	Under alternative C, grizzly bears entering the NEP area prior to the initial translocation of a grizzly bear would be managed in accordance with the existing 4(d) rule (50 CFR 17.80(b)). After an initial release of a grizzly bear into the NEP area, any grizzly bears moving from Canada to the NEP area would be treated as part of the NEP while in the NEP area, with all the associated ESA protections and exceptions of the NEP. Thus, after the initial release of a grizzly bear into the NEP, a grizzly bear originating in Canada but located in the NEP area in the United States would be managed in accordance with the 10(j) rule. Likewise, a bear originating in the NEP but located in the British Columbia portion of the ecosystem would be managed in accordance with appropriate Canadian regulations.
14	Commenters asked for clarification about how Management Zones 1, 2, and 3 in the proposed 10(j) rule align with the Management Situations 1 through 5 in the 1986 IGBC	As noted at the beginning of this response document, the EIS has been revised to change the names of Management Zones 1, 2, and 3 to Management Areas A, B, and C to avoid potential confusion with the Management Situations in the IGBC Guidelines or numbered management zones in other parts of the species' range.

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	Guidelines and the management zones in the Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem (NCDE) (NCDE Subcommittee 2020).	
15	Commenters stated that notification on release sites and dates, and updates on the movement of collared bears must be shared with agricultural producers. One commenter expressed concerns about the collar technology not being able to provide real-time data necessary for proactive grizzly bear management.	Prior to releases, the NPS and FWS would coordinate with relevant land management agencies, including local staff, to ensure that no people or livestock are in close proximity to release sites. The agencies would provide periodic updates on bear movements to the public. For situations where collared grizzly bears are in areas likely to result in conflict, the FWS or the authorized agency would work closely with the affected parties to reduce the potential for conflict. If collar data are available for a grizzly bear involved in conflict, current technology often allows managers to find the bear from the ground and track its movements in real time. Remote monitoring is limited by the frequency of satellite fixes (a trade-off to battery life); therefore, bear location information is more delayed. The EIS has been updated to clarify that a detailed implementation strategy would be developed, should either action alternative be selected, which could include more specific details on monitoring. The agencies would use global positioning system (GPS) collar data primarily to determine patterns of habitat use and population distribution. A communications team would be established to implement public outreach and education about areas used by released bears. The agencies would not share precise grizzly bear locations but would provide general locations of bears. It is important to note that bears would not be collared indefinitely as grizzly bears reproduce and the population increases. As part of NPS and FWS's commitment to responsible wildlife management, collaring would be conducted with ethical considerations for both human and grizzly bear welfare.
16	Commenters expressed support for the proposed geographic separation between the boundary of the NEP area and the nearest grizzly bear population in the lower-48 states (the Selkirk population, more than 100 miles away), noting it as sufficient to protect the grizzly bears in the Selkirks as an endangered population. The commenter indicated that	Grizzly bears within the NEP area would be "wholly geographically separate" from the nearest population of bears in the United States, located in the Selkirk Ecosystem. The EIS has been updated to clarify that the geographic separation between the NEP boundary and the Selkirk Ecosystem is more than 100 miles and contains significant portions of human-altered landscape that reinforces continued geographic separation. The likelihood of dispersal between the NEP and the Selkirk population is low, and the separation would be sufficient to protect grizzly bears from the Selkirk Ecosystem as both of these populations recover over time. Also, as noted in the FWS

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	while long-term connectivity is the goal, the proposed distance is appropriate given the current obstacles to connectivity. However, other commenters noted the apparent lack of coordination in delineating the North Cascades NEP boundary with the boundaries of other grizzly bear recovery zones (Selkirk and Bitterroot) and recommended the eastern boundary of the NEP area be delineated to align with ongoing grizzly bear restoration actions and to prevent "legal orphans." Other commenters advocated for enlarging the NEP boundary to cover neighboring states of Idaho and Oregon where grizzly bears from the NCE may disperse. Another commenter recommended clarifying the draft EIS to address a potential misinterpretation regarding the boundary of the Selkirk recovery zone, emphasizing that no such determination has been made regarding the Columbia River as the boundary.	*Grizzly Bear Recovery Plan*, the FWS recognizes that bears would occasionally move and even reside permanently in areas outside recovery zones, but that only the area within the recovery zone would be managed primarily for grizzly bear habitat, and management of bears in conflict outside recovery zones is necessarily more aggressive than within the recovery zone. The NEP boundary was not expanded to include adjacent states because it is unlikely that restored grizzly bears would disperse as far as Idaho or Oregon in the near future due to the limited habitat connections and human barriers (e.g., population centers, highways, Columbia River). Grizzly bears require large blocks of secure habitat. In recognition of this requirement, a recovery zone was not identified in Oregon. In Idaho, there are already naturally occurring grizzly bear populations and identified recovery zones such that the NEP would not be needed or could be precluded in Idaho. The FWS is presently evaluating options for restoration of grizzly bears in the Bitterroot Ecosystem (89 *Federal Register* [FR] 3411, January 18, 2024). It is anticipated that there would be interchange of grizzly bears of the NEP with the Canadian portion of the NCE given the available habitat and connectivity.
17	Commenters requested specific and clear instructions about what is allowed and not allowed during hazing to minimize the risk of lethal take, in addition to the FWS (2020) Grizzly Bear Hazing Guidelines.	Hazing has the potential to result in harm to grizzly bears. The 10(j) rule provides conditions to limit harm from deterrence, and any deterrence must not cause lasting bodily injury or death to the grizzly bear. In addition, the 10(j) rule provides specific examples of what deterrence methods are considered acceptable, and which ones are not. Because deterrence methods vary widely and new methods are continually being developed, individuals may also contact the FWS for the most current FWS-approved guidelines for safely hazing grizzly bears. The definition of deterrence has been added to the glossary of the final EIS.
18	Commenters expressed concerns about authorizing the killing of grizzly bears for livestock protection. Specific recommendations on this topic included:	Under alternative C, lethal take on federal lands in Management Area A would be limited to the FWS and authorized agencies only if it is not reasonably possible to otherwise eliminate the threat by nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed and the taking is done in a humane manner. This would be similar to the management of grizzly bears listed as threatened under the ESA in

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	• Limiting conditioned lethal take of grizzly bears to only private lands. • Requiring livestock owners demonstrate the use of nonlethal deterrents before considering lethal take or relocation of bears for livestock predation, and specifying the required nonlethal deterrents into grazing permits. • Allowing only qualified agency biologists or other qualified agency staff to confirm livestock losses and be responsible for the lethal removal if deemed necessary; and including a provision that prohibits the use of lethal means when livestock are killed by a bear in an open range situation. • Coordinating with federal land managers to implement preemptive measures that would serve to avoid conflicts with grizzly bears that might require lethal removal.	other ecosystems under the 4(d) rule. Therefore, the NEP designation does not represent a substantial change to the way grizzly bears are managed in relation to grazing allotments on federal lands under the 4(d) rule. Throughout the NEP area, the NPS and FWS would consider lethal removal as a management tool only when it is not reasonably possible to eliminate the threat through nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed. Relocation is a tool that would only be used when warranted, but bears may be relocated preemptively when appropriate for recovery purposes. Relocating a bear before they become habituated, food-conditioned, or a threat to human safety is sometimes the best course of action to avoid human-bear conflict and improve the likelihood of grizzly bear survival. To prevent imminent conflict or habituation of grizzly bears, the 10(j) rule includes an allowance in all management areas of the NEP for preemptive relocation of grizzly bears by authorized agencies. Lethal take in self-defense or defense of others would remain an exception throughout the NEP area, and as discussed below, the agencies have also added a limited exception relating to Management Area C. The NPS and FWS would employ methods and tools developed in other ecosystems to reduce human-grizzly bear conflict (including depredations) and/or increase the likelihood of finding and documenting depredation events. Livestock conflicts are not always preventable. Grizzly bears can cause significant losses in some instances, but a quick management response can increase social (or public) tolerance for grizzly bears. The FWS would not prohibit lethal removal for livestock depredation on public lands but it should not be the first choice. However, as a result of further consideration of the public comments and the intention to focus grizzly bear recovery within Management Area A, the FWS has added a provision allowing individuals to take a grizzly bear in the act of attacking livestock on private lands in Management Area C under limited conditions. In the context of conflict with livestock, grizzly bears present an ongoing threat when they are actively chasing or attacking livestock or when they are lingering close to livestock following a depredation. Under alternative C, the FWS or authorized agencies would respond to conflicts in all management areas and would determine the best management action moving forward, including lethal control. Lethal take authorization with conditions would be evaluated on a case-by-case basis. Individuals could also conduct intentional deterrence (which is by definition nonlethal) and employ preventive tools (e.g., electric fences) to prevent conflicts prior to a

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		confirmed depredation or a human-safety threat. Nonlethal actions (e.g., relocation, securing attractants, or deterrence) are always the first options to address conflicts, and authorization of lethal take for individuals would only be considered after these options had failed or were deemed nonviable by the FWS or an authorized agency. The two exceptions are when individuals kill a bear in defense of self or others, or the limited conditioned exception for take of a bear in the act of attacking livestock on private lands in Management Area C. Under alternative C, authorization of lethal take would only be issued after depredations were confirmed by the FWS or an authorized agency and if the FWS or authorized agency concluded there was an ongoing threat to human safety, livestock, or other pertinent property. Should alternative C be selected for implementation, the FWS would outline these factors and communication and coordination support with authorized agencies in the agency-specific MOUs. If the FWS decided to authorize lethal removal, the authorization would carry clear conditions and be time-limited. As to the comment that lethal control should only be performed by the FWS or authorized agency personnel, the NPS and FWS agree that any lethal removal for conflicts (other than in cases of self-defense, or for the limited exception in Management Area C described) must be performed by the FWS, an authorized agency in accordance with the MOU, or via prior written authorization to the individual in accordance with the 10(j) rule.
19	Commenters expressed thoughts about the basis for management area designations on state and private lands, specifically recommending: Classifying any nonfederal lands within the proposed boundary of Management Areas A and B as explicitly part of Management Area C. Classifying state and private lands within the NCE as part of Management Area A because the Management Area C designation may make grizzlies more vulnerable and lead to difficulties in	The NPS and FWS expect that the primary efforts for grizzly bear recovery within the NCE recovery zone would be focused on federal lands. Although the NPS and FWS acknowledge that other landownership within or adjacent to the NCE recovery zone contains suitable grizzly bear habitat, it is appropriate to allow greater management flexibility on those nonfederal lands by including them under Management Area C. However, this allowance does not mean that the NPS, FWS, or partners would necessarily act on that greater management flexibility, especially where there is suitable habitat that could complement recovery efforts for grizzly bears in the NCE and in areas less likely to result in human-bear conflicts. This approach also simplifies the long-term implementation of the 10(j) rule.

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	enforcement. Including the Colockum Wildlife Area in Management Areas A or B, aligning with its elevation range and adjacency to Management Area A. Including urban growth areas within Management Area A. Including the Loomis and Loup Loup State Forests as Management Area A, and at worst as Management Area B, based on habitat quality. Classifying other state-owned lands that provide suitable grizzly bear habitat as Management Area B rather than Management Area C.	
20	One commenter requested additional clarification about agency roles and responsibilities for the management of grizzly bears that leave NEP or Washington state.	Some grizzly bears would likely leave the NCE, but due to the large distances and relatively low landscape permeability of the habitat between restoration areas and surrounding states, the NPS and FWS think few bears would emigrate into adjacent states in the near future. However, if a grizzly bear from the NCE migrates into adjacent states, it would be managed by state, federal, or Tribal authorities based on the listing status of bears in that location (e.g., listed as threatened and managed under the grizzly bear species-specific 4(d) rule). Grizzly bears from the US portion of the NCE emigrating into Canada would be managed by Canadian authorities.
21	One commenter requested that the 10(j) rule include an "escape clause" for lethal removal if litigation forces the redesignation of the NEP.	The FWS does not consider an "escape clause" appropriate for the NCE grizzly bear NEP. Lethal removal of all grizzly bears of the NEP is inconsistent with the purpose of restoring grizzly bears to the NCE. If litigation resulted in the FWS being required to reevaluate its nonessential determination for the NCE NEP, the FWS and NPS would evaluate their management options at that time.
22	Commenters expressed concerns about uncertainties to the no net loss of core approach to habitat management, emphasizing the need for stronger agreements and MOUs with the	The EIS has been updated to clarify that the no net loss of core area approach would continue to apply to NPS and USFS lands only within Management Area A, which is the focal area for recovery of the NCE grizzly bear population. The EIS has also been updated to clarify that the no net loss of core area requirement for the incidental take

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	USFS, new analyses, and formal adoption of standards to ensure the protection and growth of the grizzly bear population in the NCE to strengthen the foundations of habitat protection, management thresholds, and adaptability to changing environmental conditions. One commenter asked what the effect on the 10(j) rule would be if the MOU with USFS regarding the no net loss of core approach is not updated.	exception under the 10(j) rule would apply to USFS actions on USFS lands in Management Area A only. The FWS, NPS, and USFS would work to update the baseline conditions with updated vegetation, trail, and road data and memorialize the no net loss of core area approach for federal lands within the US portion of the NCE recovery zone. These revisions would update the baseline and include metrics such as core habitat and trail data based on current conditions. It is expected that the USFS would maintain appropriate records on its no net loss of core approach to confirm its actions are within the 10(j) rule incidental take exception.
23	Commenters expressed concerns that the draft EIS does not discuss any measures that could be taken to facilitate connectivity between grizzly bear populations in the North Cascades and other regions, emphasizing the importance of habitat restoration and identifying specific areas where measures like road closures could be implemented to provide for gene flow and potential expansion beyond core areas.	The NPS and FWS understand and share the concern for the importance of genetic connectivity in maintaining robust grizzly bear populations. As described in chapter 2 of the EIS, under "Alternatives Considered But Dismissed From Further Detailed Analysis, Natural Recovery," Canada is the most likely source of grizzly bears potentially immigrating into the NCE because of obstacles to connectivity to other ecosystems in the United States. The purpose and need of this restoration effort is to restore grizzly bears to the NCE where sufficient habitat exists, a portion of its historical range, and not all of Washington state. Implementing measures to facilitate connectivity between grizzly bear populations in the NCE and other regions is beyond the scope of planning for the species restoration to the NCE. Regardless of which alternative is selected, including the no action alternative, federal agencies would continue to manage the NCE recovery zone, within their authorities, for the conservation of grizzly bear habitat. Under alternative C, with a 10(j) NEP designation, Management Area B is designed to provide natural movement or dispersal of grizzly bears in areas with suitable habitat to contribute to genetic diversity. The response to concern number 42 addresses concerns about road closures; no seasonal or permanent road closures are anticipated as a result of grizzly bear restoration actions.
24	One commenter requested a definition of "human-occupied areas."	The EIS glossary has been updated to add a definition for human-occupied areas as meaning any structures or areas currently used or inhabited by humans (e.g., homes, residential areas, occupied campgrounds or trailheads, job sites).
25	Commenters recommended that the 10(j) rule permit intentional take of grizzly bears if wild	The small number of grizzly bears in the NEP in the initial decades of under both action alternatives is not expected to significantly impact big game populations.

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	ungulate populations fall below established state or Tribal management objectives due to grizzly bear impacts. Commenters emphasized the importance of providing state and Tribal authorities the ability to manage the restored grizzly bear population, highlighting concerns about potential declines in Washington's deer and elk populations due to grizzly bear predation. Another commenter recommended adding a parenthetical qualifier, "(not defensive)," to the definition of "grizzly bear involved in human conflict" to clarify that the term does not include defensive behaviors of grizzly bears.	Grizzly bears are omnivores that primarily feed on vegetation; however, they do have the potential to affect prey species; local concentrations of ungulates, where abundant, can be an important source of protein. The "Other Fish and Wildlife" section of chapter 3 of the EIS describes the ungulate populations in the NCE, including the small North Cascades elk herd. While it is possible that grizzly bear predation may limit some small ungulate populations, significant impacts are unlikely due to the wide variety of foods available to bears, even after the restoration population of 200 grizzly bears. Healthy populations of big game exist in the NCDE and GYE with much higher bear densities than those anticipated in the NCE even when a population of 200 bears is achieved. A definition of "grizzly bear involved in conflict" has been added to the 10(j) rule and final EIS, meaning a grizzly bear that has caused substantial property damage, obtained anthropogenic foods (e.g., pet food, livestock feed, garbage), killed or injured lawfully present livestock, damaged beehives, breached an intact structure or electrified perimeter to obtain fruit or crops (e.g., greenhouse, garden, orchard, field, stackyard or grain bin), shown repeated and persistent signs of habituation (e.g., repeatedly hazed or previously relocated) in proximity to human-occupied areas, exhibited aggressive behavior (i.e., not acting in defense of offspring or food, or in response to a surprise encounter), or has been involved in a human-grizzly encounter resulting in substantial human injury or loss of human life.
26	Commenters urged the widespread implementation of bear-resistant food storage measures to secure attractants and prevent human-bear conflicts and noted the absence of food storage orders in certain national forests. Specifically, they urged the conditioning of any grizzly bear take on USFS lands in Management Area B on the implementation of food storage restrictions and recommend financial support for securing attractants in gateway communities adjacent to Management Areas A and B.	Thank you for emphasizing the importance of implementing food storage measures and reducing attractants to reduce human-bear conflicts. Public concerns about this issue underlie the importance of continued efforts to educate and engage residents and communities regarding responsible practices. In the broader context, grizzly bear restoration emphasizes the importance of reducing attractants to minimize wildlife habituation and associated conflicts with humans. Residents and visitors are already encouraged to implement sanitation efforts, which are the same for grizzly bears as they are for black bears. However, the FWS or authorized agencies would respond to all incidents concerning human safety regardless of whether proactive conflict prevention have been taken. Lethal removal of grizzly bears in defense of life is also authorized under all alternatives. Existing law requires proper storage of attractants on NPS lands, and in some areas, bear-resistant hiker canisters are required where no other viable alternative exists. The NPS and USFS units with lands within the NCE are currently working to

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		improve sanitation (e.g., bear-resistant garbage containers) and update food storage infrastructure (e.g., food storage boxes at campsites, food storage orders for backcountry users). Bear wires have been installed in some backcountry sites within the North Cascades National Park Service Complex (park complex) to facilitate hanging food, although this tends to be less effective than using canisters. Many NPS backcountry sites have developed separate cooking and tenting areas, and the NPS would continue to incorporate these designs as funding becomes available. On the national forests, all employees, permittees, contractors, outfitters, and guides are currently directed to follow proper food and garbage storage techniques. Food storage orders are already in place in the park complex (North Cascades National Park, Ross Lake National Recreation Area, and Lake Chelan National Recreation Area), Colville National Forest, and Mount Baker Snoqualmie National Forest, while Okanogan-Wenatchee National Forest is developing food storage orders as part of its 2024 Plan of Work. Also, in the event grizzly bears were to be restored to the ecosystem, the agencies (NPS, USFS, and WDFW) plan to place informational signs specific to grizzly bears at all campgrounds and trailheads and to provide more bear-resistant food and garbage storage containers at designated camping sites within the first few years of plan implementation. The EIS has been updated to clarify that food storage is a requirement for national forests only within Management Area A for the purpose of incidental take allowance. Food storage orders are important tools for preventing human-wildlife conflict with many species (e.g., black bears), not just grizzly bears. The NPS and FWS recognize that improved sanitation and updated food storage infrastructure are important for reducing potential human-bear conflicts in Management Areas B and C. Education and outreach about how to minimize conflict would be an important part of an implementation strategy, and the NPS and FWS would work with partners to increase outreach to people who live, work, and recreate in the NCE and surrounding areas. Funding for programs, including improvements to sanitation and food storage infrastructure, outreach, and education, is often in partnership with other agencies, states, Tribes, and NGOs. For example, in the Methow Valley, a grant-funded, local nonprofit is conducting a Bear Aware Community Assessment to summarize the historical and current state of human-black bear interactions/conflict related to human-based food sources. The NPS and FWS would work with partners to model programs in the NCE after similar successful programs in other grizzly bear

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		ecosystems. In the NCE, efforts are ongoing by the WDFW, USFS, NPS, and several NGOs to provide communities with resources, technical support, and education. The NPS and FWS would work with partner agencies and NGOs to identify funding needs and priorities, as well as potential sources.
27	Commenters expressed concerns about the ability to perform forest management activities on federal lands within the NEP as a result of the proposed grizzly bear restoration and the requisite section 7 consultation. Commenters requested clarification on which activities may be impacted via a recommended assessment of all ongoing and planned forest or rangeland management activities on federal land. The commenters recommended limiting the application of section 7(a)(1) to the NCE rather than the entire proposed NEP to avoid impacting federal land management activities outside the NCE.	Consistent with other recovery areas, the FWS's focus is on securing core habitat for grizzly bears, using motorized road management as the principal metric. Therefore, regardless of the proposed action, federal lands within the NCE recovery zone would continue to be managed under a no net loss approach that supports core habitat for grizzly bear habitat. The EIS includes a cumulative effects analysis that addresses in part other ongoing and reasonably foreseeable planned projects; based on this analysis and in discussion with the USFS, the NPS and FWS do not anticipate alternative C would adversely impact active forest management projects. Chapter 3 of the EIS, under "Socioeconomics, Environmental Consequences," describes that, under alternative B, timber harvest on federal lands would be subject to ESA consultation requirements. As a result of the consultation process, efforts to minimize or avoid those adverse effects may be required, which has the potential to adversely affect these forestry operations. Under alternative C, the 10(j) rule is not expected to hamper forestry activities or response to wildfires on federal or nonfederal lands. Under a 10(j) rule, as with all designated NEPs, consultation under section 7(a)(2) of the ESA would not be required for federal actions if they do not occur on a national wildlife refuge or NPS land. On USFS lands, this means there would be no requirement to consult under section 7(a)(2), even if the proposed federal action may affect grizzly bears of the NEP found there; however, federal agencies including the USFS would still be required to confer with the FWS—consistent with section 7(a)(4)—for any agency action that is likely to jeopardize the continued existence of the listed species. In addition, provided the USFS retains its policy regarding maintaining core secure habitat in Management Area A, incidental take from a USFS action in Management Area A is allowed. On all nonfederal land, including state-managed lands, take of a grizzly bear is allowed if the take is incidental to, and not the purpose of, an otherwise lawful activity, and reported in accordance with this rule. Private land and state-managed lands within the NEP are in Management Area C, with the most flexibility with regard to grizzly management tools. The NPS and FWS do not expect the NEP to hamper or substantially modify forest health treatments or otherwise lawful forestry activities on Washington

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		Department of Natural Resources and USFS lands. Regarding the application of ESA section 7(a)(1) to the entire NEP, the NPS and FWS anticipate that most agencies would focus their conservation efforts of grizzly bears within the NCE recovery zone. Section 7(a)(1) of the ESA requires all federal agencies to use their authorities to carry out programs for the conservation of listed species. Under the ESA, section 7(a)(1) remains applicable to all federal agencies in regard to a NEP, and they have broad discretion in how they fulfill their responsibilities under section 7(a)(1).
28	One commenter requested further discussion about how the Bear Management Units (BMUs) informed the designation of management area boundaries.	BMUs (delineated within recovery zones as part of recovery planning, and used in aid of habitat and population monitoring) were not used to designate management areas; all of the BMUs for the NCE recovery zone are included in Management Area A.
29	One commenter noted an inconsistency in the 10(j) rule between the description of authorization for lethal take within Management Area C in the preamble to the rule and the rule itself, where the rule allows lethal take of any "grizzly bear that presents a demonstrable and ongoing threat to human safety or to lawfully present livestock, domestic animals, crops, beehives, or other property; it is not reasonably possible to otherwise eliminate the threat by live-capturing and releasing the grizzly bear unharmed;" by contrast, the preamble states that the agency could authorize lethal take only "when it is not reasonably possible to eliminate the threat through nonlethal means."	Under alternative C, the 10(j) rule has been revised and this discrepancy has been corrected. Relocation of bears would be a tool only used when warranted. Throughout the NEP area, the FWS would consider lethal removal as a management tool only when it is not reasonably possible to eliminate the threat through nonlethal deterrence or live-capturing and releasing the grizzly bear unharmed.
30	Commenters support the management flexibility provided by the 10(j) rule but requested expanded management tools to address conflicts, protect prey (ungulate) populations, and streamline the authorization	The responses to concern numbers 7, 10, 18, and 19 address the increased management flexibility provided by the 10(j) rule under alternative C. The NPS and FWS understand and acknowledge public concerns regarding the exemptions for incidental take and the desire for clear thresholds and expanded tools to address conflicts and protect prey populations. Regarding the thresholds for bear deaths and

