



RECORD OF DECISION
OLYMPIC NATIONAL PARK
MOUNTAIN GOAT MANAGEMENT PLAN / FINAL ENVIRONMENTAL IMPACT
STATEMENT

INTRODUCTION

The US Department of the Interior, National Park Service (NPS), has prepared this Record of Decision (ROD) on the *Mountain Goat Management Plan / Final Environmental Impact Statement* (plan/EIS). The plan/EIS for Olympic National Park (the park) evaluates the impacts of a range of alternatives for managing exotic mountain goats on the Olympic Peninsula in a manner that reduces impacts on park resources while reducing potential public safety issues associated with the presence of mountain goats. The plan/EIS was developed in coordination with the Washington Department of Fish & Wildlife (WDFW) and the United States Department of Agriculture (USDA) Forest Service. This ROD concludes the NPS decision-making process for the plan/EIS, and details the alternative selected for implementation, which will become the park's mountain goat management plan. This ROD authorizes only those actions that would occur on NPS lands; the USDA Forest Service must authorize certain actions on National Forest System (NFS) lands and will sign its own ROD.

This ROD was prepared in accordance with the requirements of the National Environmental Policy Act of 1969, as amended (NEPA), its implementing regulations (40 CFR parts 1500–1508), the Department of the Interior's NEPA regulations (43 CFR part 46), and the 2015 NPS NEPA Handbook. This ROD includes a summary of the purpose and need for action; a synopsis of alternatives considered and analyzed in detail; a description of the selected alternative; a summary of stakeholders and agencies consulted; the basis for the decision; and a description of the environmentally preferable alternative.

BACKGROUND

Mountain goats are not native to the Olympic Peninsula. They were introduced to the Olympic Mountains prior to the establishment of the national park, and have since colonized the entire range, with the majority of the population residing within the park. By the early 1980s, the mountain goat population in the park had grown to more than 1,000 individuals, with mountain goats distributed in high-elevation habitats throughout the Olympic Peninsula. The park implemented a series of live capture operations from 1981 to 1989, translocating 407 mountain goats to other mountain ranges in several western states, and 119 were legally harvested outside of the park. Subsequent surveys revealed that the population started increasing sometime between 2004 and 2011. A 2016 survey revealed that, between 2004 and 2016, the population grew at an 8% average annual rate of increase. At this rate, there could be an estimated 725 mountain goats on the Olympic Peninsula by 2018.

PURPOSE AND NEED FOR ACTION

The purpose in taking action is to allow the NPS to reduce or eliminate impacts on park resources from exotic mountain goats, while reducing potential public safety issues associated with the presence of mountain goats in the park.

The original need to manage mountain goats, an exotic species on the Olympic Peninsula, was an ecological concern related to the impacts that mountain goats impose on natural resources at the park, particularly sensitive vegetation communities. Safety concerns were increased in 2010 when a visitor was fatally gored by a mountain goat while hiking on a park trail. Mountain goats have a high affinity for salts and natural sources of salt occur within their native range. There are no natural sources of salt in the Olympic Mountains, and mountain goats have learned to seek salts from humans. In areas with high levels of visitor use within the park, mountain goats have become conditioned, to the extent that they are a nuisance and may be hazardous to visitors. The Olympic National Park *2011 Mountain Goat Action Plan (MGAP)*, which is part of the Nuisance and Hazardous Animal Plan, addresses mountain goat behavior and seeks to minimize the potential for hazardous mountain goat-human encounters. The MGAP focuses on the management of individual mountain goats that have been identified as potentially hazardous. In contrast, this ROD addresses overall management of the mountain goat population on the Olympic Peninsula.

ALTERNATIVES CONSIDERED

Alternatives analyzed in this plan/EIS were developed by the interagency planning team, which included wildlife biologists from the NPS, WDFW, and USDA Forest Service, and also used feedback received during the public scoping and plan/EIS public review processes. The plan/EIS analyzes the impacts that could result from a continuation of current management of the exotic mountain goat population on the Olympic Peninsula (the no-action alternative), as well as the impacts that could result from three action alternatives that involve lethal removal and/or translocation of exotic mountain goats from the Olympic Peninsula. The three action alternatives analyzed in this plan/EIS meet, to a large degree, the management objectives and address the purpose of and need for action. The alternatives are briefly described below.