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	process for lethal take as the population grows; specifically, they questioned if more specificity could be provided about the anticipated future management of grizzly bears, including the following: If lethal take is high, is there any threshold of bear deaths at which the restoration would be aborted or the population might be re-designated as essential? If public tolerance of grizzly bears rises to sufficient levels over the course of the restoration, could the grizzly bears revert back to management under 4(d)? Can the tools and actions that would be used to address future impacts be detailed based on prior large carnivore restoration efforts? Commenters suggested: Adopting management tools similar to those specified in the EIS for the Colorado Gray Wolf 10(j) Rulemaking. Allowing for a gradual transition of grizzly bear management responsibility to the state as population goals are achieved to ensuring a smoother process without dependence on subsequent rulemakings and potential litigation.	stopping the restoration, the proposed restoration strategy considers the importance of minimizing human-caused mortality. Zero human-caused mortalities would be best, and the agencies would attempt to keep the number as low as possible. However, zero mortalities may not be practical given the need to protect human safety, property, and due to accidental mortalities (e.g., vehicle collisions). As discussed in response to concern number 7, the FWS *Grizzly Bear Recovery Plan* calls for maintaining human-caused mortality below 4% of the population for all recovery zones. Because the FWS anticipates the NCE population to remain low for the near future, it would attempt to keep human-caused mortality to zero. As new information comes available, the FWS would consider revising recovery criteria through a separate process. If the NEP experiences unexpectedly high mortality, if donor bears are not available, or if the FWS concludes that it and its partners have insufficient funding for an extended period to support management of the NEP, the FWS may consider ending the releases and repealing the NEP designation. Alternative C in the EIS has been updated to include this language. Demographic and habitat-based recovery criteria, including updates on mortality thresholds, would be updated through a different process. Regarding future management, the 10(j) rule would remain in place until the restoration population of 60 to 100 bears. The FWS and authorized agencies would monitor the status of grizzly bears in the NEP annually. The FWS would evaluate the status of grizzly bears in the NEP in conjunction with species status assessments and status reviews of the grizzly bear. Evaluations in FWS status reviews would include, but not be limited to, a review of management issues; grizzly bear movements; demographic rates; causes of mortality; project costs; and progress toward establishing a population. Chapter 2 was revised to include language regarding when NPS and FWS may consider removing the experimental population designation. Regarding the desire for more detailed management tools and actions, the EIS and 10(j) rule deliberately provide the NPS and FWS with flexibility to address the potential impacts that grizzly bear may have in the NCE. This approach is based on prior large carnivore restoration efforts and lessons learned from grizzly bear management in other ecosystems. The NPS and FWS would use tools that have been demonstrated to be effective in reducing impacts to public safety, even in areas with a higher density of grizzly bears than projected for the ultimate restoration population analyzed in the EIS. The NPS and FWS considered the suggestion to adopt

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		management tools similar to those specified in the EIS for the Colorado Gray Wolf 10(j) Rulemaking (88 FR 77014, November 8, 2023). However, grizzly bears present different management challenges than wolves do because of their life history traits, such as long time to parturition, slow reproduction, and sensitivity to mortality. The management tools identified were included to facilitate grizzly bear recovery in a landscape shared with people. Regarding a gradual transition of management responsibility to the state, the FWS and NPS retain the lead in management of grizzly bears of the NEP as they are part of the overall efforts to recover the federally listed grizzly bear in the United States. The FWS and NPS would continue to partner with the WDFW and coordinate with the IGBC, should alternative C be selected for implementation. The FWS and NPS expect this collaborative management would occur until the grizzly bear is recovered and no longer requires listing under the ESA. States that seek to manage grizzly bears can speed that timeline to delisting by supporting recovery efforts, including providing state management plans and regulations that protect the grizzly bear in absence of the ESA's protection.
31	Commenters requested that the preferred alternative include Forest managers, loggers, and others conducting otherwise lawful forest management activities in the list of those authorized to conduct nonlethal deterrence activities. Additionally, commenters noted that the nonlethal incidental take reporting requirements due to habitat modification resulting from otherwise lawful activities are impractical and should be exempted from reporting. Commenters also suggest that road use permits granted from the USFS to nonfederal entities where the road in question is not located on national forest land should not need ESA section 7(a)(2) consultation. At present the exemption appears to apply only to national	Regarding concerns about lawful forest management activities and road use permits under alternative C, proposed actions by the USFS, including the proposed issuance of USFS permits, are already excluded from section 7(a)(2) in relation to this grizzly NEP. Alternative C in the EIS has been revised to clarify that the USFS would not be required to consult under section 7(a)(2) about the NEP when authorizing activities under USFS permits, such as grazing, mining, and timber harvest activities, including permits for road hauling that may include travel on nonfederal lands. Regarding forest management under alternative C, the EIS has been updated to confirm that individuals may take nonlethal action to haze, disrupt, or annoy a grizzly bear out of close proximity to people or property to promote human safety, prevent conflict, or protect property. Any deterrence must not cause lasting bodily injury to any grizzly bear. As such, alternative C would provide for individuals such as forest managers, loggers, and others conducting otherwise lawful forest management activities to undertake deterrence as defined. Regarding concerns about the 10(j) reporting requirements for nonlethal incidental take, it is not intended that the reporting requirements for nonlethal take would apply to incidental take in the form of harm via habitat modification; rather, the FWS would require reporting when lethal or nonlethal take occurs as a result of direct

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	forest lands.	interactions with the grizzly bear (e.g., through self-defense, deterrence, conflict management, or vehicle collision, etc.) and have clarified the reporting requirements accordingly. Incidental take of a grizzly bear in the form of harm via significant habitat modification would not be prohibited within the NEP area. Habitat modification impacts would still be identified as a result of a federal actions on NPS or FWS lands for which section 7(a)(2) consultation requirements remain. Any recommended reporting of habitat modification impacts would be part of the associated section 7(a)(2) biological opinion if applicable. Relatedly, as incidental take is not prohibited as a result of USFS actions within Management Area A provided the USFS maintains its no net loss of core approach to securing grizzly bear habitat, and the USFS is not required to consult under section 7(a)(2) on its proposed actions in the NEP area. The NPS and FWS expect the USFS would maintain appropriate records on its no net loss of core approach to confirm its actions are within the 10(j) rule incidental take exception.
32	Commenters expressed concerns about the lack of more specific demographic goals and mortality limits in the draft EIS. They called for the establishment of clear recovery criteria, including demographic goals and mortality thresholds for each management area based on current scientific knowledge, with a suggested 0% target mortality threshold for the initial small population of 25 bears in Management Area A to ensure sustainable recovery and avoid the need for continuous translocations.	As stated in the EIS, the restoration plan does not determine grizzly bear listing status, set the recovery criteria, and the 200-bear population level is not a recovery goal for purposes of the ESA. Recovery goals are determined through a separate process. To make that clear, the EIS was revised globally to not refer to a restoration population "goal," but instead to refer to a "restoration population of 200 bears." The restoration population of 200 bears would contribute to the overall future recovery goals. While zero human-caused mortalities would be best, this number may not be practical given the need to protect human safety, property, and due to accidental mortalities (e.g., vehicle collisions). However, the agencies would attempt to keep the number as low as possible. The FWS *Grizzly Bear Recovery Plan* calls for maintaining human-caused mortality below 4% of the population for all recovery zones. Demographic goals are discussed in the "Primary Phase" discussion of chapter 2 that describes the grizzly bears that would be considered optimal candidates for capture and relocation. Under alternative C, the FWS and authorized agencies would monitor the status of grizzly bears in the NEP annually. The FWS would evaluate the status of grizzly bears in the NEP in conjunction with its species status assessments and status reviews of the grizzly bear. Evaluations in the status reviews would include, but not be limited to: a review of management issues; grizzly bear movements; demographic rates; causes of mortality; project costs; and progress toward establishing a self-

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		sustaining population.
33	Commenters noted the importance of allowing grizzly bear restoration to occur within all suitable habitat that the bears successfully colonize, expressing concern about the proposed 10(j) rule's permissiveness in allowing the lethal removal of restored bears. Specifically, one commenter recommended Management Area A include suitable habitat south of I-90. They also advocated for translocating grizzly bears into all suitable habitat, not just core areas. Commenters recommended redesignating designated wilderness areas that are currently in Management Area B as Management Area A. Other commenters suggested that the plan should better account for the likelihood of bears using private lands beyond Management Area A.	The response to concern number 19 largely addresses this concern. The NPS and FWS anticipate grizzly bear recovery efforts to be focused on federal lands in Management Area A, which mostly encompasses the NCE recovery zone. There are locations within the NEP boundary that are not suitable habitat for grizzly bears due to human development and attractants, especially in Management Area C. Under alternative C, the proposed 10(j) rule would provide management flexibility to minimize human-bear conflicts and therefore build social tolerance, while allowing bears that avoid conflict with humans to establish territories and reproduce. The concerns about where and when lethal removal occurs is addressed in response to concern number 18.
34	Commenters expressed worries about the size and justification of Management Area B, its inconsistency with the restoration framework in the *Grizzly Bear Recovery Plan*, the possibility of restrictions on national forest lands outside the core recovery area, and the potential dispersal of grizzly bears outside the NCE in southern Washington and Oregon and the lack of analysis of those areas in the draft EIS.	To successfully recover and manage grizzly bears and their progeny over time, it is necessary to provide a graduated approach to management flexibility. Management areas are based on suitability for occupancy by grizzly bears and the likelihood of human-bear conflicts. The management area approach has a focus on recovering grizzly bears on federal lands within the NCE recovery zone and aims to provide maximum management flexibility on all nonfederal lands. The FWS included federal lands in Management Area B to acknowledge their greater potential for use by grizzly bears than most areas in Management Area C and because the federal lands could complement the recovery within the NCE recovery zone. The primary difference in management between Management Areas B and C and Management Area A is the additional allowance of authorized conditioned lethal take by an individual. The delineation of areas within management areas does not alter or affect any national forest system land management decisions or activities. Rather, the

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		delineation provides different tools in managing grizzly bears in accordance with the specific management area. Alternative C provides for greater flexibility in management of grizzly bears on these lands than without the 10(j) rule (alternative B). The framework of the rule is designed for restoration of grizzly bears in the NCE recovery zone and solely applies to the area within the NEP boundary within Washington state. With respect to possible restrictions on national forest lands outside the NCE Recovery Zone, there are no plans to implement any long-term closures or travel restrictions, although there may be short-term closures of areas to prevent conflict (e.g., trail closure for several days because grizzly bear feeding on a carcass in the area). The issue of bears possibly dispersing from the NCE is addressed in response to concern numbers 20 and 140. Similarly, managing lands under the 1997 no net loss interim agreement (NNLA) would represent a continuation of existing management and would only apply to Management Area A.
35	One commenter suggested that the proposed grizzly bear management areas create unnecessary complexity and recommended combining Management Areas B and C into a single area, with Management Area A defining the formal recovery area as specified in the FWS *Grizzly Recovery Plan* (excluding state and private land), which would provide a more uniform approach across the entire NEP boundary with greater flexibility in managing conflicts with grizzly bears. The commenter disagreed with the proposed tiered system for managing grizzly bear conflicts in different zones, requesting more scientific justification for this approach and recommending that the entire NEP allow for the management practices outlined for Management Area C, arguing that this approach would provide greater flexibility in handling conflict situations. The commenter argued that all activities still require	The management area approach provides for increasing levels of flexible management while focusing restoration efforts for grizzly bears on federal lands within the NCE recovery zone. In developing the NEP area and management area boundaries, the FWS considered several biological data points as well as readily discernible features (e.g., roads, federal land ownership boundaries) and received input from the NPS, WDFW, USFS, and the public. The NPS and FWS believe the primary grizzly bear recovery effort within the NCE recovery zone should be focused on federal lands. Although the NPS and FWS acknowledge other landownerships within the NCE recovery zone contain suitable grizzly bear habitat, it is appropriate to allow greater management flexibility on those nonfederal lands by including those under Management Area C. Based on public and agency comments on the draft EIS and proposed 10(j) rule, the FWS reevaluated some management actions. For example, as discussed in response to concern number 18, the relocation of grizzly bears should be a tool only used when warranted, but bears may be relocated preemptively when appropriate for recovery purposes. Therefore, alternative C was revised to add the allowance in all management areas of the NEP for preemptive relocation of grizzly bears by authorized agencies to prevent imminent conflict or habituation.

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	authorization by the FWS or an agent and relocation could still be used when necessary.	
36	One commenter asserted that the NPS and FWS failed to disclose the full extent of the management areas in the original scoping document and misled people to think the NCE is the recovery zone. The commenter goes on to state that the draft EIS evaluates a broad designation of nearly the entire state of Washington as a NEP, leading to a call for restricting recovery efforts to the NCE without allowing grizzly bear dispersal into Management Areas B and C.	The NPS and FWS respectfully disagree with the assertion that the scoping materials for the project were misleading about the geographic extent of grizzly bear recovery in the NCE. In the scoping newsletter and other materials provided prior to soliciting public comment, the proposed action was described as including the potential to designate grizzly bears in the US portion of the NCE and surrounding areas as an experimental population under section 10(j) of the ESA. The NCE recovery zone boundary is not the NEP boundary for this experimental population of grizzly bears under alternative C. The NCE recovery zone encompasses the core habitat area of the NCE identified in the *Grizzly Bear Recovery Plan* that provides adequate habitat to support a population of grizzly bears and is the area where the NPS and FWS would focus grizzly bear recovery efforts in the NCE. The NEP boundary is broader for regulatory purposes in describing the various management tools allowed for the experimental population. The NEP boundary generally encompasses not only the NCE recovery zone, but also important areas outside the NCE recovery zone where grizzly bears may potentially pass through or periodically use at some point in the future where their presence necessitates increased management flexibility. Notably, grizzly bears currently are listed as threatened under the ESA and endangered by the state of Washington, and precluding Management Areas B and C from the 10(j) designation would result in any grizzly bears outside Management A being managed under the existing ESA threatened status rules (i.e., 10(j) management tools would not be available). Both the NCE recovery zone boundary and the NEP boundary are clearly identified in figure 4 of the EIS.
37	Commenters stressed the importance of public education and outreach efforts for the success of either action alternative and requested that the NPS and FWS incorporate a more detailed plan into the EIS. Commenters asked questions about funding for education and bear-safe infrastructure, noting the importance of having an adequate budget prior to restoring grizzly bears. Commenters proposed partnering with local communities, universities, and other	As detailed in the response to concern number 26, education and outreach are important and would be a component of an implementation strategy, and the NPS and FWS appreciate the feedback and suggestions provided. The agencies would review the suggestions for consideration during development of an implementation strategy, should an action alternative be selected.

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	groups to coordinate outreach. Commenters suggested implementing several education and outreach strategies into the plan, including: Providing education on differentiating between grizzly bears and black bears to receive a permit for camping and backpacking. Requiring education on bear safety prior to entering grizzly bear habitat. Expanding signage at trailheads to encourage bear awareness, and informing visitors about minimum group sizes, proper sanitation, and use of bear spray. Education on properly storing garbage. Education on how to bear-proof residences. Education on the importance of grizzly bears to the ecosystem. Ensuring education and outreach occurs for users both inside and outside North Cascades National Park. Education and planning to eliminate bear attractants. Commenters suggested adding bear-safe infrastructure to prevent conflicts and to avoid habituating bears to highly trafficked areas. Suggestions included: Installing bear-safe lockers along highly visited recreational corridors. Installing fixed elevated food hanging cables (bear wires) and bear boxes. Distributing bear spray to hikers and campers and providing information on proper use.	

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	Investing in bear-resistant garbage cans and dumpsters, coupled with close coordination with waste management companies.	
38	Commenters asked for clarity on who would be liable in the event of a grizzly bear attack on a human. Commenters also asked who would be liable for the reduction of business income, decreased access, and decreased property values that would result from the restoration. Commenters indicated that the agencies implementing the restoration plan should be held liable for any loss of life and property resulting from the restoration. One commenter expressed concern that there is no stipulation to halt the restoration effort if it "goes terribly wrong."	Generally, there is no legal liability for harm or damage caused by the actions of wild animals such as grizzly bears. The NPS's and FWS's preferred alternative is to reintroduce grizzly bears to their historical environment in the NCE under the section 10(j) rule to provide the management options to help avoid conflicts between humans and grizzly bears in the first instance, and to allow for actions to manage problems before they result in injuries to humans or significant damage to property. That said, any claim for liability for injury or property damage because of a particular federal action (or inaction) in relation to a grizzly bear would be determined under the Federal Tort Claims Act (FTCA), through which Congress waived federal sovereign immunity for certain claims of federal employee negligence or wrongful acts. Liability under the FTCA is subject to various exceptions, and any claim filed under the FTCA must be evaluated based on its specific circumstances.
39	Commenters noted concerns associated with the costs of implementing grizzly bear restoration. Several commenters stated that they would prefer their tax dollars be spent on other projects. Other commenters requested a detailed cost estimate for implementation over the entire project timeline. Commenters expressed concern that the actual costs of restoration would be much higher than anticipated and noted high potential costs of conflict prevention measures, including creating more bear-safe campsites, community outreach, and programs to assist and compensate livestock operators. Commenters also stated that the costs of capturing, collaring, and translocating the bears presented in the draft EIS were too low for the work proposed,	The NPS and FWS have reviewed and revised the potential estimated costs provided in appendix C to confirm their accuracy, by agency, under current conditions (table C-1) and under with the action alternatives (table C-2). These estimated costs are annualized and based on previous experience restoring grizzly bears in other ecosystems. Assumptions underlying those costs are provided; a more detailed budget would be developed under an implementation strategy should alternative B or C be selected. The concern about future funding is addressed in our response to concern number 3.

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	which could impact the number of translocated bears and impact success of the recovery effort. Commenters requested clear documentation about where the funding for implementing the proposal would come from. Commenters also requested a more detailed discussion of how lead agencies plan to prioritize parts of the plan if the project budget were reduced and expressed concern that the lead agencies are already underfunded.	
40	Commenters noted that the draft EIS fails to set compensation for damages caused by grizzly bears to livestock, property, or persons. Commenters requested adding a clear plan for compensating livestock operators, farmers, orchard owners, and ranchers for losses associated with grizzly bear restoration. Commenters also suggested creating a fund for compensation, ensuring that reimbursement covers 100% of losses, and having a federal hotline for reporting claims. Commenters noted that appendix C lacks critical information, including funding source, known amount of funding, or where the responsibility for funding falls. Commenters suggested that the NPS lead the effort and that the restoration should be conditional based on availability of compensation funds. Commenters further noted that the plan's intention for landowners to share the cost for Livestock Damage Preventive Cooperation Measures is unfair and should be reconsidered. One commenter noted that private conservation organizations could help with the implementing programs to reduce	Grizzly bear recovery efforts involve partnerships between the FWS and many others. Funding for programs, including compensation and support for nonlethal deterrents, is often in partnership with other agencies, states, Tribes, and NGOs. The NPS and FWS would work with partners to model programs in the NCE after the success of similar programs in other grizzly bear ecosystems. In the NCE, efforts are ongoing by WDFW, USFS, NPS, and several NGOs to provide resources, technical support, and education in communities. Future collaborations with those partners would identify funding needs and priorities, as well as potential sources. For more information on the issue and to understand livestock compensation programs, Harris (2020) details how such programs work to foster coexistence between livestock producers and large carnivores, with a focus on grizzly bear conservation in Montana.

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	liabilities for landowners. In addition, commenters noted a particular concern that the compensation provided for devoured livestock would not equal the total profit lost because compensation is only provided if there are remains to prove a kill occurred, which does not always happen.	
41	Commenters made suggestions and expressed concerns regarding the proposed release sites outlined in the draft EIS. One commenter noted that there are very few roads near any of the proposed release areas and stated that the plan to transport bears by vehicles if helicopter transport is not available would not be feasible and could be contradictory to release site criteria requiring at least a mile's distance from maintained trails or roads. The commenter also pointed out that roads and trails near release areas tend to be frequented by recreationalists who would be likely to encounter bears after area closures are lifted. Commenters noted that the plan to release bears at least 1 mile from campgrounds would not be an adequate distance, particularly at sites near the Pacific Crest Trail. Commenters were concerned about conflict potential near the South Unit Release area, noting that there are ranches nearby and a river with lots of salmon that is a tourist destination. Commenters expressed concern about the proximity of release areas to concentrated human populations and asked the NPS and FWS to provide more details on the proposed release areas.	Specific release sites would be chosen based on habitat suitability, connectivity to other release sites, and the need to have released grizzly bears close to one another to facilitate interaction and breeding. Chapter 2 of the EIS has been revised to clearly specify the criteria for acceptable release sites. A variety of feasible release sites have been identified to provide for flexibility during grizzly bear translocations. There are few places that can accommodate vehicular access that would meet the specified criteria, but boat access and release may be feasible along Ross Lake if a helicopter could not operate. The criteria for release sites limits the ability to complete releases outside designated wilderness, as discussed in the EIS. As a result, a draft minimum requirements analysis (MRA) was completed for designated wilderness on NPS lands. Prior to releases, the NPS and FWS would coordinate with relevant land management agencies, including local staff, to ensure that there are no people or livestock in close proximity to release sites. Grizzly bear restoration in the NCE would begin in remote areas and occur in low density. Even as density increases as the target of 25 initial bears population is achieved, existing safety and related protocols, such as food storage restrictions, general bear safety education, temporary public closures, and management protocols for the capture and release of bears, would be implemented, which would help secure potential attractants. The NPS and FWS would prioritize release sites on NPS lands but retain the option to conduct initial releases of grizzly bears on national forest system lands if unforeseen circumstances prevent access to release sites on NPS lands (e.g., aircraft issues). The NPS and FWS discussed keeping a carcass at the release site to provide grizzly bears an immediate food source after translocation. However, carcasses may attract other wildlife to the site and cause competition. Experience from other grizzly bear translocations indicates using a carcass at the release site is not necessary. Also, dogs

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	Commenters expressed concern about release sites outside NPS-managed lands, particularly those on USFS-managed lands. Commenters requested further analysis of those areas. One commenter suggested placing roadkill ungulate carcasses near release sites to help keep translocated bears close to their release sites. Another commenter asked if Karelian bear dogs would be present at release sites to protect staff. Commenters suggested alternative release areas that could be accessed by vehicle to prevent the use of helicopters in designated wilderness areas. Suggestions included: • Slate Peak near Hart's Pass or the road over Hart's Pass • The end of the road on the upper Twisp River Road • The end of Eightmile Creek Road south of the Pasayten Wilderness • The road along the Chiwawa River near Trinity • The end of the road at Cascade Pass • The end of Road 11 above Shannon Lake Commenters expressed concern that the use of helicopters was underestimated in the draft EIS and suggested updating the action alternatives to avoid helicopter use and landings in wilderness areas. Commenters also suggested release areas outside wilderness areas that could be accessed using helicopters. Suggestions included:	are not needed during grizzly bear releases because agency staff would be at a secure location using a remotely operated door system.

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	• Golden Horn in the upper Methow Watershed • Burch Mountain at the headwaters of Eightmile Creek • Foggy Pass on upper Canyon Creek • Lamont Lake at the headwaters of Cedar Creek • Easy Pass • Cub Lake at Prince Creek • Evergreen Mountain near Beckler River • Indigo Lake in the Suiattle River Watershed • The flat near the mouth of Sliver Creek west of Ross Lake • Nonwilderness portions of Alma Creek, Rhodes Creek, and Baker Lake Road Areas near Lucerne and Holden	
42	Commenters expressed concerns related to recreational access management and closures. Commenters requested more information on the process for deciding when short-term closures would be needed and how closures could be most compatible with recreational use in the NCE. One commenter asked what kind of compensation would be available if people are unable to recreate in temporarily closed areas. Another commenter noted that they would support restoration as long as it did not result in restrictions on human access to the NCE. Conversely, one commenter was supportive of limiting human access to the NCE to avoid disrupting grizzly bear recovery. One commenter requested that the NPS and	The NPS and FWS recognize that public opinion differs about the need for future area closures if and when grizzly bears are restored to the NCE: some visitors are concerned about the potential lack of access to public lands, while others want areas to be more protected from human impacts. The EIS specifies that the translocation of grizzly bears to the NCE could cause local closures for public safety lasting from a few hours up to several days, requiring some visitors to adjust their stay to avoid closed areas or noise associated with helicopter operations. However, no long-term closures are expected to be required. While seasonal closures occur in Yellowstone National Park for grizzly bears to provide adequate security around important food resources, and area closures occur due to carcasses or other known grizzly bear activity, such closures are not expected in the NCE. Unlike the GYE and similar to the NCDE, the NCE does not have large seasonal concentrations of elk and bison in areas frequented by visitors. Therefore, seasonal concentrations of grizzly bears are not expected to occur in the NCE because forage and prey resources are less concentrated. Also, the agencies do not anticipate the same level of conflict between grizzly bears and humans as in either Yellowstone or Glacier National Parks because

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	FWS consider annual closures during grizzly bears' hyperphagia phase. The commenter noted that it could be less disruptive to the tourism industry to implement regular annual closures rather than "ad hoc" closures.	of the much smaller restoration population goal (200 grizzly bears) over a larger area of wilderness and relatively low levels of human visitation. As is the case with other sensitive resources on NPS- and USFS-managed lands, future public planning on federally managed lands in the NCE could result in seasonal closures to protect important habitats, but no such closures are anticipated during the life of this plan (25 years). No compensation would be available for visitors unable to recreate in a specific location during short-term closures.
43	Commenters expressed concern about the population goals outlined in the draft EIS and asked for clarification on how the population goals were determined. Commenters asked for more specificity in population targets, particularly what age cohorts would be included in the targeted population. One commenter suggested a goal of 200 independent bears. Commenters also requested more detailed population projections and asked about how population goals would be adjusted based on grizzly bear mortalities. Other commenters asserted that a 200-bear population target would be too low, noting that the FWS has defined at least 500 grizzly bears as the target for short-term genetic fitness and a self-sustaining population. Commenters suggested applying data and lessons learned from the Cabinet-Yaak Ecosystem's (CYE) reintroduction to create population goals for the NCE. Some commenters noted that a goal of 200 bears might be excessive and exceed the NCE's carrying capacity. Commenters also wondered what steps would be taken if populations exceeded the goal and became too high and asked for further information on management	Recovery efforts for grizzly bear populations in the five other recovery zones in the lower-48 states are discussed in chapter 3 of the EIS, and include the GYE, NCDE, Selkirk Ecosystem, CYE, and Bitterroot Ecosystem. The successes and failures of those efforts, while not explicitly described in the EIS, have been incorporated into the planning process through the involvement of many of the same scientists and managers involved with those efforts. In addition, all available scientific information that pertains to grizzly bear restoration in the lower-48 states has been considered through this planning effort, including issues related to grizzly bear habitat use, managing human-grizzly bear conflict, population demography, and grizzly bear genetics. The population size of grizzly bears that the NCE could potentially support is discussed in chapter 3 of the EIS under "Affected Environment, Current Status and Expected Future Conditions." A restoration population of 200 grizzly bears is projected within approximately 60 to 100 years under the proposed release of 3 to 7 grizzly bears each year, for roughly 5 to 10 years to achieving an initial population of 25 bears. This 200 bear restoration population includes grizzly bears of all ages. The restoration plan considers the best available science including modeled estimates of carrying capacity, which all estimate carrying capacity of 200 or more bears in the NCE. The FWS would take into account the need for genetic diversity as part of the restoration effort starting with its selection of source populations that have high heterozygosity. The restoration plan would include monitoring of genetic diversity and adaptive management through additional translocations if necessary to enhance heterozygosity and long-term genetic viability. A restoration population is not the same as the recovery criteria for the NCE, which is beyond the scope of this proposed action. Any future recovery planning, including any further specific demographic or habitat-based criteria would be done through a separate recovery planning process and would use the best available science. The EIS

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	of a large grizzly bear population, including an exit strategy or a cap on the total population. Commenters suggested reintroducing a minimum of 5 bears per year over an 8- to 10-year window to increase the chances of meeting population goals.	acknowledges that there may be a need for additional translocations to maintain genetic diversity in the NCE as determined by long-term monitoring. However, genetic diversity issues may be addressed by using bears from large source populations with high heterozygosity, such as populations in south-central British Columbia and the NCDE, and additional translocations may not be necessary. In the GYE, the minimum population size of at least 500 grizzly bears within the demographic management area is associated with ensuring short-term genetic fitness of that population and is not the objective for managing the population, as suggested by the State of Idaho. It should also be noted that the GYE has more prey availability to support a larger population than is likely in the NCE. Once established, data regarding habitat use and distribution of grizzly bears occupying the NCE would provide the best basis for assessing recovery of a NCE grizzly bear population over the long term. The adaptive management phase of the action alternatives would respond to such new information as it becomes available.
44	Commenters expressed concern that the WDFW would not be adequately equipped to manage grizzly bear restoration. Commenters noted the challenges faced by the WDFW in managing increasing numbers of black bears, cougars, and wolves; and expressed concerns about introducing a larger and more aggressive predator. Some commenters suggested that states like Montana, Wyoming, and Idaho already struggle to manage grizzly bear populations, leading to higher numbers of conflict-related removals. One commenter suggested that the management of both wolves and grizzly bears would substantially reduce the WDFW personnel and state funding available to conserve other rare or sensitive species in need of management in Washington.	Conflict with wildlife tends to increase as human presence on the landscape expands. To mitigate conflict with carnivores, the WDFW may use lethal removal in certain situations. The WDFW is working to grow its conflict response capacity, including outreach and education, and will continue to do so regardless of the alternative selected. The NPS and FWS would work together with the WDFW, like in other states, to minimize human-bear conflict in the NCE, including managing conflict with livestock and domestic animals. As noted under concern statements 3 and 40, NPS and FWS would work with partner agencies and NGOs to identify funding needs, priorities, and potential sources. It should be noted that few conflicts with grizzly bears are expected during the initial phase of the action alternatives, but conflicts may increase as the population grows over the life of the restoration.
45	Commenters asked the following questions	Regarding depredation by grizzly bears and associated agency response, if an action alternative is selected, the FWS or authorized agencies would investigate and confirm

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	related to both action alternatives: • How will crop loss and livestock depredation be addressed? • What effect has the absence of grizzly bears had on the NCE? • Who should be called in the event of a grizzly bear emergency? • Will staff be available to address grizzly bear attacks on livestock? • Have county sheriffs approved procedures for handling grizzly bear conflicts? • How long will it take for agency staff to respond to a grizzly bear conflict? What fines would be assessed for taking a grizzly bear?	depredations and crop loss. Deterrence and mitigation efforts (e.g., electric fencing, guard dogs), relocation, or lethal removal of depredating bears in other ecosystems have reduced some impacts, and similar results are expected in the NCE. Depredation compensation programs have alleviated some but not all impacts on ranchers who suffer losses from bear depredation in other ecosystems. State regulations for addressing wildlife damage are authorized by state law (RCW 77.36). Authorized agencies would be available to address grizzly bear depredations on livestock. Response time would depend on several factors, including the location of incident. The FWS has a record of working closely and effectively with authorized agencies in four ecosystems in Idaho, Montana, and Wyoming to ensure there is minimal delay. The FWS would establish the same relationships and protocols with authorized agencies in the NCE. In response to the comments on the proposed 10(j) rule, the FWS reevaluated the time frames for authorization of lethal take. In the proposed rule, a two-week time frame was proposed; however, the FWS reconsidered this time frame because of the potential for killing the wrong bear with an extended timeline. As a result, the EIS was revised to specify that under alternative C, the timeline would be reduced to five days. The FWS could extend authorization of lethal take to individuals for an additional five days if there are additional grizzly bear depredations or injuries to livestock and circumstances indicate the offending bear can be identified. Please see the response to comment 143 regarding the absence of grizzly bears in the NCE. Regarding the query about who to call in the event of a grizzly bear emergency, the FWS would authorize federal, state, or Tribal agencies to respond to human-bear conflict, including human-safety conflicts. Specific contact information would be made available to the public as part of the implementation strategy. The FWS Washington Fish and Wildlife Office special reporting hotline is (360)-800-7960. Federal, state, or Tribal authority means an employee of a state, federal, or federally recognized Indian Tribal government who, as part of their official duties, normally handles large carnivores and is trained and/or experienced in immobilizing, marking, and handling grizzly bears. Authorized agencies entities would develop a MOU with the FWS that covers grizzly bear conflict response. Finally, with respect to fines for taking a grizzly bear, any taking of any grizzly bear not covered by the 10(j) regulation may be referred to the appropriate authorities for prosecution. The decision to pursue prosecution, including the assessment of fines,

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		would be subject to the discretion of the applicable authority.
46	Commenters requested protections for roadless areas around the recovery area to permanently protect secluded habitat that grizzly bears require. Commenters asked for further details on how habitat for grizzly bears would be protected, including habitat outside the recovery area. Commenters noted that the plan should consider how to encourage grizzlies to expand southward through the NCE. Commenters also asked for further analysis of how to facilitate migration of restored grizzly bears to other areas, such as Idaho, Montana, Wyoming, British Columbia, and Alberta, to avoid creating a population island. Suggested strategies to encourage migration included road closures, habitat restoration, and acquiring easements on private land to provide linkages to the Selkirk and Cabinet-Yaak populations.	The alternatives in the EIS are focused on grizzly bear restoration in the NCE and not beyond the core area. The core area of the NCE is already actively managed as grizzly bear habitat under the interagency no net loss agreement, which would continue under all three alternatives. Changes to roadless areas within USFS land could require a land management plan revision, which is outside the scope of this action.
47	Commenters asked for a clearer definition of the adaptive management framework. Commenters noted that limiting adaptive management to releasing additional grizzly bears lacks flexibility to address other issues that may arise. Commenters suggested adding strategies like road and trail closures, addressing livestock conflicts, and resource restoration to the adaptive management framework. Other commenters requested adding more qualitative goals to the adaptive management strategy.	A definition of adaptive management has been added to the final EIS to clarify that the NPS and FWS are using the term adaptive management in the broad sense of applying management interventions, monitoring outcomes, and modifying future management actions to achieve grizzly bear restoration objectives and maximize social tolerance. Based on FWS's experience working with grizzly bears in other ecosystems, this flexible approach to adaptive management is necessary when working in complex ecological and social systems where management interventions are often context dependent.
48	Commenters requested a more detailed and comprehensive plan to monitor restored grizzly	As described in the response to concern number 15, it would be necessary to monitor released grizzly bears with GPS collars, under both alternatives B and C, to ensure

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	bears. Commenters were supportive of putting GPS collars on all restored bears to aid in monitoring their movements and preventing conflicts. Commenters suggested creating a mobile application that would show grizzly bear locations so that the public could avoid the area and ranchers, livestock operators, and farmers could take actions to protect their property. Other commenters questioned the adequacy of radio collars and worried that the lack of real-time data provided by the collars could lead to safety issues. Commenters requested that agencies share bear location data with one another to facilitate monitoring efforts.	human and bear welfare and to monitor the success of the restoration. The approach is summarized in chapter 2 under "Capture, Release, and Monitoring of Grizzly Bears, Monitoring," and additional information would be described in an implementation strategy. Grizzly bears that are trapped and relocated may also be collared with GPS trackers, but it would not be possible to collar and monitor every bear born in the NCE beyond the initial restoration. Likewise, while it would not be feasible to collar grizzly bears that may immigrate from Canada, the NPS and FWS would coordinate with First Nations and provincial wildlife managers to track the distribution of any bears released in British Columbia. The agencies do not anticipate publicly sharing precise grizzly bear locations provided by GPS collars but may provide general locations of bears as part of a scheduled public outreach plan. A communications team would be established to implement public education/outreach about the areas used by released bears. If necessary, data sharing agreements may be developed with Canadian First Nations and agencies and other resource management agencies in the NCE.
	Conversely, some commenters were opposed to collaring bears, worrying that it could lead to poaching. Other commenters asked for minimal interference with bears and requested that neither sedatives nor helicopters be used to monitor them. Commenters suggested collecting initial data on reintroduced bears and then leaving them alone. One commenter asked for further analysis of the risk factors associated with collaring, capturing, and transmitting telemetry data.	GPS radio telemetry devices currently used by the Service already have a VHF component that can provide other means of radio tracking in the event of a satellite transmission failure. Translocated bears will have ear tags.
	Commenters asked further questions about monitoring, including: • What plans do the NPS and FWS have in place for real- time monitoring and for alerting the public about current bear activity? • How closely and how often will the bears be checked on/monitored?	

	Comment	**Response**
	• Will bears be microchipped in addition to wearing collars? Will monitoring be applied to Canadian bears that may cross into the NCE once Canada reintroduces grizzlies?	
49	Commenters expressed concern that the current plan lacks clear plans for grizzly bear conflict resolution regarding livestock operators, orchard owners, farmers, and landowners. Commenters suggested implementing the following strategies to reduce grizzly bear conflicts with livestock and impacts to farms and orchards: • Providing education and technical assistance on the use of electric fencing, bear-proof food canisters, and livestock guardian animals. • Providing fencing, bear spray, and livestock guardian animals to operators. • Hosting annual information sessions to inform landowners about assistance they can receive to prevent conflicts with grizzly bears. Commenters asked that the EIS factor in the costs that landowners would incur from fencing in their properties into the analysis. Commenters worried about the impacts of reintroducing grizzly bears close to grazing allotments.	The proposed action could cause agriculture and livestock grazing operations to experience reduced employment or increased costs of operating cattle ranching operations. Direct impacts may occur through grizzly bear depredation of cattle or sheep. Impacts are somewhat less likely to occur given that no staging or release areas would be near active grazing allotments; in addition, under alternative C, the 10(j) rule would provide that individuals such as livestock producers on private lands in Management Area C could take grizzly bear in the act of attacking livestock under certain conditions. Specific descriptions of the effects of potential livestock depredation are described in the Socioeconomics section of chapter 3 in the EIS. As detailed in the response to concern number 26, education and outreach are essential to grizzly bear restoration in the NCE. Preventive measures for securing attractants, including food storage orders on certain public lands, from black bears and other wildlife already exist in the NCE. The addition of grizzly bears to the landscape would not alter those existing practices but would require greater awareness and education. While the NPS and FWS are unable to fund all necessary preventive measures and practices on private lands, cost-sharing programs with landowners are in the implementation costs provided in appendix C. Larger funding sources, as well as technical assistance, are anticipated to be provided by several NGOs and other entities. Concerns pertaining to potential conflicts with livestock are addressed in the response to concern number 45.
50	One commenter recommended taking a scientific approach to the timing of grizzly bear releases and provided several studies on the subject. The commenter noted that capture and	The NPS and FWS developed the action alternatives with these timing recommendations in mind. Agencies would release bears later in the season and near each other to the extent possible.

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	releases coinciding with the immediate pre-denning period could help keep bears close to their release sites. Additionally, the commenter stated that once estrous female bears are established in an area, breeding age males are more likely to remain in that area during breeding season.	
51	Commenters expressed concerns about using bears from Montana as a source population. Specifically, they were concerned about taking bears from the GYE and NCDE because those populations are not fully recovered until connectivity has been achieved. In addition, some commenters noted that the plan fails to acknowledge the competing needs among recovery zone. Commenters were also concerned that translocating Montana bears would lead to competition for source bears and financial resources. Montana Fish, Wildlife, and Parks (FWP) suggested translocating bears with a history of conflict because it would be beneficial. Another commenter urged the translocation of bears that are fearful of people, ideally from a lineage without a history of encounters, and that are adapted to the NCE rather than coastal food sources. FWP stated that being flexible in criteria for target bears would increase the likelihood of success and cooperation from source states. FWP also stated that "food economy" is not that important, and using the term limits the number of bears available for translocation and reduces support for taking them from source	The NPS and FWS would consider bears from a number of source populations, including British Columbia, NCDE, and GYE. It is likely that bears would come from more than one source population, and implementation of the proposed action is not expected to result in meaningful impacts to source populations. Any grizzly bears sourced from the NCDE or GYE Demographic Monitoring Areas would count against the mortality thresholds addressing those populations. As long as the mortality thresholds of those populations are not exceeded, then the source populations would remain stable or increase. The NPS and FWS would contact the relevant authorities to develop specific plans for bear captures for translocation to the NCE recovery zone before captures are implemented. Translocation of grizzly bears with no conflict history and grizzly bears from similar food economies produces a greater chance of success in the placement of these animals in the NCE recovery zone. This approach has a track record of success with augmentation efforts in the Cabinet Mountains in the CYE and is identical to the Montana FWP proposal for moving bears with no history of conflicts to the GYE. The NPS and FWS would only translocate bears with no history of food conditioning because they are less likely to come into conflict with humans. It would be irresponsible to target bears with a history of conflict because such bears would be more likely to encounter humans after translocation. Bears with a history of human contact may be more prone to seek out anthropogenic foods and come into conflict. The intent is to give reintroduced bears the best chance to act as wild bears and avoid humans and human-occupied areas. The FWS has used this protocol to transplant 22 bears in the Cabinet Mountains augmentation program with success. The NPS and FWS acknowledge that genetic connectivity can be a limitation to grizzly bear recovery as they require genetic diversity across their range in the lower-48 states to adapt to changing environmental conditions (FWS 2022). Following the initial releases, translocated grizzly bears would be monitored,

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	areas. One commenter suggested introducing bears from different age classes to provide a buffer for the loss of breeding age animals. One commenter asked if genetic studies have been conducted to determine similarities among the source populations.	including genetic information that could be used to assess reproductive contributions and monitor genetic diversity. There may be a need for additional translocations to maintain genetic diversity in the NCE as determined by long-term monitoring. However, by using bears from large source populations with high heterozygosity, such as populations in south-central British Columbia and NCDE, the NPS and FWS expect genetic diversity concerns would be addressed such that additional translocations would not be necessary. Finally, regarding the suggestion to use flexible criteria for targeting bears in source states, the adaptive management framework of the proposed action provides an opportunity to adjust methods as results indicate necessary.
52	Commenters questioned the adequacy of the dismissal of a natural recovery alternative. One commenter requested that the draft EIS discuss the factors that are preventing natural recovery, such as habitat limitations, human conflict, and connectivity limitations and discuss why the limiting factors cannot be addressed to promote natural recovery. The commenter argued that natural recovery must be fully considered before translocation could be deemed necessary. Another commenter asked for additional discussion of the chances of a natural repopulation and requested more details on the coordination between the United States and Canadian sides of the ecosystem. One commenter requested more analysis and discussion of grizzly bears in British Columbia. The commenter stated that because the purpose and need is premised on natural recovery not occurring, the translocated bears and their offspring would have no connectivity to other bear populations and would therefore become extinct. Due to its fewer impacts on natural	As discussed in response to concern number 23, the geographic separation of the NCE and other grizzly bear populations is the basis for dismissing natural recovery in chapter 2 of the EIS, under "Alternatives Considered But Dismissed From Further Detailed Analysis, Natural Recovery." The NEP boundary and the Selkirk Ecosystem are separated by more than 100 miles, and the area in between contains significant portions of human-altered landscape that reinforces continued geographic separation. Additionally, the closest verified observation of a grizzly bear in the area between the NEP boundary and the Selkirk Ecosystem was 75 miles outside the NEP (Proctor et al. 2012). The NEP is also currently separated from any known grizzly bear populations in Canada, which are not part of the listed species. Connectivity from the east in Canada is unlikely as the nearest population is more than 62 miles across the heavily human-settled Okanagan Valley. The NPS and FWS anticipate that eventually some grizzly bears may move between portions of the NCE in Canada and the United States. Finally, implementing measures to facilitate connectivity between grizzly bear populations in the NCE and other regions is beyond the scope of planning for the species restoration to the NCE.

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	resources and wilderness, commenters requested further consideration of a natural recovery alternative where bears can naturally enter the NCE, facilitated by the creation of wildlife crossings and habitat corridors. Commenters argued that a natural recovery alternative would also allow humans more time to adapt to grizzly bears' presence, which could reduce conflicts. Commenters stated that the grizzly bear translocation efforts planned for the Canadian portion of the NCE would increase the likelihood that grizzly bears naturally move south from Canada. Commenters requested including natural recovery measures in both action alternatives, including collaboration with British Columbia to establish corridors across the border to prevent the NCE grizzly population from becoming inbred.	
53	Commenters suggested that the NPS and FWS work jointly with their Canadian and First Nations' counterparts to release bears in the northern part of the NCE to move the core recovery area farther from densely populated areas and to comply with Washington State law by not translocating bears into Washington. Commenters requested more information on joint planning efforts with Canada.	We address concerns about transplanting grizzly bears being a violation of Washington State law in response to concern number 142. Chapter 3 of the EIS, under "Grizzly Bear, Trends and Planned Actions" describes how Canadian First Nations and the government of British Columbia are also planning to restore grizzly bears in the NCE but notes that translocation efforts have not started, and it is unclear how any Canadian efforts would impact the US portion of the NCE. The United States has no jurisdiction over grizzly bear management in Canada, but the NPS and FWS would coordinate as necessary, within their authorities, to support Canada's grizzly bear recovery efforts. Canadian efforts may complement US restoration efforts but are not a replacement for US-led efforts in the US portion of the NCE.
54	Commenters made suggestions related to livestock and grazing. One commenter proposed removing cattle from the ecosystem and reestablishing natural grazers in conjunction with reintroducing predators.	It is outside the scope of the EIS to dictate land management decisions for other agencies regarding the grazing of livestock on public lands. However, many of these best management practices are already occurring. The WDFW and USFS already implement many of these suggestions under their grazing permits due to the presence of other large carnivores.

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	Another commenter suggested changing zoning and land use laws to reduce areas that humans might inhabit and redesignating land used for grazing as a new land use category called "predator habitat." One commenter suggested using livestock guardian dogs. A commenter suggested incorporating preemptive, nonlethal conflict deterrence measures into grazing permits and forest plans. The commenter recommended using the following language from the Flathead National Forest in Montana as a guideline: "new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts [and] include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation." The commenter proposed incorporating the following measures into grazing permits to proactively address livestock conflicts: Immediately removing and composting livestock carcasses found on the allotments. Removing sick or injured livestock from the allotments, so they are not targeted. Delaying turnout until after mid-June, so that native ungulate young can provide a food source. Moving livestock to private pastures in the event of depredation or if future	

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	depredations are feared or anticipated. Keeping livestock in open, defensible spaces to reduce opportunities for ambush predation. Prohibiting the turnout of young calves and lambs under 200 pounds in weight to reduce depredation potential. Protecting calving and lambing areas with deterrents such as electric fencing. Requiring human presence by using range riders and guard animals and frequently checking livestock.	
55	Commenters proposed new alternatives and elements related to hunting. Proposals included: • Banning grizzly bear hunting until bears reach a healthy population. • Establishing a population density goal for grizzly bears, lifting ESA protections once the goal is reached, and conducting a lottery drawing for hunting tags with the proceeds going to bear conservation. • Allowing indigenous hunting in wilderness areas and national parks where grizzlies are restored. • Banning grizzly bear trophy hunting but including a detailed description in the final plan for the conditions under which hunting could be allowed or managed. • Selling trophy hunting permits at a high price to recoup the costs of the restoration if	Hunting regulations in Washington are established by state and Tribal authorities and are beyond the scope of the EIS. In addition, grizzly bears are listed as both a federally threatened and state-endangered species in Washington, and the NPS and FWS do not expect that even with this restoration the grizzly bear populations would become large enough to sustain recreational harvest anytime in the near future. For further information about hunting, please see response to concern number 5.

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	there are too many hikers and backpackers threatened by grizzly bears. • Allowing open season grizzly bear hunting a few years after restoration. • Ensuring WDFW allows hunters to have an active role in managing grizzly bears through a science-backed allocation of tags. Reducing the number of hunting tags for elk so that grizzly bears can naturally control the elk population.	
56	Commenters proposed new alternatives and elements for consideration: • Reintroduce a much smaller, tagged and monitored population in a remote part of the park. • Reintroduce grizzly bears in the park north of Highway 20 and east of Ross Lake as an experimental species for the first 10 years and then give them full ESA protection. • Institute a permit system for visiting the North Cascades with an expensive permit fee and a parking fee to severely limit the number of people in the area. Include steep fines and mandatory jail time for violations. • Install more bear wires and bear compartments at backcountry camping areas. • Establish a permit system for humans that want to enter grizzly bear territory to avoid having bears associate humans with food. • Coordinate with Washington State Department of Transportation (WSDOT)	Several of the suggested elements are addressed in the "Alternatives Considered but Dismissed" section in chapter 2 of the EIS. The suggestions that involve restoring a smaller number of grizzly bears than the proposed action were addressed in part under "Restoration from Washington Sources Only" and "Natural Recovery," as the numbers of bears would not be sufficient within a biologically relevant period to restore a grizzly bear population in the NCE. However, the proposed action is consistent with the spirit of many suggestions to slowly restore grizzly bears and closely monitor them. Approximately 25 bears are believed to be the minimum for a founder population to be successful. Once the population reaches 25 bears, the annual growth rate would be largely dependent upon reproduction and survival of those 25 bears with occasional replacements of mortality or to maintain genetic diversity. Instituting a permit system to limit public access in the park complex would be beyond the scope of the EIS and the park does not have an entrance gate or other infrastructure to manage visitors. However, a backcountry permit system already exists in the park complex and a number of habitat management measures have been implemented within the NCE recovery zone to improve habitat connectivity, habitat security, and safety for grizzly bears and humans, in areas where interactions are likely. As discussed for concern number 26, these measures include management of human access to grizzly bear habitat and improved sanitation and food storage measures to prevent or minimize human-grizzly bear interactions. Regarding suggestions to attract grizzly bears into the NCE, there are no nearby source populations, and the EIS describes the highly fragmented landscape surrounding the NCE. Although it is beyond the scope of the EIS, the suggestion to build more

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	and the Federal Highway Administration to build more land bridges over highways to encourage grizzly bear migration throughout the NCE. • Introduce a population of 25 grizzly bears into the park over 5-10 years into blocks of core habitat surrounded by electric fences. The alternative would allow wildlife managers to closely monitor the bears, control genetic mixing, reduce the risk of human conflicts, minimize mortality from conflicts, and require fewer bears from source populations. The commenter noted that the alternative would be more compatible with local and state laws and policies because it would confine grizzly bears to federally managed lands. • Evaluate an alternative to lure bears into the NCE using pheromones. The commenter asked whether this has been done with other species and wondered if bringing potential mating pairs into the NCE using pheromones could increase the probability of establishing a population. The commenter noted that it could be a more natural approach to restoring bears and would avoid the public opposition to transplanting grizzly bears. • Analyze an action alternative where grizzlies are not placed by helicopters in Wilderness Areas and are instead placed in remote or relatively remote Nonwilderness Areas. The commenter noted that temporarily closing primitive roads to	wildlife highway crossings would improve the likelihood of grizzly bear restoration in the NCE. As discussed for concern number 93, the NPS and FWS expect that the WSDOT and partner organizations would continue to address the need for wildlife crossing structures in priority locations regardless of species.