Two separate project areas were evaluated in the plan/EIS: (1) areas of the park and adjacent Olympic National Forest where exotic mountain goats could be reduced, which comprise the area referred to as the Olympic Peninsula; and (2) areas in the Mt. Baker-Snoqualmie National Forest and Okanogan-Wenatchee National Forest where mountain goats could be translocated, which comprise the area referred to as the North Cascades national forests. This ROD pertains only to actions and affected areas in Olympic National Park. However, there are actions in the selected alternative that require the use of USDA Forest Service lands as described below.

The selected alternative involves removing mountain goats (either via live capture or lethal means) from Olympic National Forest (adjacent to the park) and translocating them to North Cascades national forests. The USDA Forest Service must authorize actions on National Forest System (NFS) lands that require actions within designated wilderness or require the issuance of temporary closures during implementation per 36 CFR Part 261(B). Therefore, the responsible officials for the USDA Forest Service will decide through their own ROD whether to authorize the following actions, including capture and removal of mountain goats, in their respective national forests. The description of alternatives for both project areas is included below.

Alternative A: No Action

Under the no-action alternative, options for managing mountain goats on the Olympic Peninsula would be limited to those actions outlined in the *2011 Olympic National Park Mountain Goat Action Plan*, which are focused on preventing unacceptable mountain goat behavior. Management would be set up according to a continuum of mountain goat-human interactions and the appropriate park response to each. Common management activities under alternative A would include foot patrols, evaluation of mountain goat-human interactions, possible area closures, and the use of nuisance animal control, including hazing and up to lethal removal. The long-term duration of management activities would continue indefinitely, and may increase in frequency and intensity, because the mountain goat population within the park would continue to increase.

Alternative B: Capture and Translocation

Under alternative B, mountain goats would be captured within the park and in the adjacent Olympic National Forest and translocated to the North Cascades national forests, where mountain goats are native and augmentation of the existing populations would further mountain goat conservation. Mountain goats could be captured over the course of up to 3 to 5 years, with most activity in years 1 and 2. Capture operations would occur during two 2-week management periods per year: once in mid- to late July, and once in late August to mid-September. Captured mountain goats would be transported by helicopter to one of five staging areas (three of which are located in the park) for transfer to WDFW. WDFW would then translocate mountain goats to the North Cascades national forests.

Capture and translocation under alternative B would most likely involve approximately 50% of the 725 mountain goats projected to occupy the Olympic Mountains. However, the number of mountain goats captured and translocated could be more or less, depending on capture success and the ability of WDFW to receive and translocate mountain goats. Following the 5-year initial management period, maintenance activities would consist of periodic capture and translocation efforts focused in areas of high visitor use, or areas experiencing high levels of resource damage, in order to reduce impacts by the remnant mountain goat population and to keep the mountain goat population at a reduced level.

Alternative C: Lethal Removal

Under alternative C, lethal removal using shotguns or high-powered rifles would be used to reduce or eliminate mountain goats from the park and adjacent Olympic National Forest. Mountain goats would not be translocated under this alternative. Specific management activities for the lethal removal of mountain goats would include helicopter- and ground-based use of firearms. Park staff and other approved personnel, including trained volunteers, would access areas on foot that are accessible, but in more remote areas, a helicopter would be used for lethal removal activities. Following lethal removal, mountain goat carcasses would remain on the landscape but would be moved from areas of high visitor use and occupied marmot habitat.

Initial lethal removal actions would involve removing as many mountain goats as possible from the Olympic Peninsula. It is expected that at least 90% of the projected 2018 mountain goat population, or approximately 625 to 675 mountain goats, could be removed during the initial management phase. Carcasses that result from aerial operations would remain in place if the carcasses are in steep and remote terrain and crews conducting ground-based lethal removal would remove as much carcass material as they are safely able to carry. Carcasses that are near areas of high human use would be relocated at least 325 feet away when safe to do so. Maintenance activities under alternative C would involve opportunistic ground- and helicopter-based lethal removal throughout the summer and fall seasons as personnel, funding, weather, and accessibility of targeted mountain goats allow. Maintenance activities would be

prioritized in proximity to areas of high visitor use and areas experiencing high levels of resource damage.

The timing and duration of the initial management phase under alternative C would be 3 to 5 years, with most activity occurring in years 1 to 3. Lethal removals would be conducted only if necessary in years 4 and 5. In an effort to reduce the use of helicopters for lethal removal, management would start with ground-based activities, using skilled public volunteers and park staff in year 1. Helicopter-based operations would occur within the same 2-week management periods as described for alternative B, and ground-based lethal removal would take place opportunistically at any time during the year as needed.