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	release grizzly bears would be preferable to the risks of using helicopters, citing the recent accident at Copper Lake. • Implement a slower restoration alternative where 10 bears are translocated and studied over 3 to 4 years to better understand human and ecosystem impacts. Incorporating Bear Smart components into both action alternatives.	
57	Commenters had varying perspectives and suggestions related to interagency cooperation, specifically with Idaho, Montana, and Wyoming. Montana FWP is concerned that the FWS is summarily concluding that impacts would be minimal without providing the State of Washington a full narrative of the costs and impacts of grizzly management from other states. The State of Idaho stated its objection for "misapplying" the 10(j) provisions of the ESA to restore grizzly populations, expressing concerns that the NEP would not qualify as a DPS and that the establishment of a NEP in the NCE could preclude future determinations regarding delisting of the grizzly bear. Additionally, one commenter recommended implementing the Wildlife Crossovers Program before or in conjunction with the reintroduction of the grizzlies to further protect them once they have been relocated, as well as including a road mitigation plan in the EIS.	Currently, more than 20 crossing structures over or under highways have been completed in Washington on the southern edge of the NCE recovery zone connecting areas south of I-90 to the NCE recovery zone. WSDOT, its partners, and working groups continue to prioritize wildlife connectivity in Washington with special focus on I-90 and connecting the Cascades to the Kettle Mountain Range and Rocky Mountains (Conservation Northwest 2020; Conservation Northwest 2024a). A restored grizzly bear population in the NCE would be largely isolated, and actions to facilitate connectivity with other ecosystems are beyond the purpose and need of the proposed action. WSDOT (2018) has identified habitat connectivity investment priorities that highlight high-priority locations such as where wildlife crossing structures have been built on Highway 97 (Conservation Northwest 2024b). The NPS and FWS would work with partner agencies to support such efforts to enhance habitat connectivity. Regarding Idaho's concerns about the NEP designation, grizzly bears restored to the NCE would be wholly separate geographically from other grizzly bear populations listed under the ESA, as required under section 10(j) of the ESA. However, the NPS and FWS anticipate that a restored grizzly bear population in the NCE would contribute to the recovery of the listed entity, which includes grizzly bears throughout the lower-48 states, by providing additional population redundancy and representation. The NEP was based on the current listed entity of the grizzly bear and does not preclude the FWS from revising the listed entity in the future, at which time the effect, if any, on the NCE NEP would be considered. In the event grizzly bears are considered for delisting due to recovery, the NPS and FWS would work with the appropriate states and Tribes to develop plans for a smooth and timely transition of

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		management responsibilities.
58	Commenters discussed cooperation and consultation with a variety of stakeholders that were not explicitly mentioned in the draft EIS, including: • Washington State University Grizzly Bear Center: the center has evaluated the dietary requirements of bears and should be consulted on food supply requirements. • Washington Trails Association: the association can coordinate messaging and maximize the effectiveness of public education efforts. • Home Range Wildlife Research: the organization already has a human-bear coexistence project with WDFW as a partner. • Pacific Crest Trail Association: the association has detailed recreation information on the Pacific Crest Trail. In addition, one commenter requested the park complete a comprehensive stakeholder conflict assessment, which includes the perspectives of local communities, conservation organizations, hunters, ranchers, and indigenous communities. One commenter requested a Stakeholder Advisory Group be convened.	The outreach and coordination efforts associated with this planning effort are discussed in chapter 4 of the EIS, in the "Consultation and Coordination" section. These efforts included outreach and education to local communities, local governments, Tribes, and elected officials. Chapter 4 of the EIS does not detail the extensive outreach that the NPS and FWS staff completed with recreational user groups, agricultural/rancher organizations, college groups, environmental groups, and nonprofit organizations. Taken together, the NPS and FWS staff have attended approximately 70 outreach events/meetings to provide detailed information on all aspects of this grizzly bear restoration effort, including many of those suggested by the commenters. Also, all stakeholders have had the opportunity to comment during the two formal public comment periods under NEPA. Further stakeholder coordination would continue as part of an implementation strategy, including partner organizations in support of public outreach and education.
59	Commenters encouraged consultation and coordination with local Tribes, including the Shoshone and Colville Tribes, Yakama Nation, and the Coeur d'Alene. One commenter requested the draft EIS explicitly explain whether the Tribes support the translocation	As noted in the response to concern number 58, the NPS and FWS conducted outreach with many stakeholders, including Tribes. As detailed in chapter 4 under "Tribal Consultation," all potentially affected Tribes received invitations to consult, and coordination is continuing with those Tribes that accepted. In Canada, the First Nations have involvement in the North Cascades subcommittee of the IGBC meetings via representatives from the Okanagan Nations Association, which

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	and restoration efforts for grizzly bears. One commenter requested clarification on the MOU between the provincial government and the IGBC regarding British Columbia support for North Cascades Grizzly Bear Recovery. Regarding Canadian-USA cooperative management, one commenter requested including First Nation peoples and Tribal entities, not just British Columbia representatives. The commenter emphasized that cooperative efforts should include comprehensive, long-term, post-restoration transborder studies focused initially on movements and habitat use, recruitment, mortality, and human/bear conflicts.	represents eight member First Nations. It would not be appropriate for federal agencies to disclose the support or opposition of Tribes or First Nations. Coordination would continue through implementation and monitoring across the ecosystem.
60	Commenters expressed concern about the role of the Okanogan-Wenatchee National Forest in grizzly bear restoration without the USFS as a cooperating agency. One commenter requested that the park release a new Notice of Intent including the USFS as a cooperating agency, while another commenter requested the park include a copy of the USFS communication stating that it was unable to serve as a cooperating agency in an appendix of the final EIS. One commenter noted that, while the draft EIS recognizes that grizzly restoration will trigger future decisions by the USFS, it does not address the effects of those decisions; therefore, the commenter requested discussion of the effects in the EIS. Another commenter requested the park discuss the consequences of eliminating USFS land from the project	While the USFS originally declined to be a formal cooperating agency, it is now a cooperating agency and fully engaged in the EIS process. USFS staff were also previously engaged in development of the 2017 draft EIS and provided applicable updates in early 2023 that helped inform the 2023 draft EIS. While most of the land in the NCE is managed by the USFS, the NPS and FWS are the agencies that would capture, transport, and release grizzly bears under any of the action alternatives, and release areas on NPS lands are prioritized. No releases would occur on lands managed by the USFS land until appropriate compliance was completed.

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	because the USFS has not started working toward restoration approval, which would limit restoration efforts to NPS-managed lands. One commenter noted the information provided in the EIS regarding USFS participation is vague and does not elaborate on ideas of grazing permit modifications, the incorporation of nonlethal deterrence measures, or the possibility of voluntary permit retirement with the USFS. Another commenter questioned whether the USFS would have adequate funding and staffing to implement planning and mitigation measures given the EIS notes release sites may occur on USFS-managed land.	
61	Commenters generally felt that opportunities for in-person public comment during the draft EIS public comment period were inadequate. Commenters felt there were too few meetings, meetings were held in locations that were too remote, and not every county had an in-person meeting. Commenters had various concerns about the meeting format, including: • the inability to receive answers on asked questions • advertised meeting times did not match when the meetings were held • the 2-minute limitation on verbal public comments hindered commenters from providing their entire feedback • lack of multiple meeting dates in each location	The public comment period met all NEPA requirements for public engagement. The FWS and NPS hosted an informational virtual public meeting and four in-person, hearing-style meetings during the public comment period. In-person meetings were held in communities on both the east (two) and west (two) sides of the NCE recovery zone. All in-person meetings began with an open house style meeting and provided background information and the ability to ask questions one-on-one with NPS, FWS and WDFW staff. Meeting attendees were able to provide comments in writing or verbally to a stenographer, with options to do so privately and/or in front of other meeting attendees. For those who chose to speak publicly in front of other meeting attendees, a lottery system was used to determine the order of speakers, with each speaker's remarks limited to two minutes. The lottery system and time limit ensured the agencies were consistent, equitable, and maximized opportunities for speakers at all public meetings. Speakers were also encouraged to provide written comments by postal mail or online if two minutes was not sufficient for their verbal comment. At all four in-person meetings, everyone who requested to provide verbal comment was provided an opportunity to do so, and at all four meetings, the list of speakers was exhausted, with additional time remaining. Throughout the public comment period, written comments on the draft EIS and proposed 10(j) rule were accepted online, by postal mail or hand-delivery, and at the in-person meetings.

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	• lack of an introductory presentation from the park Commenters requested town hall format meetings as the project moves forward.	
62	Many commenters requested the park include as much time as possible for public input by extending the comment period; commenters specifically noted that the current comment period was too short for the length of the plan. Commenters suggested the park extend the comment period for as long as six months to one year. Other commenters noted that there was not enough time to effectively comprehend and evaluate the lengthy EIS for public comment and requested a shorter report.	The public comment period was open from September 28, 2023, through November 13, 2023; the 45-day review period meets public review requirements for an EIS under NEPA. The response to concern statement 61 details the virtual and in-person public meetings that were held and how public comments were accepted.
63	Commenters requested changes to the EIS to enhance how the public interacts with the public comment period. One commenter suggested providing additional educational content on the ecological benefits of grizzly bear restoration to help the public better understand the EIS. One commenter suggested including a summary table of substantive changes.	Educational content on the ecological benefits of grizzly bear restoration was included in printed materials and discussed in meetings with stakeholders and during the virtual meeting. The responses to comments identify areas of the final EIS where changes have been made, allowing readers to see substantive changes made from the draft to final EIS.
64	Commenters objected to the EIS comparison of North Cascades National Park to other grizzly bear recovery zones, including Yellowstone National Park or Glacier National Park. Commenters noted that two parks are not urban-proximate parks or next to high-population areas. One commenter specifically noted that there are many more highways near North Cascades than there are near the other	The EIS incorporates data and studies from Yellowstone and Glacier National Parks to assess impacts to human safety, visitor use, and socioeconomics because those ecosystems demonstrate the management framework that has enabled the restoration of grizzly bears within ecosystems that receive millions of annual visitors. The national park visitation data provides the most comprehensive information for purposes of a comparative analysis. Given that all action alternatives would seek to achieve a restoration population of 200 bears, which is substantially less than both the GYE and NCDE, the probability of human-grizzly bear conflict would be far less than in either of those ecosystems. Furthermore, while it is true that the NCE is

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	two parks. Commenters expect more bear-human conflicts and requested better citations for statements that compared the three parks, such as the following statement in the "Environmental Consequences" section of "Visitor Use and Recreational Experience" (page 147 in the draft EIS), "Given the amount of recreation that occurs in other grizzly bear ecosystems associated with Glacier National Park and Yellowstone National Park, the presence of grizzly bears is not expected to limit overall visitor use and experience of the NCE." Because of the higher population and closer urban areas around the North Cascades compared to Glacier National Park and Yellowstone National Park, one commenter requested the NPS conduct a feasibility study for this project to better understand how to prevent conflicts with humans as the grizzly bear population grows in the future.	surrounded by more densely populated urban areas compared to other grizzly bear ecosystems, both Yellowstone and Glacier National Park are major tourist destinations with anywhere from 2 to 5 million annual visitors. The park complex and surrounding national forest experience substantially lower visitation. To help provide additional context for visitation, additional data regarding backcountry visitation has been included in both the "Visitor Use and Recreation Experience" and the "Bear-related Public and Employee Safety" sections of the EIS.
65	Commenters noted that, while effects of grizzly bear restoration over the next 5 to 10 years are analyzed, many long-term effects are absent or dismissed as unknowable regardless of the planned release efforts extending over the next 60 to 100 years. The project length and effects analysis periods need to be considered, and commenters suggested adaptive management steps and measures should be discussed for long-term projects. For example, commenters noted that the plan provides information on the regional human population, but does not take into account	As stated in the EIS, 11% of the land in the recovery zone is NPS-managed land, 74% is USFS-managed land, 10% is private land, and 5% is state-managed land. Human development is limited on NPS- and USFS-managed lands, pursuant to each agency's legal, regulatory, and policy mandates. Reasonably foreseeable future actions, including certain actions related to human development, are included in the cumulative impact scenario in the EIS (see table 8). While there is some uncertainty about long-term impacts, the NPS and FWS have reviewed the EIS and found that it does not have any significant oversights, omissions, or inconsistencies with respect to long-term impacts. Because human-caused mortality is the primary threat to the species, the time frame evaluated in the EIS includes the expectation that the human population of Washington would continue to grow. As noted in the EIS, due to the relatively small grizzly bear population and the size of the intact ecosystem, minimal impacts are anticipated. For each impact topic, the EIS details that impacts are

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	scaling on human/city growth over the next 60 to 100 years. With that population growth, one commenter questioned if the projected growth of visitation was accounted for and requested that the plan/EIS include an estimate of what this growth would be.	expected to increase as the grizzly bear population increases.
66	One commenter noted that the effects of alternatives B and C would be the same for almost all issues or resources, indicating a limited range of alternatives that do not address the key issues.	The impacts under alternatives B and C would be similar. The biggest difference in impacts is under the socioeconomics impact topic because alternative C would implement a 10(j) designation for grizzly bears, which would allow for greater management flexibility. The range of alternatives provided is considered sufficient under NEPA. The EIS also considers a number of other alternatives that were ultimately dismissed but are part of the range of alternatives considered.
67	Commenters suggested that the draft EIS uses outdated resources and applies false narratives by citing documentation on the NCE habitat and health of the ecosystem that dates back nearly 60 years. The commenter stated that this omission of present-day information is prejudicing selection of alternatives before making a final decision. The commenter further noted that the plan does not account for the growth in human population inside and bordering the proposed recovery zones, as well as the losses of habitat that have occurred over the last 60 years. One commenter specifically noted that the vegetation maps used to assess quantity of vegetation are 30 years old, and the landscape has changed significantly. The commenter stated that a recent comprehensive vegetation analysis is needed, which would include the abundance as well as the presence of listed species. One commenter requested the park conduct a survey on current park habitat.	Chapter 3 of the EIS qualitatively evaluates potential impacts on grizzly bears based on best available data, expert knowledge, and professional judgment. It provides a detailed assessment of predator-prey interactions (including elk and salmon) and potential impacts. A review of scientific literature was conducted for information on grizzly bear life history, reproductive biology, diet, habitat use, and other aspects of grizzly bear ecology in various ecosystems throughout North America. Older studies are used as background information and are combined with more recent data. The vegetation data used in the EIS is not 30 years old, so it is unclear what information the commenter is referring to. The "Affected Environment" for the grizzly bear section in chapter 3 specifically notes that habitat suitability was evaluated through five studies, ranging from 1989 through 2023. As discussed in chapter 1 of the EIS, scientific research indicates that habitat within the NCE is currently capable of supporting a self-sustaining grizzly bear population. The analysis also relies on conclusions reached by peer-reviewed, spatially explicit carrying capacity models for the NCE that integrate the most current habitat data and human activities, combined with grizzly bear demographic and life history parameters.

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68	Commenters stated that both action alternatives would violate the Wilderness Act and that the use of helicopters and motor vehicles for the translocation of grizzlies is not compatible with the Wilderness Act. Commenters requested further analysis of the impacts of affected areas and consideration of alternatives that are compatible with the Wilderness Act. Commenters requested completion of an MRA. Other commenters indicated that the estimated number of helicopter landings described in the EIS are low, trammeling impacts would be long term and not temporary, and vegetation clearing at release sites in wilderness should be analyzed.	The draft EIS included a draft MRA for NPS lands as part of appendix E (now appendix D in the final EIS). There are no viable alternative locations that meet the required criteria for release sites, which includes having adequate space to land without vegetation removal. A separate MRA would be completed for release sites on USFS-managed land (and any proposed capture sites if they are proposed in wilderness). Staging and release areas have been developed to generate the least helicopter impacts from takeoff, landing, or noise from flying over designated wilderness.
69	Commenters questioned the impacts on the quality of wilderness character from the restoration of grizzlies. One commenter indicated that the EIS uses a fragmented approach in considering the Wilderness Act and that the monitoring protocol is flawed. Commenters encouraged the preservation of wilderness character and requested further analysis of the potential impacts on wilderness. One commenter questioned why the park omitted the Glacier Peak Wilderness from the Wilderness impacts analysis, while the plan map depicts the southern release area including part of the Glacier Peak Wilderness, and other wilderness areas (Stephen Mather Wilderness and the Pasayten Wilderness) are analyzed in appendix E of the draft EIS.	The EIS analyzes impacts on wilderness character with a focus on the effects of human interventions for wildlife management and noise from helicopter and vehicles during grizzly bear capture and release. The analysis approach focuses on the five qualities of wilderness and follows appropriate guidance to integrate wilderness character into NPS planning (see Landres et al. 2008 and NPS 2014). There are tradeoffs in almost all aspects of wilderness stewardship, and evaluating what is gained and what is lost in terms of the five qualities of wilderness character serves to determine the impacts of the proposed action. NPS policy mandates an MRA of all activities that have the potential to degrade wilderness character, which was provided as appendix E of the draft EIS (now appendix D in the final EIS). Glacier Peak Wilderness does not occur on NPS-managed lands and is therefore not listed in the MRA. The USFS would complete an MRA for any actions on lands managed by the USFS, as appropriate.
70	Commenters expressed concern that grizzly bears could displace black bears from their	The FWS and NPS agree that the release of grizzly bears into the NCE could result in impacts on black bears. As stated in chapter 3, the literature indicates that although

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	territory into more developed areas where they may then become accustomed to eating human trash, which would create dangerous situations with hungry black bears. One commenter recommended monitoring black bear populations as the grizzly bear population is restored. Commenters indicated that the EIS is missing an analysis of these potential impacts.	grizzly bears and black bears coexist throughout the range of grizzly bears, typically black bears will adjust their habitat use and hours of activity to avoid grizzly bears, especially male grizzly bears. In addition, the two species react to human use differently, with black bears more likely to use areas adjacent to human use, while grizzly bears generally avoid these areas. The NCE has habitat similar to that found in portions of the NCDE, which also contains populations of grizzly bears and black bears. In that ecosystem, the black bear population in Glacier National Park is estimated to be approximately twice the size of the grizzly bear population and is more common in lower elevation areas with higher forest cover than where grizzly bears prefer (e.g., more alpine areas with less forest cover). Based on the analysis presented, any adverse impacts on black bears due to grizzly bear restoration would be limited to interactions between individual bears and would not affect black bears at a population level. NPS agrees that monitoring the black bear population would be beneficial and would consider that as part of the implementation strategy, subject to available funding. Preventive actions, including food storage and public education are expected to reduce attractants and potential conflicts with both black and grizzly bears.
71	Commenters noted that the grizzly bear restoration area overlaps designated critical habitat for several species listed under the ESA, and commenters suggested that maps of those areas be provided in the EIS.	References to maps of designated critical habitat have been added to the list of applicable federally listed species in appendix A of the final EIS.
72	Commenters questioned if the draft EIS adequately addresses the potential disruption of the ecosystem balance, particularly the impact of grizzly bears on prey populations, vegetation, and other wildlife. Commenters questioned if prey species are abundant enough to sustain grizzly bear restoration and emphasized the necessity of evaluating the ecosystem's capacity to support another predator, considering the existing predators on the landscape and grizzly bears requirements for vast territories and substantial prey	The EIS details that the NCE contains a diverse largely intact group of carnivores and meso-carnivores, including cougar, coyote, bobcat, wolverine, gray wolf, and Canada lynx. As such, prey species have survived through various anti-predator adaptations to avoid being eaten. The EIS also describes the ungulate populations and other species in the NCE that could be affected by grizzly bears, including the relatively small elk herd. The small number of grizzly bears in the NEP in the initial decades of this process is not expected to measurably impact big game populations. While grizzly bears are omnivores that primarily feed on vegetation, they do have the potential to affect prey species; local concentrations of ungulates, where abundant, can be an important source of protein. The EIS describes the ungulate populations in the NCE, including the North Cascades elk herd. While it is possible that grizzly bear predation may impact some small ungulate populations, significant, population-level

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	populations. One commenter noted that the introduction of grizzly bears could cause cascading effects across the ecosystem. Commenters recommended a more in-depth assessment of the existing habitat structure and prey population status to demonstrate that grizzly bear restoration is rooted in ecological science and would not compromise the well-being and sustainability of existing ecosystems.	impacts are unlikely due to the wide variety of foods available to bears, even at the restoration population of 200 grizzly bears. Healthy populations of big game exist in the NCDE and GYE and support much higher bear densities than those anticipated in the NCE. As described in chapter 3 of the EIS, in the near term, it is unlikely that the small number of translocated bears would have any meaningful impact on behavior of prey species or other predators and would contribute only nominal additions to the amount of carrion on the landscape. In the long term, while it is possible that grizzly bear predation may cause minor impacts to some prey populations, significant impacts are unlikely due to the wide variety of foods available to bears, even after the target population of grizzlies is achieved many decades from now.
73	Commenters expressed concern that wolverine populations may be adversely impacted by grizzly bears and recommended a more extensive assessment of potential impacts on wolverines.	The EIS evaluates interspecific competition between grizzly bears and wolverines. The wolverine is now listed as threatened under the ESA, and its status has been revised accordingly in appendix A. Research on wolverines in the North Cascades has demonstrated that the region supports a small resident population that is relatively stable. While grizzly bears might occasionally take carcasses from wolverines, this is not anticipated to happen frequently enough to significantly affect wolverine behavior, survival, or reproductive success. Overall, grizzly bears are not anticipated to have a meaningful impact on wolverines. Section 7 intra-agency consultation has occurred as part of this process to ensure the proposed action would not jeopardize the continued existence of the wolverine.
74	Commenters expressed concern that the use of helicopters for grizzly bear release poses potentially adverse impacts on the marbled murrelet and northern spotted owl populations, including disturbance from flights near nesting areas and potential relocation of grizzlies impacting their habitats. Commenters recommended specific flight protocols to mitigate these effects. Specific recommendations included: flying a minimum of 345 feet above known nesting areas, altering flight paths using a minimum buffer of 300-600 feet, avoiding feeding flight paths during early morning and early evenings, and not using	Impacts of proposed grizzly bear restoration operations on northern spotted owls and marbled murrelets are evaluated in the EIS. The FWS has performed section 7 intra-agency consultation as part of this process to ensure the proposed action would not jeopardize the continued existence of these two listed bird species. Several mitigation and best management practices to avoid impacts on northern spotted owls and marbled murrelets are provided in chapter 2 of the EIS, which include: locating and using releases sites that are more than 1,200 feet from suitable nesting habitat for northern spotted owls and marbled murrelets or only using the sites after the high-sensitivity nesting period (March 1 to July 31 for northern spotted owls and April 1 to September 23 for marbled murrelet); flying helicopters at least 500 feet above ground level to avoid disturbance to any nesting birds when departing staging areas; and conducting pre-implementation staging and release site assessment and implement mitigation as necessary to avoid the presence of federally or state-listed species. In addition, helicopter flight paths would follow the Skagit River corridor

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	staging or release areas within 55 miles of marine waters.	where possible to avoid impacting undeveloped areas.
75	Commenters expressed concerns about how the introduction of another predator might further strain the ecosystem and impact salmon and steelhead populations that are already facing challenges, including species like orcas that depend on them. Commenters recommended further analysis and monitoring to ensure that grizzly bears do not adversely impact any fish listed under the ESA. Commenters felt the draft EIS fails to provide sufficient evidence of long-term, negative impacts to the salmon population and does not define what steps would be taken to avoid and/or mitigate impacts to federally listed native salmon, steelhead, and native char in and adjacent to the NCE. One commenter suggested that the draft EIS fails to adequately evaluate the impacts grizzly bears would have on anadromous fish populations in Washington state. Commenters requested including a monitoring and action plan in the EIS to minimize grizzly bear effects on listed fish.	The potential source populations of grizzly bears identified as candidates for translocation to the North Cascades were specifically selected in part because salmon were not the primary food source for bears. Bears entering the Cascades are expected to feed mostly on vegetation, although grizzly bears are opportunistic foragers and could occasionally forage on salmon or their carcasses. Some grizzly bears may learn to forage seasonally on salmon runs. However, grizzly bears have a wide terrestrial diet and are not such efficient foragers as to be able to extirpate a salmon run. For example, existing black bear populations in the NCE, which have similar foraging behaviors, have not been identified as a substantial factor impacting the salmon populations within the NCE to date. For both grizzly and black bear, salmon consumption is generally higher in coastal habitat than interior habitat. Chapter 3 of the EIS under "Grizzly Bears" has been updated to provide an additional reference (Adams et al. 2017) on grizzly bear diets from British Columbia that describes the dominant food sources for grizzly bears; diets with high proportions of salmon were constrained to coastal habitats for female grizzly bears but extended into interior habitats along major salmon watersheds for males. The FWS has performed section 7 intra-agency consultation as part of this process to ensure the proposed action would not jeopardize the continued existence of bull trout, and informal consultation with the National Marine Fisheries Service (NMFS) regarding potential impacts to other federally listed salmonids is ongoing. The record of decision will detail all consultation efforts.
76	Commenters stated that the impacts of grizzly bear restoration specifically on ungulate populations (i.e., black-tailed deer, white-tailed deer, mule deer, elk, and moose) have not been adequately studied. The commenter expressed concern that grizzly bears in the North Cascades could stress ungulate populations. Commenters recommended a comprehensive and scientifically rigorous assessment of the potential impact on ungulate populations,	The EIS describes the ungulate populations in the NCE that could be affected by grizzly bears, including the elk herd, and chapter 3 evaluates the impacts of grizzly bears on ungulates in the "Other Fish and Wildlife" section, under "Predator-Prey Interactions." Although distribution data to perform a spatially explicit analysis are unavailable, the potential impacts of grizzly bears on ungulate numbers was quantified based on reported grizzly bear predation rates from the GYE. It should be noted that the expected predation rates would be lower because the GYE bears consume more meat compared to the bears that would be targeted for release. While the FWS and NPS acknowledge that grizzly bear restoration could have local impacts on individuals or groups of ungulates under certain circumstances, native ungulates

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	including an estimate of the population loss and displacement.	have evolved under pressures from numerous native carnivores. Grizzly bears are a natural component of the ecosystem and are unlikely to have any adverse impacts at the population level for ungulate populations or other wildlife in the NCE.
77	One commenter stated that the draft EIS fails to analyze the potential for introducing invasive species into the North Cascades through grizzly bear restoration. The commenter noted that bears would be transported from different areas and could carry invasive weeds and animal/human diseases. The commenter questioned what the potential was for a grizzly bear or the tools used in the restoration process (i.e., traps, helicopters) to spread invasive species or diseases, such as chronic wasting disease (CWD). Another commenter suggested that grizzly bears may contribute to decreasing CWD and other disease prevalence by selectively targeting infected individuals.	The potential for introducing invasive species due to grizzly bear translocations would be avoided and minimized through best management practices in accordance with the Invasive, Nonnative Plant Management Program in the park complex. For example, agency staff and contractors would be required to ensure that all equipment is inspected and cleaned prior to working in the park. These practices would also serve to limit any potential CWD prions from being transported into the NCE. Regarding the benefits of predation on curbing the spread of CWD, research into this potential issue has progressed in the past decade, and recent data from Wyoming demonstrate that bobcats and perhaps other carnivores can remove the vast majority of CWD prions from infected meat (Peterson 2023). However, anecdotal evidence suggests that scavengers may avoid infected carcasses, and in order for grizzly bears to make a difference in slowing CWD's advance, they would need to exist in higher numbers.
78	Commenters indicated that the EIS lacks sufficient analysis of the impacts of grizzly bear restoration on visitor use patterns. Commenters stated that data from Yellowstone and the Rockies are not comparable to the NCE. Similarly, a commenter requested clarification on restrictions placed on recreation in Yellowstone and how that may be translated to the NCE. Commenters requested a more extensive impact study/analysis to address recreation management.	The reasoning for using data from the GYE and NCDE for the analysis on visitor use and socioeconomics is provided in response to concern number 64. Visitation data in the USFS's National Visitor Use Monitoring was used to compare the level of annual visitation in the NCE with the GYE and NCDE. Visitation data were generally comparable; however, the data are not accurate enough to use in the EIS. Follow-up discussions with agency biologists who have experience on USFS lands in both the NCE and the GYE/NCDE confirm that the level of visitation in the NCE is not so great that it would prohibit grizzly bear restoration.
79	Commenters expressed concern about the potential for area or road closures due to grizzly bear activity. One comment specifically stated that closures would limit opportunities	The EIS specifies that the translocation of grizzly bears to the NCE could cause the agencies to institute local closures (a few hours up to several days) for public safety. No long-term closures are expected. The occasional short-term closures would be site-specific and based on known grizzly bear activity to prevent conflict (e.g., trail

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	for horseback trail riding. Commenters had specific questions related to the temporary closures and accessibility and asked if any permanent road closures are anticipated; how much access would be removed; and how the carrying capacity of the trails, trailheads, and campgrounds would be considered without resulting in long-term or permanent closures.	closure for several days because a grizzly bear is feeding on a carcass in the area). Public concerns about potential area closures highlighted that there are seasonal closures in Yellowstone for grizzly bears, as well as frequent area closures due to carcasses or other known grizzly bear activity. While this is true for Yellowstone National Park, the agencies do not anticipate the need for such closures in the NCE because unlike the GYE, the NCE does not have a great biomass of prey resources (i.e., elk and bison) that occupy areas frequented by park visitors. In Yellowstone National Park, seasonal area closures are used to provide adequate security to ensure important food resources (i.e., winter-killed carcasses) are available to bears. These annual closures are for predictable periods of time when concentrations of critical food resources are most important, especially in the spring for females with young. In the NCE, forage and prey resources are less concentrated, and it is doubtful any concentrations of grizzly bear use would be detected in the NCE. It should also be noted that in spite of high densities of grizzly bears in Glacier National Park, there are no seasonal closures. As described above, this is largely because of the lack of large prey concentrations. Furthermore, the agencies do not anticipate the same level of conflict between grizzly bears and humans as in either Yellowstone or Glacier National Parks because of the much smaller restoration population (200 grizzly bears) over a larger area of wilderness and relatively low levels of human visitation. As is the case with other sensitive resources on NPS and USFS lands, future public planning on federal lands in the NCE could result in seasonal closures to protect important habitats, but no such closures are anticipated during the life of this plan (25 years). Regarding potential for any permanent road closures due to the no net loss of core area approach to managing federal lands, the NNLA represents continuation of current management and the baseline conditions. Future closures under the NNLA are not predictable. The FWS, NPS, and USFS would update the baseline conditions with updated vegetation, trail, and road data and advance the no net loss of core area approach for federal lands within the US portion of the NCE recovery zone. These revisions would update the baseline and include metrics such as core habitat and trail data based on current conditions.
80	Many commenters stated that the EIS does not include sufficient analysis of recreation on the Pacific Crest Trail. Commenters disagreed with	Although the EIS does not specifically discuss potential for closures of the Pacific Crest Trail, it describes the potential for implementing trail closures and access restrictions to prevent conflict (e.g., trail closure for several days because a grizzly

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	the statement that use is insignificant, especially considering the location of the trail in such a populated area. Commenters requested adequate consideration of the management of recreation on the Pacific Crest Trail. One commenter stated that the EIS contains outdated recreational use data and requested more up-to-date information on Pacific Crest Trail use and associated risks. Another commenter noted a potential typo in the EIS.	bear is feeding on a carcass in the area). The short-term trail closures that may occur associated with grizzly restoration are expected to affect hikers or backpackers only minimally in the NCE, and agencies are aware of the need to minimize impacts to visitor use through all management actions. It is not uncommon for large sections of the Pacific Crest Trail in the NCE to be closed to all use because of fires, as happened in 2015. Trail closure information can be shared on the Pacific Crest Trail website as well as at trailheads and visitor centers. Typical trail closures in ecosystems with grizzly bears are for a few days at a time, depending on the situation (grizzly bear on a carcass near a trail; grizzly sow with cubs frequenting a trail). The FWS, NPS, and/or USFS would provide information on any trail closures on their websites. They would also provide bear safety information, including information about grizzly bear populations and occupied habitat, how to keep a clean camp, and how to behave in the event of a bear encounter. The typo noted by the commenter has been addressed.
81	Commenters stated that grizzly bear restoration could affect the ability to recreate in the NCE. Commenters expressed reluctance to recreate if grizzlies are restored. An expanded grizzly bear population would also significantly reduce opportunities for hunting of prey species. One commenter cited the Federal Land Policy and Management Act, stating the grizzlies would disrupt this multi-use provision that includes recreational opportunities on public lands. In contrast, one commenter noted that the draft EIS does not account for the impacts to the increase in tourism, including increased air pollution from increased automobile emissions and over-taxing recreational facilities due to an increase in visitor use. The commenter questioned how the park would obtain funding to expand and modify recreational facilities.	As noted in the EIS, some visitors may choose not to recreate in the NCE, while others may be attracted to the area because of the presence of grizzly bears. The ability to recreate, however, would not be altered with the exception of short-term closures, as needed. Overall visitation is not anticipated to increase or decrease noticeably as a result of grizzly bear restoration. The Federal Land Policy and Management Act governs the management of public lands by agencies like the Bureau of Land Management to allow for multiple uses of public lands while conserving natural resources. Grizzly bear restoration is not anticipated to alter existing uses of the Bureau of Land Management lands in the NCE. Hunting rules and regulations are outside the scope of the EIS. The WDFW issues hunting permits for national forests and for the Lake Chelan and Ross Lake Recreation Areas, which include several game management units within the NCE. The socioeconomic analysis in chapter 3 of the EIS specifically notes recent participation trends for angler and hunter participation in Wyoming have remained relatively stable among both resident and nonresident population segments, showing sustained participation in both hunting and angling even with the existence of grizzly bears in the area.
82	Commenters stated that the draft EIS does not	The agencies recognize that human activities in grizzly bear habitat has inherent risks

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	discuss how grizzly bear restoration would affect certain recreation groups and requested further discussion on the topic. One commenter noted that there is no analysis in the draft EIS regarding how people perceive that their visitor use patterns may change if grizzly bears are restored. One commenter noted that the EIS does not include discussion on how backcountry visitors might adapt to the presence of grizzlies. For example, one commenter discussed the negative impacts grizzlies would have on the climbing community, specific to gear and the remoteness of the activity. Another commenter noted that there is no analysis of the potential for increased pressure and impacts from recreational use on areas deemed "bear safe."	and acknowledge the issue in the EIS, under the "Public and Employee Safety" sections. The NPS and FWS have decades of experience managing natural resources and visitors in areas where grizzly bears and recreating humans overlap. In places such as Yellowstone and Glacier National Parks, the activities of visitors are carefully managed to ensure minimal impacts on free-ranging grizzly bears. To minimize potential conflict with grizzly bears that become habituated to human presence, Yellowstone National Park focuses on educating and managing visitor behavior to ensure their safety, rather than trying to discourage bears from using roadside areas. In Glacier National Park, grizzly bears are routinely hazed from visitor areas to teach bears to avoid humans. These different strategies have both proven effective, largely because other sanitation and visitor education efforts have been effective at reducing the food conditioning of grizzly bears. Future management efforts would stress the importance of the public's responsibility of reducing all attractants (e.g., garbage, horse feed, and birdseed) available to grizzly bears to reduce human-bear conflicts. The lessons learned from other ecosystems with grizzly bears would translate to an effective program in the NCE to the extent that threats to human safety would be low. For further details about visitor safety, see the responses to concern numbers 84, 85, and 88.
83	Commenters suggested that the restoration of grizzlies could endanger people covered under the Americans with Disabilities Act (ADA) and specifically requested that the EIS analyze how the plan effects those populations and if the effect would be greater on those that are covered under ADA. Commenters noted the presence of grizzly bears may deter visitors from recreating outdoors and disproportionally affect families or the elderly.	The NPS and FWS strive to provide a variety of experiences for a range of visitor capabilities. Areas of the park with ADA accessibility are located in more heavily trafficked, frontcountry parts of the park complex, where conflicts between humans and grizzly bears would be unlikely. There are no ADA areas in wilderness areas. As a result, impacts on visitors are not anticipated to be greater for visitors who require ADA-accessible facilities. The "Visitor Use and Experience" section of the EIS notes that some people may be deterred from recreating by the presence of grizzly bears, while other visitors' experiences would improve through the restoration of a native species that has not had a viable population in the NCE for decades. Please see the response to concern number 82 for more information on the inherent risks of recreating on public lands.
84	Commenters noted that there were more fatal and non-fatal attacks in the United States than were discussed in the draft EIS. Commenters requested the park include more information on grizzly bear incidences and the risk associated	The analysis in the "Bear-Related Public and Employee Safety" section in chapter 3 of the EIS describes the likely relative risks associated with grizzly bear-human interactions and discloses that some grizzly bear-human interactions have resulted in the injury or death of people in comparable ecosystems. As such, the EIS describes the number of fatal grizzly bear-human interactions at

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	with their restoration. One commenter stated that the draft EIS fails to comply with CFR Title 40 Chapter V Subchapter A, Part 1502.2(b) because it fails to proportionately document the risks to public safety. Commenters stated the draft EIS minimizes the scope of possible attacks and relies on the Guideline for Grizzly Bear Control Action, which they feel has failed when applied previously. One commenter questioned the objectivity of the analysis and whether the draft EIS analysis minimizes safety impacts. Another commenter noted that the draft EIS analysis dismisses the distinction between black bear and brown bear attacks, stating that brown bear attacks are more likely to result in greater injury and fatalities. Additionally, commenters stated that recent data and evidence from areas where grizzly bear populations have been reintroduced suggest an increased frequency of bear-human encounters, leading to a rise in grizzly bear attacks. Last, one commenter noted the presence of grizzlies could increase the odds of attack for hunters stating that they are drawn to the carcasses of game like elk, which hunters often target. Commenters provided specific requests for the EIS analysis, including: provide goals, including maximum estimated encounter and fatality rates to provide an accurate and complete picture of impacts include grizzly-to-human conflicts resulting from grizzly attacks occurring inside and outside existing recovery zones	both Yellowstone National Park and in the CYE and Selkirk Ecosystem. The EIS notes that two human injuries caused by a grizzly bear have been recorded in the last 38 years in the CYE and Selkirk Ecosystem, where there are low-density recovering populations of grizzly bears (approximately 60–65 and 90–100, respectively) (FWS 2023a; FWS, Kasworm pers. comm. 2023b). The EIS also notes that in Yellowstone National Park, seven people have been killed by grizzly bears since the park was established in 1872, and one additional person was killed by a bear that was not specifically identified as a grizzly bear (NPS 2022a). The probability of human injury or death from a grizzly bear encounter in the NCE is expected to be comparable to or lower than the probability in Yellowstone National Park given the level of backcountry visitation and the lower population of grizzly bears. However, the agencies recognize that any injury or loss of human life would be catastrophic to that person's family, friends, and community. Spending time in wilderness areas and in proximity to wildlife can be dangerous to visitors. Injury, sickness, and even death can be caused by a number of factors, including climatic conditions, wildfires, defensive/aggressive wildlife, and human error. Since these areas are wild and not all risk can be mitigated, the agencies' primary approach to reducing visitor risk is through education and outreach, explaining to visitors how they can reduce the likelihood of an incident. Education and outreach would also extend to hunters. The EIS already includes analyses of bear-related public and employee safety impacts in the primary phase and adaptive management phase, including discussion of the probability of human-grizzly bear encounters for several decades following primary restoration activities (see the "Bear-Related Public and Employee Safety" section in chapter 3 of the EIS).

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	collect and present data regarding the number of attacks on residents, animals and hikers, etc., along with documented negative impacts on the community in areas where grizzly bears occur study and document the risk of encounters with bears after 10 or 15 years under the release plan as bears are established study the risk and show whether encounters would be significant based on current and anticipated visitor usage include all bear attack data throughout history include additional bear attack data, including putting that information into the executive summary	
85	Commenters stated that the draft EIS analysis of human/bear conflicts is inadequate because it does not consider the past and future growth in human population within the study area and how this growth will increase the potential for conflict over time. Commenters requested a more comprehensive plan outlining how human/bear conflicts will be avoided with a rapidly growing population. Commenters expressed concern that the proposed recovery area is too close to communities and population centers. One commenter noted that, although the North Cascades have quality habitat for grizzly bears, the NCE is surrounded by more than 7.7 million people with no other grizzly bear recovery area having as large a population surrounding its recovery zones. Another commenter specifically noted that the region	The NPS and FWS acknowledge that NCE is adjacent to the densely populated Puget Sound area and growing human populations on the east side of the Cascade Crest; however, the NCE encompasses one of the largest blocks of wild, federally managed public land remaining in the lower-48 states. Several factors support the determination that the NCE can support a viable grizzly bear population that is no more susceptible to conflict than other current grizzly bear populations. First, the gradual restoration of grizzly bears would provide agencies additional time to continue to develop conflict prevention efforts and practices employed in other recovery areas. Second, even at an eventual restoration population of 200 grizzly bears, the NCE would have substantially lower population densities than either the GYE or NCDE. Third, the NCE contains sufficient habitat and resources to support the restoration population and is composed predominantly of wilderness and inventoried roadless areas, which helps reduce the potential for conflict as compared with grizzly bears in areas of subpar habitat (often on private land, with high road densities). As noted in the responses to concern numbers 3, 7, and 58, the NPS and FWS expect the efforts necessary for the successful restoration and management of this grizzly bear NEP would be supported through a combination of NPS and FWS resources and the resources and efforts of other partner federal agencies, WDFW,

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	where this restoration program is planned has, on average, 50-100 people per square mile and in larger population centers, these numbers increase to 700-1100 people per square mile, which is dissimilar from other grizzly bear recovery areas. One commenter asked for the analysis to consider the recent increase in black bears in Everett, Mill Creek, and Eastside and how this increase may demonstrate how bears are coming into more frequent contact with humans.	interested Tribes, and NGOs. Please see response to concern number 70 regarding how black bears and grizzly bears behave differently in the vicinity of humans.
86	Commenters suggested that the North Cascades might not have enough suitable habitat and natural food resources to support a healthy grizzly bear population, which would cause the grizzly population to encroach on human territories. One commenter stated that, as more game animals that have been displaced due to climate change move into communities looking for food and water, it is also going to coax the grizzlies to follow their own food supply into surrounding communities, putting livestock, pets, and humans at greater risk.	There have been several studies of grizzly bear habitat and available foods in the NCE. Lyons et al. (2018) developed grizzly bear carrying capacity estimates for the NCE by extracting road buffers (as well as rock, ice, and large bodies of water) and analyzing only habitat within core areas, using empirical grizzly bear habitat use data from similar ecosystems. The Lyons et al. 2018 model was further developed to include effects of climate change on habitat quality up to 100 years in the future, and the most plausible carrying capacity for the NCE increased to 482 to 578 bears (Ransom et al. 2023). Chapter 1 has been updated to include the additional carrying capacity estimates. Given large areas of secure core habitat, the best available science indicates there is sufficient suitable habitat available for grizzly bear restoration. The response to concern number 110 provides more information from these studies with respect to the likelihood for successful establishment and survival of grizzly bears. The EIS includes an analysis of habitat suitability and grizzly bear foods and vegetation types in the North Cascades. Many of the vegetation types and available foods in the NCE are similar to the CYE, which makes the CYE a good predictive comparison to the NCE and representative of the best available science in the United States. The EIS includes an additional reference (Adams et al. 2017) on grizzly bear diets from British Columbia that describes the dominant food sources. Grizzly bear female diets in the interior of British Columbia were based largely on plant material (58%) and terrestrial meat (31%). Male diets were similar but had a higher proportion of plants (63%) and less terrestrial meat (8%). These amounts are similar to those of the CYE where diets were largely plants (66%) with a lesser amount of terrestrial meat (26%).

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87	Commenters expressed concern that the restoration of grizzly bears would result in more recreational users carrying firearms and could increase the number of deadly conflicts. One commenter suggested that the number of people with firearms would increase substantially outside normal big game hunting seasons while also suggesting this may increase opportunities for firearms to be discharged for recreational purposes during more months of the year. Others expressed the importance of carrying a firearm while noting Washington's strict laws regarding the Second Amendment.	Laws governing the use of firearms are outside the scope of this action. Areas of the NCE already allow visitors to carry permitted firearms, and none of the alternatives are anticipated to change existing firearm use. Additionally, bear spray is an effective deterrent that has a higher success rate at stopping dangerous bear behavior and preventing human injury compared to firearms (Smith et al. 2008; Smith et al. 2012).
88	Commenters voiced concern that both wildlife management and recreationists are not accustomed to coexisting with grizzlies and are ill prepared. One commenter noted that, due to a lack of a significant grizzly population, recreationists and tourists may not have proper bear preparedness education. Another commenter stated that, unlike Montana, which is staffed with rangers who are trained for managing these apex predators, Washington is understaffed, with the North Cascades being harder to access and is unprepared for this kind of responsibility, which would result in impacts on human safety.	Recreation comes with inherent risk, and it is the visitor's responsibility to be well-informed and properly prepared for many contingencies, bears being only one of many. Nationwide statistics for unintentional deaths in national parks for 2014–2016 includes 173 drownings, 163 fatal motor vehicle accidents, 87 fatal falls/slips, 51 deaths by environmental causes, 11 poisonings by drugs/alcohol, and 1 death by wildlife/animal (NPS 2022b). While grizzly bear attacks on humans are rare, they can occur and can have serious consequences. Under alternative C, the 10(j) rule includes provisions to allow individuals to take bears in self-defense or to deter bears out of close proximity to people or property. Education and outreach about how to live, work, and recreate safely in grizzly bear country would be an important part of the implementation process, and the NPS and FWS would work with partners to increase outreach to people who live, work, and recreate in the NCE and surrounding areas. Educational materials regarding pepper spray and its proper use are readily available and should already be used by visitors and residents due to the existing black bear population in the NCE (e.g., at http://igbconline.org/bear-spray/ and https://www.nps.gov/yell/learn/nature/bearspray.htm).
89	Commenters disagreed with the comparison of visitor usage between the North Cascades and Yellowstone, noting the EIS relies heavily on Yellowstone National Park statistics regarding bear/person interactions, citing the park's large	Please see response to comment 64.

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	visitor use. However, commenters noted the data do not reveal that the majority of those visitors are primarily driving along the roads and hiking heavily used boardwalks to popular areas of the park. In the North Cascades, there are many more people accessing backcountry trails in the deep wilderness where encounters will be much more likely. Commenters requested updating the EIS to reflect the difference between frontcountry and backcountry recreation.	
90	Commenters had different viewpoints regarding safety equipment and measures that the park should take before restoring grizzly bears. Commenters requested the NPS implement better bear infrastructure to protect visitors. Another commenter suggested that the EIS disclose that hiking would become more expensive, and thus more exclusionary to traditionally marginalized people as a result of required and recommended safety equipment. Another commenter noted that climbers carry limited equipment, and few climbers would be willing to carry bear canisters or bear deterrents in addition to their other equipment; therefore, the likelihood of a negative bear interaction would increase.	Black bears are already present on the landscape, and bear safety recommendations are already in place in the park, meaning that visitors should already be taking precautions like carrying bear spray, following food storage guidelines, and using food storage lockers where they are available. As a result, none of the alternatives are expected to increase the costs of recreating in the NCE. Education and outreach efforts and improved sanitation would also help inform visitors and reduce the likelihood of human-bear conflicts. As noted in chapter 2 of the EIS, the park has bear canisters available for free loan at the Marblemount Ranger Station and the Glacier Public Service Center. All visitors are encouraged to follow bear safety guidelines, provided on the park website: https://www.nps.gov/noca/learn/nature/bear-safety.htm
91	The health and safety of residents in remote areas was a concern to commenters, who indicated that the North Cascades National Park and Lake Chelan National Recreation Area are uniquely isolated areas that would be difficult for rangers in applicable agencies to patrol and manage due to the lack of roads,	NPS staff at the park complex respond to hundreds of incidents annually, ranging from injuries and deaths to law enforcement actions, accidents, and search and rescue incidents. Each incident is managed based on the specific circumstances/situation involved. No recreational use within the recovery zone is free of risk.

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	isolated trails, and rugged terrain, which increases the potential safety risk for residents, workers, and visitors in the NCE. Commenters felt the EIS should disclose these impacts.	
92	Commenters voiced concern regarding their safety when visiting the park, with one commenter requesting stricter and better enforced regulations on campers to prevent bears becoming accustomed to and visiting campgrounds. Additionally, a commenter stated the draft EIS does not reflect the facts on human visitation levels inside the park because day use is not reliably measured.	As stated in the "Bear-Related Public and Employee Safety" section in chapter 3 of the EIS, the NPS already uses many tools to reduce potential human-bear conflicts in campgrounds, including signage, educational materials, sanitation efforts, regulations on food storage, a bear-resistant food canister loan program, and other visitor outreach. If grizzly bears were restored to the NCE, both action alternatives include increasing public education and outreach along with improving sanitation on public lands, which would continue to eliminate attractants and prevent bears from frequenting campgrounds. Food storage orders by the USFS, and comprehensive definitions for attractant storage in the NPS Park Compendium, would be maintained to provide federal law enforcement officers tools for reducing human-bear conflict. The commenter is correct that day use of North Cascades National Park is not reliably measured. However, the majority of day use visitors either remain within the State Highway 20 corridor or in frontcountry areas of the park where they are unlikely to encounter grizzly bears. In frontcountry areas or portions of the NCE that are distant from release areas, the probability of adverse impacts on public safety related to the restoration of grizzly bears in the NCE is expected to be near zero. The analysis therefore focuses on backcountry overnight stays in the park, which require a permit and are more reliably measured and represent locations where humans are more likely to encounter a grizzly bear. As noted in the EIS, only a very small fraction of human-grizzly bear encounters are negative; most involve the avoidance of people by the bear(s).
93	One commenter stated that the draft EIS fails to analyze the effects of wildlife/vehicle collisions on persons operating or inside vehicles, trains, and the bears themselves, and ways to mitigate these effects. The commenter indicated that, because the anticipated restoration population is so low for so long, any vehicle strike would be a significant cause of mortality for grizzlies,	Part of what makes the NCE quality grizzly bear habitat is its large contiguous blocks of wilderness with comparatively few roads and railways, such that wildlife crossings may be less of a concern than in other areas, although the threat is not eliminated given the nonwilderness areas within the NCE. The NPS and FWS would use a mortality management framework to ensure that total mortality rates do not approach an unsustainable level and would limit discretionary mortalities (i.e., management removals) if total mortality numbers (including any mortalities due to vehicle or train collisions) do not support an increasing population. Currently, more than 20 crossing

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	appreciably impact the restoration timeline, and represent a significant danger to drivers and passengers. For this reason, the commenter requested additional analysis on the topic (both rail and road) and ways to mitigate the issue in the plan/EIS.	structures over or under highways have been completed in Washington on the southern edge of the NCE recovery zone connecting areas south of I-90 to the NCE recovery zone (WSDOT 2022). The WSDOT, its partners, and working groups continue to prioritize wildlife connectivity in Washington with special focus on I-90 and connecting the Cascades to the Kettle Mountain Range and Rocky Mountains (WSDOT 2022; Conservation Northwest 2024a; Conservation Northwest 2024b).
94	Commenters requested the park complete further socioeconomic research for its analysis. Commenters requested the park undertake additional studies, such as a comprehensive assessment of economic repercussions from the restoration of grizzly bears or studies on the social and economic impact to neighboring communities. Specific questions included: How has the introduction and repopulation of grizzlies in heavily used recreation areas changed with the increasing number of bears? Does the carrying capacity and 200 bear goal consider increasing human activity, development pressures, economic changes, and climate change? Where are there potential conflict areas?	The "Socioeconomics" section in chapter 3 of the EIS includes a thorough review of potential socioeconomic impacts resulting from grizzly bear restoration in the NCE. The socioeconomic analysis focuses on a seven-county region of influence where the predominant primary and secondary economic impacts of the project are likely to occur. Potential environmental consequences related to employment, tourism, agriculture and livestock grazing, timber harvest, and mining are discussed in the EIS. After receiving input from representatives of county governments regarding potential impacts on local communities, further details on county operations were added to the "Socioeconomics" section in chapter 3. Research indicates that grizzly bears tend to adapt to predictable activities in recreational areas by temporally or spatially avoiding humans, indicating that as bears reside longer in the NCE they would better adapt to human recreational activity (Fortin et al. 2016). In addition, increased public outreach and education efforts would be provided to recreators to mitigate impacts when they are in the grizzly bear habitat. The EIS discusses the potential impacts on visitation as a result of the action alternatives. Heavily used recreation areas are not expected to be impacted because these locations are primarily in frontcountry areas of the park complex and would not be near release sites. The restoration population of 200 bears would contribute to overall future recovery goals and was determined after considering the NCE's carrying capacity and professional judgment from grizzly bear experts. Recent research on the NCE's carrying capacity has explicitly considered the impacts of climate change (Ransom et al. 2023).
95	Commenters stated the EIS does not include the increased socioeconomic costs associated with the restoration of grizzlies. One commenter noted the increased risk to people	Safety is an important issue for all agencies and includes all safety issues an employee could face on the job and is not limited to bear safety. Should an action alternative be selected, further public outreach and education would occur, both in the media and in the community, as grizzly bears are established in the

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	working in the recovery area, such as to wildland firefighters, foresters, or biologists, and requested that the costs of training and education for those individuals be incorporated into the analysis. Another commenter noted the increased cost to the State of Montana and federal land management agencies to manage for grizzly bears, including an increased number of employees to check campsites for unattended food. The commenter questioned how many new employees would be needed to accomplish this without removing employees from other types of management, such as cleaning bathrooms or maintaining trails. Finally, one commenter noted that the costs to farmers and orchard owners is underestimated in the EIS. One commenter suggested the park use the costs from similar communities that currently deal with grizzly bears for comparison.	ecosystem. Education and outreach about how to minimize conflict, for the safety of both humans and bears, would be an important part of implementation. The NPS and FWS would work with partners to increase outreach to people who live, work, and recreate in the NCE and surrounding areas. Outreach and education efforts would be modeled after similar efforts and practices developed in other grizzly bear ecosystems over multiple decades. Direct outreach and briefings to local governments and community organizations are also anticipated. Many different federal, state, Tribal, and local government agencies and organizations in the state of Washington have wildlife education programs that can be partnered with and supported. These strategies would build on the existing foundation of bear safety education.
96	Commenters requested the park provide a more detailed account of the threats bear management may pose to livestock, agriculture, and revenue to farmers and ranchers. One commenter noted that the increased investment in fencing, deterrents, and hazing could negatively impact farmers and ranchers who are already working on thin margins; another commenter stated that the draft EIS is not forthcoming with the costs for mitigating attractants, fencing, and other defense mechanisms against bears. Commenters noted the ESA restrictions under alternative B would impact farmers and ranchers by preventing	Analysis of impacts of grizzly bear restoration and management to agricultural producers, including livestock depredation, is provided in chapter 3 of the EIS, under alternative B in the "Socioeconomics" section. In addition to direct effects of depredation, which are estimated based on impacts from grizzly bears in a similar ecosystem, the EIS has been updated to reflect that grizzly bears could force cattle into less desirable grazing areas or increase stress, leading to poorer nutrition and possibly illness (Anderson, Ternent, and Moody 2002). The NPS and FWS recognize that that developing compensation programs that fairly reimburse livestock producers for losses is an important component of grizzly bear restoration (Sommers et al. 2010), like in other states with grizzly bears. Compensation programs have been effective in other ecosystems and are discussed in response to concern number 40. Many aspects of living and raising crops and livestock among grizzly bears are the same as for other carnivores in Washington, including black bears, mountain lions, and wolves. Grizzly bear mitigation measures may represent a new cost to some

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	productive use of their primary business assets in and around the farm. One commenter noted the draft EIS does not have effective provisions to help landowners and farmers to protect their business assets and crop production. One commenter noted that the draft EIS underestimates the potential livestock kill under the action alternatives. The commenter questioned why the losses to livestock in the draft EIS were lower than the estimated losses from Yellowstone National Park, particularly if the source bears for the project were coming from Yellowstone. In addition to the direct impacts grizzly bears may have on revenue from livestock, commenters noted that the EIS should discuss indirect impacts to livestock revenue, such as impacts to livestock productivity from stress and hypervigilant behavior brought on by predators or a reduction in fertility. One commenter noted that the loss of certain livestock could lead to the loss of specific herd genetics, which may lower livestock revenue. One commenter noted that there should be a distinction in the EIS between grizzlies threatening livestock on public land open range versus contained livestock on private land. Furthermore, commenters noted that the draft EIS does not evaluate the effects of grizzly bear restoration on farmers and ranchers once population goals are reached in the NCE and bears begin dispersing into other zones and areas.	agricultural producers in the NCE, but measures should generally already be in place to reduce attractants and other potential human-wildlife conflicts. Livestock conflicts are not always preventable, and losses can be significant in some instances, but a quick management response can increase social (or public) tolerance for grizzly bears. As discussed in response to concern number 147, under alternative C, the 10(j) rule would provide additional management measures for reducing or avoiding human-bear conflicts. The response to concern number 18 also details that the FWS would employ methods and tools developed in other ecosystems to reduce human-grizzly bear conflict (including depredations) and/or increase the likelihood of finding and documenting depredation events. Under alternative C, the 10(j) rule would also add a provision allowing individuals to take a grizzly bear in the act of attacking livestock on private lands in Management Area C under limited conditions. Grizzly bears preying on cattle increases with higher bear populations, and areas with more human activity deter bears (Wells et al. 2019). Notably, predation peaks during the bears' late July/August appetite surge (hyperphagia). However, due to the expected slow growth of the grizzly bear population in the NCE, impacts from livestock depredation would be limited and manageable by the FWS and partner organizations. As an example, the Blackfoot Challenge in Montana actively engages in carnivore damage prevention initiatives, addressing the challenges faced by locals, including potential livestock losses to large carnivores like grizzly bears. Furthermore, it is the intention of this grizzly bear restoration is to focus on the core habitat area of the NCE identified in the *Grizzly Bear Recovery Plan*, and grizzly presence is expected to be limited outside of this area during the 60 to 100-year timeframe. Also, livestock grazing within those area is low. For example, under alternative C, grazing allotments make up 17% of Management Area A; however, only 8% of the grazing allotments are currently active. Most of these permits are for grazing cattle, and five allotments allow for sheep grazing, all of which are in the southern half of Management Area A close to Wenatchee and Cle Elum. Also, no staging or release areas would overlap active grazing allotments.
97	Commenters noted that the EIS fails to address economic impacts on local businesses,	The EIS addresses potential impacts of grizzly bear restoration on salmon and fishing opportunities. As detailed in the response to concern number 75, grizzly bears are

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	particularly those that rely on tourism and outdoor recreation. Commenters specifically noted that the project would impact the following industries that were not discussed in the EIS: Outfitter guides Hunting - Impacts to hunting businesses and local hunters due to a loss of game prey from grizzly bear stress or predation Fisheries - Impacts to fisheries with the additional predation on salmon from grizzly bears Beekeepers - Impacts to revenue and livelihood of beekeepers with potential damages from grizzly bear predation on hives Winter Recreation Businesses - Impacts to businesses from the reduction in the size and scope of operating zones adjacent to the North Cascades wilderness areas One commenter stated that the EIS does not adequately evaluate the financial impacts that would occur as tourism changes. Another commenter noted that the EIS fails to consider impacts of the proposed actions specifically on Okanogan County businesses, industries, and recreational activities. One commenter noted that the EIS contradicts itself on the topic of economic impacts to tourism, noting in one section that the tourism would be dampened due to grizzly bear restoration while noting in a different section that there would be an influx of tourists to local businesses.	opportunistic foragers and are unlikely to negatively impact salmon on the population scale. The rationale is provided further in response to concern number 102 (with respect to Tribal rights). No impacts on winter recreation businesses are expected from grizzly bear restoration.

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98	One commenter noted that the information in table 10 (page 137) and on page 134 regarding the populations of gateway communities is downplayed and should be given the same consideration as the greater urban areas of Seattle. Additionally, the commenter noted an inconsistency, stating the information draws from the most recent US Census data but the mapping information is from 1993 and 1994 sources. Given population increases and the disparities in the information, the commenter requested the park reevaluate the area free of human activity.	Gateway communities are analyzed in more depth in the EIS than the urban areas of Seattle, including the populations of the Gateway communities included in table 10. The introduction to the "Socioeconomics" section in chapter 3 specifically notes that while the region of influence includes several larger cities, the NCE is located in a predominately rural area away from large urban areas. The impacts analysis further describes that adverse impacts from grizzly bears that leave the NCE are more likely to occur in gateway communities. The NPS and FWS would work with gateway communities on sanitation issues. As described in response to concern number 26, the NPS and FWS expect that existing collaborative efforts would continue, and additional work with partners may include bear-wise model programs in the NCE after similar successful programs in other grizzly bear ecosystems. Such efforts would provide for financial resources, technical support, and education, and may be modeled after the black bear program BearWise or the Bear Smart Community program in Canada. As noted in response to concern number 126, education and outreach efforts would also be targeted toward specific communities and landowners that would be more likely to experience adverse impacts. The NPS and FWS would work with partner agencies and NGOs to identify funding needs and priorities, as well as potential sources. With respect to the population increases surrounding the NCE and commenter's disputes about the extent of roadless habitat, the EIS and the response to concern number 110 provides substantial evidence that there is a sufficient area in the NCE that provides the habitat security needed grizzly bears. As noted in response to concern number 64, grizzly bear populations have been increasing in other ecosystems even though human-caused mortality is still the primary factor affecting grizzly bears at both the individual and ecosystem levels. As in Yellowstone and Glacier National Parks, which are major tourist destinations receiving anywhere from 2 to 5 million annual visitors, the NCE has extensive backcountry areas that receive limited human visitation. In spite of its proximity to densely populated urban areas, the park complex and surrounding national forest experience substantially lower visitation than those parks. Finally, regarding a suggested discrepancy between the area of suitable habitat and population growth in the area, the NPS and FWS reviewed the EIS and found that no clarifications are needed because the information is clearly presented. However, the paragraph referenced was deleted from the EIS, under the heading "Human Activity

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		in the Region of Influence and Influence on Bears" because the information was repetitive of text in the "Grizzly Bears" section. The commenter misunderstood a sentence regarding previously mapping of human activity in the NCE, which occurred in 1993 and 1994, as cited. The population density map draws from the most recent US Census data.
99	One commenter noted that the current socioeconomic impacts section deals almost exclusively with concepts of economic value. However, the commenter requested that the scope of the socioeconomic impacts section be expanded to include other socioeconomic values that are non-economic in nature but have important positive and negative consequences in peoples' lives. The commenter requested the EIS address ideas related to health benefits, ideas about rights and responsibilities to others, cultural meaning, sense of place, prosperity, ways of life, and sustainable development. Similarly, one commenter asked the NPS to consider the potential for psycho-social impacts under alternative A if grizzly bears are not restored to the NCE.	The EIS notes that some impacts are discussed qualitatively rather than quantitatively where data or numerical information are not available. Ethnographic resources, visitor use and recreation, and certain socioeconomic resources are such topics where the impacts of grizzly bear restoration, both positive and negative, are described qualitatively based on existing scientific literature, professional judgment, and experience in other grizzly bear ecosystems in addition to any quantitative analysis. There are also intrinsic values of restoring grizzly bears as a part of nature for which analysis is subjective. Many other cultural and socioeconomic impacts are unquantifiable and based on personal values or judgment, which is beyond the scope of NEPA.
100	One commenter suggested that the EIS does not adequately address the rural economic impacts to the timber industry if closures or restrictions to forested areas occur due to the implementation of the project. One commenter noted that alternative C and the initiation of the 10(j) NEP would create this type of restriction, and the EIS needs to identify and articulate impacts such as the loss of revenue and limited access to forests. One commenter further noted the cost to the timber industry if wildfire	Regardless of which alternative is selected, including the no action alternative, federal agencies would continue to manage the NCE recovery zone, within their authorities, for the conservation of grizzly bear habitat. USFS continued management of the core area under the no net loss agreement would not represent a change from current conditions. As discussed for concern number 27 regarding potential effects on forest management, the socioeconomic analysis in the EIS acknowledges that, under alternative B, the section 7 consultation requirements could negatively affect forestry activities. However, the proposed 10(j) rule under alternative C would reduce the section 7 regulatory burden. Also, wildfire emergency actions always take precedent, and the USFS, with its emergency authority, would respond to wildfires on federal or nonfederal lands the same as it does without grizzly bears in the NCE.

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	management activities cannot take place due to the same restrictions.	
101	Commenters advocated for increased consultation with Tribes and Tribal members in developing the EIS and subsequent grizzly bear management, including defining the role Tribes may have in bear management as well as the potential for co-management. Commenters noted that Indigenous Knowledge has been acknowledged by the White House as a valid form of evidence in decision-making and should be better reflected throughout the EIS, noting the EIS appears to downplay potential safety concerns for Tribal members. Commenters suggested that policy directives from indigenous governments should be included as part of the relevant policy framework as part of government-to-government consultation.	As described in chapters 3 and 4, the NPS and FWS will continue to engage with and consult affected Tribes. Given the unique responsibility and government-to-government relationship that the federal government has with individual Tribal nations, Tribal consultation is always an ongoing process, and will continue for the duration of grizzly bear recovery efforts in the NCE, should an action alternative be selected.
102	Commenters disagreed with the draft EIS analysis that the proposed project would benefit Tribal communities in the region. Commenters asserted that the restoration of grizzly bears in the North Cascades would not benefit Tribal communities because of grizzly bears' negative impacts to hunting and gathering practices and requested completion of additional analysis.	The NPS and FWS are not able to speak for the interests of Tribal governments but have consulted and will continue to consult with the potentially affected Tribes. Throughout the development of this EIS, the NPS and FWS sought the input of Tribal governments near the proposed release sites, as well as Tribal governments near the potential source populations in the NCDE and GYE. The NPS and FWS extended an invitation for government-to-government consultation to all federally recognized Tribes in the NEP area and formally met with Tribes that requested government-to-government consultation. The NPS and FWS remain available to meet with other Tribes that request government-to-government or informal consultation and would fully consider information received through the consultation process we finalize the EIS. See the response to concern number 88 for a discussion of human safety in the NCE under the action alternatives. It should be noted that many aspects of living and recreating among grizzly bears are the same as for black bears. While precautions must be taken, the NPS's and FWS's experience with grizzly bears in other

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		ecosystems demonstrates that human-bear conflict can be minimized with a variety of tools. Under alternative C, the 10(j) rule includes provisions to allow individuals to take bears in self-defense or to deter bears out of close proximity to people or property. Tribal members engaged in gathering activities would be able to use these tools to help deter grizzly bears or to defend themselves as needed. The FWS and NPS would work with the Tribe to provide additional information for Tribal members about best practices for grizzly bear safety. With respect to grizzly bears negatively impacting Tribes by threatening salmon populations, grizzly bears are opportunistic foragers and could occasionally forage on salmon or their carcasses (and some may possibly learn to forage seasonally on salmon runs). However, grizzly bears have a wide terrestrial diet and are not such efficient foragers as to be able to extirpate a salmon run. For example, existing black bear populations in the NCE that have similar foraging behaviors (including sometimes foraging on salmon) have not been identified as a substantial factor impacting the salmon populations within the NCE to date. For both grizzly and black bear, salmon consumption is generally higher in coastal habitat than interior habitat.
103	Commenters argued that the restoration of grizzly bears would further deplete populations of wildlife species such as deer and elk that are guaranteed to Tribes through the Point Elliott Treaty of 1855. Commenters added that, if restored, grizzly bears would fall under the treaty agreement and therefore be a huntable species by Tribes.	The agencies recognize that certain Tribes enjoy treaty and reserved rights within the NCE. Treaty Tribes would continue to retain those rights following implementation of the grizzly bear restoration plan. The agencies, however, maintain the position that treaty hunting and fishing rights are subject to the ESA, which prohibits the take of listed species such as grizzly bears. Regarding deer and elk species, the "Other Fish and Wildlife" section of chapter 3 in the EIS describes the ungulate populations in the NCE that grizzly bears could affect. The small number of grizzly bears in the NEP in the initial decades under both action alternatives is not expected to significantly impact big game populations. Grizzly bears are omnivores that primarily feed on vegetation; however, they do have the potential to affect prey species; local concentrations of ungulates, where abundant, can be an important source of protein. While it is possible that grizzly bear predation may limit some small ungulate populations, significant impacts are unlikely due to the wide variety of foods available to bears, even after the restoration population of 200 grizzly bears. For instance, healthy populations of big game exist in the NCDE and GYE with much higher bear densities than those anticipated in the NCE even when the target population of 200 bears is achieved. Further, expected predation rates in the NCE would be lower because the GYE bears consume more meat compared to

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		the bears that would be targeted for release. While the FWS and NPS acknowledge that grizzly bear restoration could have local impacts on individuals or groups of ungulates under certain circumstances, native ungulates have evolved under pressures from numerous native carnivores. Grizzly bears are a natural component of the ecosystem and are unlikely to have any adverse impacts at the population level for ungulate populations or other wildlife in the NCE.
104	One commenter noted that the Colville Reservation is missing from the list of traditional territories of recognized local Tribes on page 156 of the draft EIS. Another commenter noted that the grizzly bear was honored, not worshipped, by the Okanagan Indian People, and suggested that the terminology should change.	The NPS and FWS reviewed the EIS content and were unable to find a reference to Tribes "worshipping" the grizzly bear. The Confederated Tribes of the Colville Reservation is listed in chapter 4 of the EIS, including in multiple locations within the "Tribal Consultation" section.
105	Commenters expressed concern that the NCE is an altered ecosystem relative to historical conditions and lacks the diverse food sources found in other grizzly bear ecosystems (especially during hyperphagy), such as abundant ungulates, fish, whitebark pine nuts, and army cutworm moths, and experiences short-term fluctuations in food sources, which could be setting up introduced bears for failure due to the lack of suitable habitat. Commenters noted concerns about the decline of the federally listed whitebark pine and suggested that bears would move in search of better food sources to which they are accustomed, predicting increased conflicts with humans; therefore, they recommend an independent, unbiased study of the food resources in the NCE based on up-to-date vegetation surveys and coordination with WDFW on prey (ungulate) availability and distribution.	The agencies have reviewed the status of grizzly bear habitat quality in the NCE, as recommended, as well as state and federal actions inhibiting sustained grizzly bear populations. The EIS contains an assessment of the affected environment, including habitat suitability and food and vegetation types, including whitebark pine. The references cited in the EIS demonstrate the diversity of potential grizzly bear food resources in the NCE, and a complete list of potential food items is provided in appendix A of Ransom, Krosby, and Lyons (2018). Based on numerous studies and agency biologists' understanding of grizzly bear habitat ecology, the NPS and FWS conclude that sufficient vegetative grizzly bear foods are readily available in the US portion of the NCE, and the occurrence of wildlife prey species can sustain a grizzly bear population. Research also suggests that the majority of grizzly bear food resources in the NCE are expected to increase in abundance over the coming decades (Ransom et al. 2023). For example, some important bear food sources, like *Vaccinium* spp., are projected to significantly increase in abundance as meadows become shrubbier and fire opens forests. Regarding whitebark pine, grizzly bear foraging on its seeds appears to occur less often relative to other available food sources, although detecting whitebark pine in grizzly bear scat is challenging (Kendall 1983). Furthermore, it is anticipated that under various future climate scenarios, grizzly bear habitat quality (i.e., food resources) in the NCE is projected to improve over the next 100 years (see response

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		to concern number 121). The FWS undertook an intra-service consultation and informal consultation with NMFS under section 7(a)(2) and determined that the restoration of grizzly bears is not likely to jeopardize grizzly bears or any other ESA-listed species, including whitebark pine and ESA-listed salmon, nor result in the destruction or modification of any designated critical habitat for ESA-listed species. Consultation is ongoing and will be documented in the record of decision.
106	Commenters stated that importing grizzly bears from other areas may lead to inevitable interactions with humans, as trapped bears are more willing to go after human food to enter a trap, and translocated bears may not know where foods are located and how to avoid human contact.	The assumption that captured bears are more prone to conflict with humans is not accurate based on FWS's experience with Cabinet Mountains augmentation in Montana and trapping and handling grizzly bears in other ecosystems. The FWS has not seen any attraction to human foods with captured and released bears. Bears that remained within the vicinity of a release area have not been the source of any reported conflicts and have used natural foods in the area. Bear traps are baited with normal bear food sources and not human food. The protocol would seek to specifically target bears without a history of conflict, which is why foot snares are included as an option for trapping, as foot snares offer more opportunities to trap in remote locations to locate bears without a history of conflicts.
107	Commenters noted the lack of a comprehensive assessment of genetic differentiation between coastal and Rocky Mountain bears, raising concerns about potential negative effects on the population.	The proposed action is not proposing to restore grizzly bears to coastal habitats or capture bears from coastal ecosystems. Due to habitat fragmentation in the developed river valley, grizzly bears living in the NCE are not expected to have genetic exchange with any coastal bear populations.
108	Commenters expressed concern about transporting bears with potential endemic diseases and raised concerns about salmon poisoning disease (*Nanophyetus salmincola*) impacting grizzly bears in the NCE, so recommended careful bear selection and preventive measures in the restoration plan.	The NPS and FWS understand and acknowledge the concerns regarding the potential transmission of endemic diseases, specifically salmon poisoning disease (*Nanophyetus salmincola*), to grizzly bears in the NCE during the restoration process. Ensuring the health and well-being of translocated grizzly bears is a top priority, and wildlife veterinarians and staff would conduct thorough health assessments during capture events. Additionally, the proposed monitoring would serve to detect any potential health issues that may arise post-restoration. Ongoing studies, including prevalence in the recovery area, are looking into whether salmon poisoning disease could be an impediment to grizzly bear recovery in the North Cascades. Research has indicated *Nanophyetus salmincola* as prevalent in out-migrating steelhead in the central and south Salish Sea but not in tributaries flowing out of the NCE (Chen et al. 2018). The potential presence of salmon poisoning

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		disease in the NCE appears to be highest in Columbia River tributaries, as salmon fed to captive grizzly bears in the Washington State University trials were sourced from the Okanogan River, which runs along the northeast side of the NCE (Robbins et al. 2018). Initial investigation into the presence of *N. salmincola* in two Columbia River tributaries (Wenatchee and Methow Rivers) within the NCE were inconclusive; while *Nanophyetus salmincola* was present, the intestinal fluke attributed to sick bears (*Stellantchasmus falcatus*) was not found. However, the sample size and temporal distribution of sampling were inadequate to rule out the presence of *Stellantchasmus falcatus*. The FWS has previously discussed salmon poisoning disease with Dr. Charles Robbins (pers. comm. 2023) regarding its implications in the NCE. This correspondence revealed that grizzly bears are resistant to the native form of the disease but are susceptible to a form that was introduced into Washington from Asia, probably in the late 1960s or early 1970s. However, even the nonnative form is not fatal to grizzly bears. Robbins et al. did a follow-up study and found that black bears in western Washington had antibodies to the nonnative form, indicating that they had been exposed to the disease and recovered. Salmon poisoning disease is not expected to prevent the successful restoration of grizzly bears into the NCE.
109	Commenters expressed concern that one of the proposed eastern release sites has been severely affected by wildfires over the two decades, highlighting the extensive devastation, loss of topsoil, and limited vegetation growth, and they questioned the suitability of the area for supporting a viable bear population.	See response to concern number 123 regarding the impact of wildfire on grizzly bear habitat in the NCE. Based on research presented in the EIS, it is expected that wildfire would improve grizzly bear habitat in the NCE despite any short-term, adverse impacts. Additionally, there would be multiple release sites, which would enable the NPS and FWS to identify the best release site at the time of release (and account for any sites that have recently experienced wildfires).
110	Commenters expressed concern that the NCE has distinct challenges compared to other grizzly bear ecosystems, such as rugged terrain, shorter growing seasons, limited deer and elk populations. Commenters requested a reevaluation of the restoration plan, a consideration of the historical context of bear extinction, a more comprehensive analysis of habitat suitability and climate change effects,	In evaluating the establishment and survival of grizzly bears in the NCE in the foreseeable future, the NPS and FWS consider the extent to which causes of extirpation in the NCE have been addressed, the habitat suitability and prey availability within the NCE, and existing scientific and technical experience with reintroduction efforts. Five studies conclude that the US portion of the NCE has the habitat resources essential for the maintenance of a grizzly bear population (Agee et al. 1989; Almack et al. 1993; Gaines et al. 1994; Lyons et al. 2018; Ransom et al. 2023). The IGBC

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	and recognition of the ongoing adverse conditions that led to the grizzly bears extirpation in the NCE.	NCE Subcommittee had two separate research teams (Almack et al. 1993; Gaines et al. 1994) evaluate an area encompassing more than 10,000 square miles of the NCE for grizzly bear habitat types and foods. The survey area included all the park complex and most of Mount Baker Snoqualmie and Okanogan-Wenatchee National Forests. Each team evaluated the survey area for viable grizzly bear habitat using common criteria, including the presence, abundance, and diversity of grizzly bear foods; habitats of seasonal importance and their distribution; and delineation of human activities (i.e., roads, habitation, timber harvest, recreation). In addition to these criteria, Almack et al. (1993) evaluated the study area for grizzly bear habitat according to the seven characteristics identified by Craighead et al. (1982): space, isolation, denning, safety, sanitation, vegetation types, and food. The results of these surveys were presented to a technical review team that ultimately determined, based on the available data, that the US portion of the NCE could support a viable grizzly bear population of 200 to 400 individuals (Servheen et al. 1991). More recent work using a suite of spatially explicit, individual-based population models that integrate information on habitat selection, human activities, and population dynamics estimated a mean carrying capacity for grizzly bears in the US portion of the NCE between 250 and 300 grizzly bears (Lyons et al. 2018, entire). Using the modeling framework developed in Lyons et al. (2018), Ransom et al. (2023) evaluated grizzly bear habitat quality and carrying capacity across a range of future climate scenarios through 2099. The net amount of high-quality habitat was shown to increase across all modeled future scenarios as compared to current conditions. Assuming a home range size of 108 square miles (280 square kilometers), carrying capacity increased from a baseline of 139 female bears under current conditions to 241–289 female bears (Ransom et al. 2023). Almack et al. (1993) and Gaines et al. (1994) used Landsat multispectral scanner imagery and field observations to produce vegetation cover maps of the study area according to vegetation structure (e.g., forest, shrub, and barren rock) and community composition. The teams also identified 124 plant species known to be grizzly bear foods through an exhaustive review of sighting reports, scat analysis, and studies conducted on grizzly bears south of Alaska. Analysis of the vegetation maps indicated that 100 of the 124 identified plant species exist in the US portion of the NCE, and every vegetation cover type contained some plants that were on the list. The teams also mapped ranges of wildlife prey species known to occur in the NCE.

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		Salmonid species were more abundant in streams on the western slope of the NCE, and ungulates were dispersed relatively evenly throughout. These results led both teams to conclude that sufficient vegetative grizzly bear foods are readily available in the US portion of the NCE, and the occurrence of wildlife prey species can sustain a grizzly bear population (Almack et al. 1993; Gaines et al. 1994).
111	Commenters emphasized the difference in diet between Rocky Mountain bears and North Cascades bears, expressing concerns about relocating bears with different dietary requirements. Commenters recommended emphasizing the difference between male and female dietary habits, updating information on food sources, and incorporating research from the GYE about grizzly bear diets with and without the availability of Yellowstone Lake cutthroat trout.	As described in response to concern number 86, the EIS includes an analysis of habitat suitability and grizzly bear foods and vegetation types in the North Cascades. The EIS also includes information about differences between male and female diets. Further detail regarding past studies on habitat in the NCE is provided in response to concern number 110. As discussed in response to concern number 121, studies suggest that various future climate scenarios and increased frequency of wildfire would improve grizzly bear habitat quality (i.e., food resources) over the long term. For further discussion about the potential effects of wildfire on grizzly bear food sources, see the response to concern number 123.
112	Commenters suggested that the EIS fails to recognize the altered state of the NCE, which lacks the necessary balance of plants and animals to support grizzly bears and has been impacted by human recreation, development, logging, climate change, wildfire, and beetle kill. One commenter questioned the relevance of the term "native habitat" and whether it can be defined the same way as in the past. Additionally, concerns were raised about the potential negative outcomes for both humans and bears in the face of inadequate food sources and habitat on the west side of the Cascade Mountains, and the unsuitability of specific regions like the north section of the park and the Pasayten Wilderness for supporting a grizzly bear population. Due to the habitat concerns, one commenter suggested	The EIS details grizzly bear diets in chapter 3 under the heading "Foods and Vegetation Types" in the affected environment for "Grizzly Bears." The text includes reference to Ransom, Krosby, and Lyons (2018), which documented thousands of plants and animals that would serve as potential bear foods in the NCE. Grizzly bears are highly adaptable omnivores and are considered both habitat and food generalists and as such, they are expected to find sufficient habitat, including food sources even though available resources in the NCE may shift through time. Various studies of grizzly bear habitat in the NCE have considered carrying capacity (see response to concern number 86). Also, concern number 110 provides more information from these studies with respect to the likelihood for successful establishment and survival of grizzly bears. As discussed in response to concern number 121, studies suggest that various future climate scenarios and increased frequency of wildfire would improve grizzly bear habitat quality (i.e., food resources) over the long term. For further discussion about the potential effects of wildfire on grizzly bear food sources, see the response to concern number 123.

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	delaying the restoration plan until completion of a model under development by the US Geological Survey to predict grizzly bear habitat used in the NCE, while another commenter recommended evaluating grizzly bear habitat suitability through the development of an energy-based step selection analysis to model the energetic drivers of grizzly bear movement and habitat use.	
113	Commenters questioned the difference in the stated carrying capacity of grizzly bears in the NCE (280 bears) and the GYE (~1,000 bears), requesting clarification on the reasons behind the discrepancy. Commenters also requested a more comprehensive population modeling approach, recommending a population viability analysis to determine the minimum viable population size and critical variables for success.	Various studies of grizzly bear habitat in the NCE have considered carrying capacity (See response to concern number 86). Also, concern number 110 provides more information from these studies with respect to the likelihood for successful establishment and survival of grizzly bears. Regarding the need for further population modeling, the NPS and FWS have used information from the CYE grizzly bear augmentation and subsequent monitoring of other ecosystems to inform the projected growth and survival rates, as shown in figure 6 of the EIS. The FWS would take into account the need for genetic diversity as part of the restoration effort starting with its selection of source populations that have high heterozygosity. The restoration plan would include monitoring of genetic diversity and adaptive management through additional translocations if necessary to enhance heterozygosity and long-term genetic viability.
114	Commenters expressed concern about the experimental nature of the restoration, highlighting the lack of precedent for introducing grizzly bears into areas without existing populations and requested a review of previous grizzly restoration efforts to avoid repeating mistakes and reduce the shock to bears during transportation and introduction to unfamiliar locations. Another commenter noted that the mortality of translocated grizzly bears is underestimated.	Recovery efforts for grizzly bear populations in the five other recovery zones in the lower-48 states are discussed in chapter 3 of the EIS. The successes and failures of those efforts, while not explicitly described in the EIS, have been incorporated into the planning process through the involvement of many of the same scientists and managers involved with these efforts. The augmentation program in the CYE, which began in 1990, provides the best available science on transplanting bears with no history of conflicts. The mortality rates and proportions of bears that left or stayed within the ecosystem have been used to estimate the numbers of bears and timeline required to obtain the starting population of 25 bears. In addition, all available scientific information that pertains to grizzly bear restoration in the lower-48 states has been considered through this planning effort, including issues related to grizzly bear habitat use, managing human-grizzly bear conflict, population demography, and

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		grizzly bear genetics.
115	Commenters expressed concern about potential grizzly bear suffering due to stress from translocation, collaring of released bears, poaching, the lack of suitable habitat, and a potentially high percentage of unsuccessful translocations due to homing behavior. Commenters recommended ensuring the well-being of grizzly bears during the restoration process to minimize stress and mortality.	Animal welfare is a top priority in any translocation process. All protocols guiding grizzly bear translocation efforts in the NCE would be reviewed by the NPS's Institutional Animal Care and Use Committee. Safety and health of bears during capture is a paramount concern. Foot snares, culvert traps, and helicopter darting have been used safely in grizzly bear capture activities in the other recovery areas for both research and management captures. Foot snares and culvert traps are often used in conjunction with telemetry devices to alert the agency when a trap has been activated to minimize response times. To date, 22 bears have been safely trapped by foot snares and culvert traps, transported, and released from culvert traps from the Cabinet Mountains augmentation efforts in northwest Montana. Capture techniques for bears in the donor populations would generally follow a protocol document developed by Jonkel (1993) in cooperation with the Grizzly Bear Recovery Coordinator Office. Subsequent captures of North Cascades grizzly bears for future research or monitoring is expected to follow the capture and handling techniques described in the manual. Translocated bears would be released with GPS collars to monitor habitat use and spatial distribution. The International Association for Bear Research and Management notes that collaring can cause stress to bears during capture and handling, physical discomfort or harm from ill-fitting collars, and the possibility that collars do not fall off, thereby staying on longer than desired (IBA 2019). However, collaring translocated bears helps to ensure their safety and well-being, and it would be considered unethical to translocate animals without monitoring them. Collaring of grizzly bears would be performed in such a manner as to minimize potential for harm to each animal. The "Grizzly Bears" section in chapter 3 of the EIS discusses homing behavior and the methods that would be employed to maximize retention probability, including moving bears more than 62 miles from their capture location, selecting younger bears, and timing translocations to encourage denning in the NCE area. The NPS and FWS recognize that human-caused mortality, including illegal killings or poaching, is still currently the primary factor affecting grizzly bears at both the individual and ecosystem levels. Illegal take, including poaching, would be a potential source of human-caused grizzly bear mortalities and would be referred to

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		appropriate authorities for prosecution. Concerns about a lack of suitable habitat are addressed in the responses to concern numbers 86 and 105.
116	Commenters questioned the adequacy of the study in estimating the probability of released bears migrating outside the park and conflicting with human populations.	Some developed areas outside the NCE recovery zone, such as industrial timber lands, agricultural areas, and towns and cities, contain habitat resources for grizzly bears. Although these areas may be capable of supporting grizzly bears, human influences may make those areas not conducive or compatible with persistent grizzly bear occupation. Bears that move into suitable habitat would be left there if they did not pose a risk of coming into conflict with humans. As the population grows over time, grizzly bear dispersal could increase and as noted in response to concern number 20, some grizzly bears would likely leave the NCE. For further information about conflict management, please see the response to concern number 4. The zoned management approach under alternative C is intended to allow additional management options for grizzly bears that may move into these areas. If a grizzly bear needs to be relocated within the NEP, under alternative C, relocation sites would be identified in remote areas away from homes, developed areas, and concentrated human use. Relocated grizzly bears would be able to move freely, and the location of collared bears will be monitored via radio collars. Grizzly bears that come into conflict may be relocated to remote locations as warranted based on the type of conflict involved.
117	Commenters disputed historical claims of significant grizzly bear presence in Whatcom County, questioned the accuracy of historical grizzly bear population estimates in the NCE, challenged the stated causes of their extirpation, and raised doubts about the reliability of historical harvest records.	Please see response to comment 143.
118	Commenters questioned the taking of bears from threatened sub-populations in the NCE, GYE, and British Columbia, emphasizing the need for natural dispersal to areas like Selway-Bitterroot Wilderness and Nez Perce-Clearwater National Forest. One commenter	Should an action alternative be selected, the NPS and FWS would consider bears from a number of source populations, including British Columbia, NCDE, and GYE. The NPS and FWS expect to obtain grizzly bears for restoration based on source populations that have a positive growth rate, could withstand the loss of bears to support the NCE, and have similar food economies to the NCE. As described in more detail in chapter 3 of the EIS, sourcing bears from the NCDE and GYE would not

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	noted that the draft EIS lacks current information on the GYE population size, urging the inclusion of updated data following the integrated population model by the Interagency Grizzly Bear Study Team in 2021.	negatively affect recovery of those populations or impede connectivity. Not all bears would come from one source population, and implementation of the restoration is not expected to result in meaningful impacts to source populations. The annual report of the Interagency Grizzly Bear Study Team was included in the draft EIS in numerous locations, including in the discussion of the GYE in the Grizzly Bears section of chapter 3. Note that the in-text citation for the report is Bjornlie and Haroldson 2021.
119	Commenters stated that grizzly bears are already present in the NCE, with recent captures and observations in neighboring areas, suggesting potential natural recolonization, and they questioned the adequacy of the habitat in the NCE for sustaining a larger grizzly bear population.	The "Background" section in chapter 1 of the EIS discusses the history of grizzly bears in the NCE and describes the availability of sufficient habitat to recover and maintain a viable population (e.g., Rine et al. 2020). The FWS has determined there is no viable grizzly bear population currently present in the NCE (88 FR 41560 at 41579, June 27, 2023). As described in concern statement 63, the NEP is approximately 100 miles west of the Selkirk Ecosystem, which contains approximately 83 individuals, and the NEP is 75 miles from any verified grizzly bear observations to the west of the Selkirk Ecosystem (Proctor et al. 2012). The area between the two populations also contains significant portions of human-altered landscape (e.g., major roads, agricultural lands, rural/urban development) or major natural landscape features (e.g., Columbia River) that reinforce continued geographic separation.
120	Commenters felt the draft EIS fails to analyze the additional impacts on grizzlies that could occur under alternative C with the 10(j) versus 4(d) protections under alternative B. Commenters felt that the restoration would not experience the same success under alternative C as alternative B and that the EIS is deficient in its analysis of potential impacts on grizzly bears.	It is possible that more grizzly bears may be killed in the NCE under alternative C with the 10(j) rule than with 4(d) protections under alternative B given the greater restrictions on lethal removal for grizzly bears under the 4(d) rule. However, the FWS carefully tailored the 10(j) rule to support the restoration of the healthy population of grizzly bears in the NCE focused on the NCE recovery zone where protections similar to the 4(d) rule would apply. Alternative C would intentionally provide more flexible protections (but not no protections) in the other management areas to address public concerns and help support social tolerance for the restoration of grizzly bear to the NCE. The FWS has determined that the 10(j) rule, despite allowances for take, would provide for the conservation of the grizzly bear. The "Grizzly Bears" section in chapter 3 of the EIS provides a detailed analysis comparing the impacts on grizzly bears under alternatives B and C.
121	Commenters stated that the EIS does not adequately address the impacts related to	The EIS analyzes the potential impact from climate change across all impact topics under "Trends and Planned Actions" as part of chapter 3. Additionally, greenhouse

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	climate change. One commenter noted that the draft EIS mentions the impacts of climate change on grizzly bear recovery, but should also include the benefits that the restoration of grizzly bears would bring to the NCE with respect to climate change. One commenter requested quantification of the greenhouse gas emissions from aviation gas or jet fuel that would be burned throughout the life of the project. Another commenter suggested updating the proposed target population from 200 bears to 480–580 bears to better reflect a carrying capacity under the expected changes to climate.	gas emissions would not differ between the alternatives and are not a decision point between alternatives. Previous research on grizzly bears in Canada suggests that some of these forecasted climate change patterns may improve overall food sources for grizzly bears in the Cascades (Nielsen et al. 2013). Grizzly bears are highly adaptable omnivores and are considered both habitat and food generalists. As such, they are expected to thrive even though habitat, diet, and distribution may shift through time. How grizzly bears interact with other species under climate change scenarios is unknown. Climate change impacts on several individual species, including black bears, in the ecosystem have been evaluated and may provide insights for species-specific questions (see Krosby et al. 2016). Climate change will affect individual species and how those species interact. In the NCE, it is expected that grizzly bear habitat would be affected by predicted increasing minimum temperatures, vegetation shifts, decreasing snowpack, decreasing summer precipitation, and increasing spring precipitation, making some food sources more abundant and others less abundant (Ransom, Krosby, and Lyons 2018). Previous research on grizzly bears in Canada suggests that some of these forecasted climate change patterns may improve overall food sources for grizzly bears in the Cascades (Nielsen et al. 2013). Modeling of grizzly bear habitat in the North Cascades under various projected climate change scenarios shows increased carrying capacity and increased potential grizzly bear density estimates under all scenarios (Ransom et al. 2023; FWS 2022). The complex relationship between changes in climate, natural processes, and natural and anthropogenic features would ultimately determine the future quality of grizzly bear habitat across the ecosystem (Ransom, Krosby, and Lyons 2018).
122	Commenters expressed concern that climate change would cause longer periods of high temperatures in the summer, greater precipitation in autumn, and freezing temperatures in spring and fall at higher than normal elevations, all of which could affect grizzly bear denning and hibernation. Commenters noted that shorter hibernation periods and affected food resources (e.g., berry yields, salmon runs) may result in grizzlies	Potential impacts from climate change are addressed in the response to concern number 121. The NPS and FWS would monitor the grizzly bear population, and if they observe changes to bear mortality rates or other characteristics potentially related to climate change, may adjust management or monitoring accordingly to ensure conservation of the population. The metrics suggested in the comment are monitored by the FWS in the CYE and Selkirk Ecosystem and would be monitored in the NCE as well. The metrics could include the availability of food sources susceptible to possible adverse effects from climate change, such as whitebark pine seed production; body fat composition; hibernation den entry and exit patterns; length and elevation of hibernation; and climate change induced grizzly bear habitat

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	searching for food in surrounding communities and lead to more human-grizzly encounters.	changes.
123	Commenters suggested that the draft EIS fails to address how the Okanogan County wildland fire disasters have and will affect national forest and wilderness area conditions. Commenters indicated that the impacts of wildland fires on forest acreage, air quality, timber harvesting, and recreation should be further analyzed for long- and short-term impacts in the EIS.	Fire is a natural part of all grizzly bear ecosystems, but fire frequency, severity, and burned area may increase with late summer droughts predicted under climate change scenarios (Nitschke and Innes 2008; McWethy et al. 2010; Halofsky et al. 2020; Whitlock et al. 2017). As detailed in "Chapter 3, Grizzly Bear Trends and Planned Actions," of the EIS, in the North Cascades, wildfire is projected to burn nearly four times more area by the 2080s compared to the historical period of 1980 to 2006 (Halofsky et al. 2020). High-intensity fires may reduce grizzly bear habitat quality immediately afterward by decreasing hiding cover, changing movement patterns, and delaying regrowth of vegetation. Predators with large territories, like grizzly bears, have more flexibility to exploit resources in burned and unburned landscapes (as cited in Nimmo et al. 2019). Moreover, in conifer-dominated forest ecosystems, wildfires transition forest to earlier succession stages, which can increase prey densities due to increases in the availability of vegetative food resources (Snobl et al. 2022; Lyons et al. 2018). Finally, climate change could also cause a migration of grizzly bear food sources to higher elevations, creating higher-quality habitat farther from low elevations and therefore reducing potential human-grizzly bear encounters (Ransom, Krosby, and Lyons 2018). Depending on their size and severity, fires may have only short-term, adverse impacts on grizzly bears while providing more long-term benefits even though cover is lost, bear movement is changed, and vegetation growth is delayed. For example, fire plays an important role in maintaining an open forest canopy, shrub fields, and meadows that provide for grizzly bear food resources, such as increased production of forbs, root crops, and berries (Hamer and Herrero 1987; Blanchard and Knight 1996; Apps et al. 2004; Pengelly and Hamer 2006). Because grizzly bears have shown resiliency to changes in vegetation resulting from fires, the NPS and FWS do not expect altered fire regimes predicted under most climate change scenarios to have significant negative impacts on grizzly bear survival or reproduction, despite the potential short-term effects on vegetation important to grizzly bears. Climate models predict that the NCE will experience substantial vegetation changes from longer growing seasons, drier summer months and wetter winter and spring months, decreased snowpack, and an increased number of disturbance events that are expected to improve food resources for grizzly bears and thus increase habitat quality

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		(Ransom, Krosby, and Lyons 2018). A list of these foods in the NCE is provided in appendix A of Ransom, Krosby, and Lyons (2018), which includes 2,668 plant and fungi species and 448 animal and insect species that have either been documented as grizzly bear diet components in other ecosystems or are possible food resources based on biological similarities to those confirmed foods. The impacts of wildland fires on forest acreage, air quality, timber harvesting, and recreation is not within the scope of the NEPA analysis.
124	One commenter asked if the lead agencies analyzed or addressed control measures for invasive species throughout the grizzly bear zone in Okanogan County as a result of increased visitor use related to grizzly bear restoration. The commenter also asked if a Categorical Exclusion has been prepared for new invasive species treatments within Okanogan County to prevent new introduced invasive species from becoming large infestations. The commenter also requested a specific explanation on how the lead agencies will address Executive Orders 13751 and 13112.	As discussed in response to concern number 77, the NPS manages invasive species in accordance with its Invasive, Nonnative Plant Management Program in the park complex. An increase in invasive species as a direct result of grizzly bear restoration is not anticipated as part of any increase in visitor use associated with this action. Invasive species management on federal lands would continue to occur regardless of the proposed project and is outside the scope of this action.
125	One commenter requested the EIS analyze the potential impacts on forest restoration activities in the NCE. Commenters noted that the presence of grizzly bears could complicate future forest restoration projects through increased analysis and litigation regarding protecting grizzly bear populations. Commenters suggested that the presence of grizzly bears may result in a slower project evaluation and approval timeline for forest restoration projects and indicated that this potential impact be included in the analysis.	Under both action alternatives, the USFS would continue to operate under the no net loss agreement for lands within Management Area A. Alternative C would reduce the regulatory burden for consultation under section 7 of the ESA, as described in the response to comment 100. The NPS, FWS, and USFS are actively revisiting and updating the no net loss agreement to include current conditions, which will also include wildfire risk reduction. USFS lands in Management Area B are not subject to management under no net loss.

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126	One commenter noted a lack of analysis for impacts to land inholdings and valid existing rights.	No effects on existing grazing leases are anticipated. The response to concern number 96 addresses concerns about impacts to agricultural producers and livestock producers in particular. Active grazing allotments are a small portion (<10%) of the core habitat area where the restoration effort would be focused. Also, no staging or release areas would overlap active grazing allotment. The impact analysis was conducted at an ecosystem level and does not analyze impacts to individual privately owned parcels. However, the discussion of impacts on private land in the EIS includes the inholdings referenced by the commenter. Education and outreach efforts would also be targeted toward specific communities and landowners that would be more likely to experience adverse impacts.
127	Commenters disagreed with the dismissal of environmental justice from the EIS impact analysis. Commenters requested additional data to justify this decision and indicated that the strong representation of minority and/or low-income populations in agriculture and grazing industries would result in negative, disproportionate impacts on these communities. Commenters argued that analysis of minority and/or low-income populations in Okanogan, Chelan, and Whatcom Counties was insufficient. Commenters noted a Justice40 analysis was not completed.	As discussed in chapter 1 of the EIS, the proposed action does not meet the criteria of a covered program under the Justice40 Initiative. While census data confirm that several communities may qualify as minority and/or low-income populations, those communities would not be disproportionally affected by restoration activities. All communities in the NCE would experience similar impacts. Bear-related public and employee safety for residents, employees, and visitors is analyzed fully in chapter 3, which includes the potential adverse impacts on communities.
128	Commenters requested consideration and analysis of the following cumulative effects in the EIS: Cumulative effects on other wildlife populations from the expansion of the grizzly bear population straining other wildlife, specifically prey species such as ungulate wildlife populations (i.e., elk, deer, bighorn sheep, mountain goats). Cumulative effects on recreational	The "Other Wildlife and Fish" section in chapter 3 of the EIS discusses the cumulative effects of the alternatives on ungulate species. The "Visitor Use and Recreational Experience" section in chapter 3 of the EIS indicates that the WDFW issues hunting permits for several areas within the NCE, and permitholders are allowed to hunt animals that could be affected by grizzly bears: deer, elk, bighorn sheep, coyote, raccoon, rabbit and hare, and wild turkey (WDFW 2022). However, the "Socioeconomics" section in chapter 3 explains that "in states like Wyoming and Montana, populations of wildlife and fish flourish where grizzly bears are found and provide hunters and anglers with excellent harvest opportunities. Recent participation trends for angler and hunter participation in Wyoming have

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	opportunities to hunt through the WDFW commission. Cumulative effects regarding Canadian grizzly bear translocation efforts and how they may impact this plan.	remained relatively stable among both resident and nonresident population segments, showing sustained participation in both hunting and angling even with the existence of grizzly bears in the area." Because the action alternatives would not affect hunting opportunities, there would be no cumulative impacts on hunting as a result of either action alternative. In the "Grizzly Bears" section of chapter 3, under "Trends and Planned Actions," the EIS discusses efforts under consideration in British Columbia to assess the feasibility of reintroducing grizzly bears in the Canadian portion of the NCE. The EIS notes that translocation efforts in British Columbia have not started, and it is unclear how such an effort could impact the US portion of the NCE. If reintroduction efforts occur in British Columbia, it is likely that some grizzly bears reintroduced into the Canadian portion of the ecosystem may move into the US portion of the NCE. Coordination with Canada and First nations would be ongoing.
129	Commenters indicated places in the EIS where they felt the information was unclear. The commenters requested clarification regarding the potential release areas, specifically asking if bears would be released on NPS land only or on non-NPS land as well. Commenters also felt using the term North Cascades Ecosystem misleads the general public to think the project is focused on the North Cascades Mountain Pass area instead of the larger NCE.	The NCE is clearly defined in chapter 1 of the EIS under "Description of the North Cascades Ecosystem" and is displayed in multiple figures, including figure 1 on of the EIS. Similarly, the potential release areas are described in chapter 2 of the EIS under "Capture, Release, and Monitoring of Grizzly Bears" and are displayed graphically as part of figure 3. Chapter 2 of the EIS has been revised to clarify that the NPS and FWS would prioritize use of release sites on NPS lands. USFS lands are also included as potential release sites if unforeseen circumstances prevent access to release sites on NPS lands (e.g., poor weather or aircraft issues), which could jeopardize human and bear safety.
130	Commenters indicated there was insufficient rationale for initiating a new scoping process under NEPA and noted that the EIS lacked a full range of reasonable alternatives. Commenters stated that the EIS process was previously terminated by Secretary of the Interior Bernhardt, and the plan should include a justification for initiating a new process under NEPA, including an economic justification.	In 2022, the Department of the Interior made the decision to reinitiate the NCE grizzly bear restoration project as a result of departmental priorities. Economic justifications for initiating a new NEPA process are not required. The range of alternatives included in the EIS is adequate under NEPA.
131	Commenters cited a variety of regulations or	The agencies are following all applicable federal laws, regulations, and policies,

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	plans that may apply to or impact the EIS. Commenters noted a failure to comply with 40 CFR 1502.2(f), the Regulatory Flexibility Act, the Unfunded Mandates Reform Act, the Small Business Regulatory Enforcement and Fairness Act, Executive Order 13132, and Executive Order 12866. One commenter made suggestions related to a Forest Plan amendment.	including NEPA and its implementing regulations, in preparation of this EIS. Similarly, the FWS is complying with all applicable rulemaking requirements such as the Regulatory Flexibility Act and others, in promulgating the proposed 10(j) regulation.
132	One commenter suggested that the NPS, USFS, and FWS are in violation of the NEPA, section 101, 42 USC 4331, items three and six.	The agencies are following all applicable federal laws, regulations, and policies, including NEPA and its implementing regulations, in preparation of this EIS.
133	Commenters recommended that the FWS, in light of its history and support for delisting recovered grizzly bear populations, thoroughly review the proposed rule and draft EIS to ensure that the restoration of the NCE population aligns with the ongoing efforts to delist the GYE and NCDE grizzly bears without impacting those recovery efforts. One commenter recommended that the NCE grizzly bear restoration plan and proposed 10(j) rule be put on hold until the FWS issues a 12-month finding on delisting the GYE and NCDE DPSs, expressing concern that the proposed restoration should be analyzed in light of potential changes resulting from that delisting process.	Under alternative C, the section 10(j) rule was developed by the FWS based on the listed entity of the grizzly bear under the ESA, i.e., as threatened in the conterminous (lower-48) states. The proposed 10(j) rule would not preclude the FWS from making future revisions to the listed entity. If the FWS revises the grizzly bear listed entity, the effect on this NEP, if any, would be addressed at that time. Neither this EIS nor 10(j) rule preclude development of a conservation strategy by the IGBC Selkirk Cabinet-Yaak Subcommittee or consideration of alternatives for addressing restoration of grizzly bear to the Bitterroot Ecosystem. The FWS developed the eastern boundary of the NEP based on grizzly bear data, human populations, and recognizable boundaries, and this boundary does not interfere with or conflict with any of the identified processes for addressing the grizzly bear as a listed entity. With respect to putting the 10(j) rulemaking on hold until the FWS makes delisting decisions for grizzly bears in the GYE and NCDE, the FWS's response to petitions requesting the delisting of grizzly bears is governed by section 4 of the ESA and is outside the scope of the EIS.
134	Commenters stated that restoring grizzly bears in the NCE is a misuse of the ESA because the grizzly bear is not endangered or threatened as a species, given existing healthy populations in significant parts of its traditional range, and	Healthy, growing grizzly bear populations exist in both the NCDE and the GYE, and bear numbers are increasing in the CYE and Selkirk Ecosystem. However, the FWS's evaluation and determination about the status and potential reclassification of the listed grizzly bear is done through a separate process beyond the scope of this proposal. The EIS and proposed 10(j) rule do not set recovery criteria for the grizzly

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	expressed concerns about the introduction's alignment with the FWS's efforts to delist other recovered grizzly populations.	bear listed entity, nor is it required to; the EIS and proposed 10(j) rule help to implement recovery guidance contained in the NCE supplement to the NCE Recovery Plan, which recommended consideration of translocations in aid of recovery. The FWS undertakes status review of the grizzly bear as a listed entity on a regular basis; should the listed status of the grizzly bear change, the role of this NEP would be considered as part of that evaluation.
135	One commenter expressed concern that the grizzly bear restoration plan is proposed despite there being numerous other species the FWS should prioritize for its limited resources, suggesting a focus on land protection, habitat restoration, and grants to enhance species recovery.	The FWS and NPS seeks to recover grizzly bears in all six recovery zones consistent with the *Grizzly Bear Recovery Plan*. The NCE recovery zone has been managed to protect and secure habitat for grizzly bears since 1997. Restoration efforts would be carried out jointly between the NPS, FWS, and interested partners. The FWS has established recovery plans for multiple species including grizzly bear and works with partners to implement recovery actions identified in the recovery plans. Funding of recovery actions is provided by a combination of federal appropriations and partner contributions. The FWS annually prioritizes and adjusts investment levels in recovery actions across multiple species based on multiple factors including available federal and partner funding.
136	Commenters expressed concern that the preferred alternative for introducing a NEP of grizzly bears into the NCE lacks justification under the ESA, highlighting statutory non-compliance issues including that the NCE includes land in Canada. Commenters noted that if a species is stable throughout a significant portion of its range, agencies have no rationale under the ESA to allow the dispersion and/or restoration of the grizzly bear into a region not classified as an ecosystem, and therefore not a recovery zone for the species. Commenters questioned the rational basis for allowing the dispersal of apex predators outside recovery zones, emphasizing the potential risks to human life, livestock depredation, and increased regulatory costs to local governments associated with the	Although the NCE includes areas within Canada, the North Cascades recovery zone is a component of the ecosystem and occurs only within the United States. The establishment of a NEP is only of the listed entity, which is the ESA-listed grizzly bear in the lower-48 United States. Restoration efforts for grizzly bear are specifically targeted within the NCE recovery zone. Including areas outside the recovery zone, or ecosystem, does not mean that the NPS and FWS intend on recovering populations there. However, including these areas within the NEP boundary and under Management Area C serves to ensure the agencies account for any unexpected dispersal of a bears to those areas and to allow the greatest level of management flexibility should that occur. If those regions of Washington were not included as part of the NEP area, any grizzly bears that dispersed or move to these areas would be managed as threatened under the 4(d) rule.

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	unnecessary restoration of grizzly bears.	
137	One commenter highlighted the role of state governments in safeguarding public health and safety, expressing concern that enforcement of the ESA should not supersede the reserved powers of state and local governments, particularly with regard to the need for protection against apex predators straying into privately owned agricultural land.	The NPS and FWS developed the action alternatives in consideration of Washington State law and the important role of WDFW in managing grizzly bears within the state, consistent with the cooperative federalism of the ESA. Under either action alternative, WDFW would continue to have the ability to address conflicts involving grizzly bears as provided under the FWS's grizzly bear rules, whether the 4(d) rule (alternative B) or the 10(j) rule (alternative C).
138	One commenter questioned if the preferred alternative in the draft EIS is internally contradictory regarding the importance of the NCE toward grizzly bear recovery because it appears to suggest both the necessity of recovery in each zone and the nonessential nature of the NCE population for the overall species recovery.	Under the ESA and the FWS's implementing regulations, the FWS must determine whether an experimental population is essential to the continued existence of the listed entity, i.e., whether the loss of the experimental population "would be likely to appreciably reduce the likelihood of the survival of the species in the wild" (50 CFR 17.80(b)). This focus on the survival of the species for purposes of evaluating the role of the experimental population is different from the recovery of the listed species, governed by section 4(f) of the ESA. Survival and recovery have independent meanings under the ESA as they relate to experimental populations. The NPS and FWS's objective to recover grizzly bears in each of the six recovery zones is not in conflict with its determination that the North Cascades NEP would contribute to that recovery but is not essential for the survival of grizzly bears in the wild.
139	Commenters expressed concern about the application of ESA protections under a 10(j) rule without specifically stating what ESA species is being proposed for recovery in the NCE, highlighting the taxonomic uncertainty about whether the NCE would constitutes a DPS under the ESA. Commenters also questioned the accelerated consideration of a 10(j) proposal based on the potential restoration of grizzly bears by Canadian authorities and noted that that it would be inappropriate to apply ESA protections to isolated reintroduced individuals straying into	Under alternative C, grizzly bears reintroduced to the NCE would be wholly separate geographically from other grizzly bear populations listed under the ESA, as required under section 10(j) of the ESA. However, the NPS and FWS anticipate that a restored grizzly bear population in the NCE would contribute to the recovery of the listed entity, which includes grizzly bears throughout the lower-48 states, by providing additional population redundancy and representation. The NEP was based on the current listed entity of the grizzly bear and does not preclude the FWS from revising the listed entity in the future, at which time the effect, if any, on the NCE NEP would be considered.

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	the North Cascades from British Columbia.	
140	One commenter noted that ongoing Congressional actions and legal efforts by Montana, Idaho, and Wyoming to remove grizzly bears from listing under the ESA raises questions about how the FWS would safeguard any bears that emigrate from the NCE into a neighboring state, and questioned if the restoration plan could be revised via regulations and planning to prevent the lethal take of newly restored grizzlies. Another commenter recommended against the use of a 10(j) rule, opposing the transfer of fully protected grizzlies from other states to the NCE, emphasizing the importance of keeping grizzlies in their native habitats where they are not yet fully recovered under the ESA.	As noted in response to concern number 20, some reintroduced bears would likely leave the NCE, but due to the large distances and relatively low landscape permeability of the habitat between restoration areas and surrounding states, the NPS and FWS anticipate few bears would emigrate into adjacent states in the near future. However, if a grizzly bear from the NCE migrates into adjacent states, it would be managed by state, federal, or Tribal authorities based on the listing status of bears in that location (e.g., listed as threatened and managed under the grizzly bear species-specific 4(d) rule). Canadian authorities would manage grizzly bears from the US portion of the NCE that emigrate into Canada. The concerns about lethal take are addressed in response to concern number 18. The concerns about the use of a 10(j) rule are addressed in response to concern number 7.
141	One commenter provided two specific requests for both action alternatives: • Road use permits granted by the USFS to nonfederal entities where the road in question is not located on national forests should not need ESA section 7(a)(2) consultation, noting the EIS currently only applies the exception to national forest lands. Road maintenance agreements and easements granted to nonfederal entities should also be considered for exclusion from ESA section 7(a)(2) consultation.	In accordance with general section 10(j) regulations, the USFS proposed actions, including the proposed issuance of USFS permits, are already excluded from section 7(a)(2) in relation to the proposed grizzly NEP. Under alternative C, the USFS would not be required to consult under section 7(a)(2) about the NEP when authorizing activities under USFS permits, such as grazing, mining, and timber harvest activities, including permits for road hauling that may include travel on nonfederal lands. Under alternative B, 7(a)(2) consultation would be required; therefore, issuance of road use permits and maintenance by USFS would be subject to ESA consultation requirements to avoid jeopardizing the continued existence of grizzly bears in the NCE.
142	Commenters stated that the federal government should not be involved with an action that violates state law (i.e., bringing bears into	The NPS and FWS would restore grizzly bears only on federal lands with a priority for NPS lands and would not rely on WDFW in that effort. Washington State law does not preclude the NPS and FWS from reintroducing grizzly bear as proposed.

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	Washington from out of state) under RCW 77.12.035. Commenters stressed that the restoration of grizzly bears is a violation of the RCW, and no action is the only legal alternative.	The NPS and FWS defer to the state to interpret RCW 77.12.035 as it applies to state agencies. The NPS and FWS consulted with the WDFW in the development of the EIS and associated proposed 10(j) rule, conferred with the WDFW as a cooperating agency in the NEPA planning process, would confer with WDFW on management of grizzly bears, should an action alternative be selected.
143	Commenters requested that the park update the purpose and need for grizzly bear restoration because the current purpose and need does not provide compelling reasons to introduce grizzly bears into the NCE, nor does the plan present compelling evidence that a substantial grizzly bear population ever existed in the NCE. Commenters noted that there was no evidence cited in the EIS that proved the restoration of grizzly bears is essential for the survival of the species; nor did commenters find evidence that the park is suffering from lack of grizzly bears. Commenters noted that there was no analysis that established that seed dispersal in the park is inadequate due to the absence of grizzly bears, that prey is overabundant and in need of control by grizzly bears, or that any other element of the ecosystem is not functioning because of a lack of grizzly bears. Another commenter requested the park describe how the ecosystem would fail without the restoration of grizzly bears. One commenter specifically questioned what benefits grizzly bears bring to the ecosystem that black bears do not already provide. Additionally, one commenter noted that the action alternatives do not provide any convincing grounds to move forward with this restoration; the EIS only mentions questionable spiritual or otherwise intangible benefits, such	Due to the extirpation of grizzly bears from the NCE prior to the agencies' understanding of their ecological role, limited scientific data exist on how ecological functions in the NCE were historically influenced by grizzly bears. Nevertheless, grizzly bears are important to restoring missing ecological interactions, as described in chapter 3 under "Other Fish and Wildlife, Predator-Prey Interactions," including seed dispersal, increasing nutrient availability and promoting plant regeneration, and controlling prey populations. The NPS has a duty to manage lands under the Organic Act and NPS *Management Policies 2006*, which direct the NPS to restore extirpated native plant and animal species when appropriate, which is the purpose and need in taking action for this EIS. The FWS has a similar duty under the ESA. Chapter 1 provides a detailed background to the history of grizzly bears in the NCE.

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	as "Seek to support Tribal, cultural, and spiritual values related to the grizzly bear," that are subjective and cannot be definitively demonstrated.	
144	One commenter noted that the plan does not describe how the preferred alternative meets the stated need or objective to recover the species so that it may be delisted, and in fact states the opposite on page 6: "Restoring a population of this size [200 Grizzly Bears in the NCE] would likely take decades [60 to 100 years]. This restoration population goal is not a recovery goal for purposes of the ESA. Recovery goals are determined through a separate process." Another commenter noted that Idaho and Montana are actively addressing de-listing grizzly bears and requested the park not continue with the EIS until after final decisions are made in those states.	The EIS does not include an objective to recover the species to the point of delisting. Chapter 1 states that the restoration population is not the same as recovery. Specifically, the restoration population level provides a substantive benchmark with which to analyze the proposed action using the best available science. The restoration population is thus seen as a population size that can be adaptively managed for genetic viability and long-term persistence, and may or may not require active human intervention. The FWS seeks to recover grizzly bears in all six recovery zones consistent with its *Grizzly Bear Recovery Plan*. Currently, grizzly bears are listed as one entity, the lower-48 population.
145	One commenter questioned how the park plans to monitor social outcomes related to the rationale in the purpose and need, "Contribute to the restoration of biodiversity of the ecosystem to build ecological resilience and for the benefit and enjoyment of present and future generations of people," similarly to the plans to monitor ecological and economic outcomes. The commenter questioned how the park would monitor for the ideas of benefit and enjoyment, and how it would know if it was meeting this need statement.	For the NPS, restoring grizzly bears to the NCE would serve as part of the agency's duty to manage park resources under the Organic Act. Providing grizzly bear habitat is consistent with both North Cascades National Park enabling legislation and NPS Management Policies. The enabling legislation for North Cascades National Park states, "In order to preserve for the benefit, use, and inspiration of present and future generations certain majestic mountain scenery, snowfields, glaciers, alpine meadows, and other unique natural features in the North Cascade Mountains of the state of Washington, there is hereby established, subject to valid existing rights, the North Cascades National Park." Furthermore, NPS *Management Policies 2006*, section 4.4.2.3 states that the NPS will, "survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act," and "undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats; control detrimental nonnative species; manage detrimental visitor access; and reestablish extirpated populations as necessary to maintain the species and the habitats upon which they depend." Prior to

	Comment	Response
		implementation, an implementation strategy with details of responsibilities between the FWS and participating agencies, inclusive of how data would be managed and shared, would be developed.
146	One commenter requested that grizzly bears only be released on NPS lands due to the federal regulations regarding the management of natural resources. The commenter noted that WDFW has management authority over wildlife on USFS lands, which would make releasing grizzly bears on USFS land more complicated due to prohibitions under RCW 77.12.047.	The NPS and FWS would prioritize release sites on NPS lands but retain the option to conduct initial releases of grizzly bears on national forest system lands if unforeseen circumstances prevent access to release sites on NPS lands (e.g., aircraft issues). The NPS and FWS would work with WDFW and the associated land management partner (such as the USFS) to avoid administrative complications as appropriate. Regarding WDFW management authority as it relates to the proposed action, please see response to comment 142.
147	Commenters stated that the EIS fails to analyze impacts on local communities within the NCE. Specifically, commenters indicated that the draft EIS does not adequately analyze or consider impacts on local communities within the NCE, including public safety, economic development, recreation opportunities, and the overall livelihood of rural communities.	If an action alternative is selected, the NPS and FWS would engage with government agencies and other partners in the development of an effective implementation strategy. County governments would play a crucial role in this process. The EIS details how, under alternative C, the proposed 10(j) rule would provide greater management flexibility (see response to concern number 7). The provisions of section 10(j) were enacted to address concerns that restored populations would negatively impact landowners and other private parties, by giving the Secretary of the Interior greater regulatory flexibility and discretion in managing the reintroduced species to encourage recovery in collaboration with partners, especially private landowners. The EIS acknowledges potential adverse and beneficial impacts of grizzly bear restoration and management. The 10(j) rule would provide additional management measures for reducing or avoiding human-bear conflicts. The analysis of economic impacts, including impacts on tourism, agriculture, livestock grazing, mining, timber management, wildlife management, and federal land management are addressed in the EIS. However, to address the counties' specific concerns, five counties requested to be added as formal cooperating agencies in this EIS process based on their special expertise with respect to socioeconomics. On January 18, 2024, the NPS and FWS held a virtual meeting with representatives from Chelan, Okanogan, Skagit, Snohomish, and Whatcom Counties, during which the counties expressed their concerns and the agencies provided responses to questions. These specific concerns are addressed in the EIS in chapter 3 under the heading "Possible Conflicts between the Alternatives and the Objectives of Local Land Use Plans and

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		Policies." as well as part of a new subsection to socioeconomics environmental consequences section of chapter 3 of the EIS, under "County Resources."
148	One commenter expressed confusion about how the analysis aligns with the FWS's 2016 Species Status Assessments Framework.	The scope of the EIS is focused on the restoration of grizzly bears to the NCE, not the overall assessment of grizzly bears in the lower-48 states as a listed species.

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CONTENT ANALYSIS REPORT

Table E-1. Correspondence Distribution by State/Territory

State	Percentage	Number of Correspondences
WA	39.1%	4,998
CA	9.8%	1,259
NY	4.2%	543
FL	4.1%	519
IL	2.9%	369
PA	2.7%	345
TX	2.7%	342
OR	2.6%	334
CO	2.2%	281
MI	1.8%	233
NJ	1.8%	232
MA	1.8%	230
AZ	1.8%	225
NC	1.8%	224
VA	1.6%	201
OH	1.6%	201
WI	1.4%	176
MD	1.1%	147
MN	1.1%	136
MO	1.0%	122
GA	0.9%	120
IN	0.9%	114
CT	0.9%	114
UNKNOWN	0.7%	94
NM	0.7%	92
NV	0.7%	92
TN	0.7%	87
MT	0.6%	79
SC	0.6%	78
KY	0.5%	63
UT	0.5%	59

State	Percentage	Number of Correspondences
ID	0.4%	57
NH	0.4%	54
IA	0.4%	48
ME	0.4%	45
AL	0.3%	43
KS	0.3%	40
LA	0.3%	37
OK	0.3%	35
RI	0.3%	33
HI	0.3%	33
NE	0.3%	32
VT	0.2%	31
DE	0.2%	31
AK	0.2%	26
AR	0.2%	26
DC	0.2%	25
WY	0.2%	25
WV	0.2%	21
MS	0.1%	17
SD	0.1%	11
ND	0.1%	7
VI	0.0%	1
GU	0.0%	1
Total	100.0%	12,788

Table E-2. Correspondence Distribution by Country

Country	Percentage	Number of Correspondences
USA	99.4%	12,715
CAN	0.1%	13
GBR	0.1%	11
ITA	0.1%	7
DEU	0.0%	5
PRT	0.0%	4
AUT	0.0%	4
FRA	0.0%	3
ZAF	0.0%	3
ESP	0.0%	2
AUS	0.0%	2
IRL	0.0%	2
MEX	0.0%	2
POL	0.0%	2
BEL	0.0%	2
VEN	0.0%	1
JPN	0.0%	1
NLD	0.0%	1
SVN	0.0%	1
GRC	0.0%	1
UNSPECIFIED	0.0%	1
SVK	0.0%	1
DNK	0.0%	1
MLT	0.0%	1
CHE	0.0%	1
BRA	0.0%	1
Total	100%	12,788

Table E-3. Correspondence Count by Organization Type

Organization Type	Number of Correspondences
Unaffiliated Individual	12,490
Non-Governmental	101
Business	87
Conservation/Preservation	53
Recreational Groups	16
University/Professional Society	14
State Government	10
County Government	5
Civic Groups	5
Churches, Religious Groups	1
Town or City Government	1
Federal Government	1
NPS Employee	1
Total	12,788

Table E-4. Correspondence Distribution by Correspondence Type

Type	Number of Correspondences
Web Form	12,490
Transcript	165
Letter	95
Park Form	26
Other	12
Total	12,788

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

March 2024

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