Alternative D: Combination of Capture and Translocation and Lethal Removal

Under alternative D, initial management would involve the capture and translocation of as many mountain goats as possible, similar to alternative B, followed by a switch to lethal removal, similar to alternative C. Initial management activities under alternative D could last 3 to 5 years, with most of the activity in years 1 to 4. It is anticipated that nearly all management activities in year 1 would consist of live capture and translocation, which would continue to be the primary reduction tool during year 2. In year 1, capture operations would focus on locations where mountain goats can be safely captured and where they are interacting with visitors and resources. Some capture operations would continue into year 3 in the event of weather-related or other logistical constraints in years 1 and 2. Some lethal removal could be scheduled as early as the second capture operation in year 1, but only for those mountain goats that are determined to be uncatchable. Capture operations would occur during two 2-week management periods per year: once in mid- to late July, and once in late August to mid-September.

It is anticipated that initial management under alternative D would remove at least 90% of the mountain goat population, or approximately 625 to 675 mountain goats. Approximately 50% of the mountain goats would be captured and relocated and the remaining mountain goats would be lethally removed. Ground-based lethal removal would most likely start in the fall of year 2, directly after the second capture operation is completed. It is anticipated that the success rate for capturing mountain goats would diminish over time and management would likely switch to almost exclusively lethal removal during year 3 or year 4 of the initial management, but could begin as early as year 2. By year 5, most mountain goats encountered would be lethally removed.

SELECTED ALTERNATIVE

The NPS has selected alternative D, as described in the plan/EIS, for implementation. As described above, the selected alternative will use a combination of capture and translocation and lethal removal to reduce or eliminate mountain goats from the park.

The number of mountain goats to be removed, management activities, and the timing of management activities under the selected alternative are described below.

Mountain Goat Population Goal. The desired eventual population size is zero, although it is acknowledged that it may not be possible to capture or lethally remove all mountain goats. At least 90% of the population will be removed.

Initial Management. It is estimated that approximately 50% of the mountain goat population could be captured, or approximately 325–375 animals, based on the estimated 2018 population size. Capture and translocation will take place prior to lethal removal activities. Another estimated 40% of the original mountain goat population (approximately 275–325 animals) will be lethally removed. These activities will ultimately result in the removal of at least 90% of the mountain goat population.

Maintenance Activities. At most, 10% of the mountain goat population will remain following initial management. Maintenance activities will be prioritized in areas of high visitor use and will target larger groups of mountain goats that appear most likely to increase in number.

Staging Areas. Staging areas will be required for mobilization of staff and equipment during management activities. The use of helicopters to access remote areas of the park would require a safe and accessible space for taking off, landing, and refueling. Three staging areas have been identified in the northern part of the park; Sweets Field, Deer Park, and Hurricane Hill. During capture activities, mountain goats will be received at the staging areas and prepared for overnight transport. Some of the mountain goats captured will be transported to staging areas in the northern portion of the park and the remaining mountain goats will be transported to staging areas in the southeastern portion of the Olympic Mountains within the Olympic National Forest, as described in the USDA Forest Service ROD.

Helicopter Use. Helicopter operations will take place during two separate 2-week management periods in a given year: one in mid- to late July, and the second in late August to mid-September. Helicopters will be used for both capture and lethal removal, operating up to a maximum of 12 days during each period, and a maximum of 8 hours per day. Flight paths will be determined by weather (clouds and winds), but in general, helicopters will take the most efficient routes between staging areas and mountain goat habitat. A maximum of 768 flight hours could occur over 96 days across a 4-year period on the Olympic Peninsula, including the park.

Lethal Removal. Lethal removal of mountain goats will involve using shotguns and high-powered rifles. Ammunition will be non-toxic. Personnel involved, which could include NPS or other federal personnel, state personnel, or skilled public volunteers, will have the appropriate skills and proficiencies in the use of firearms to maximize public safety, including experience in the use of firearms for the removal of wildlife. Helicopters will be used as the primary method for lethally removing mountain goats from remote areas of the park, potentially with the assistance of spotter aircraft (fixed-wing aircraft or small helicopters, depending on the contractor). Helicopters may also be used to drop off or pick up ground-based crews that will be entering backcountry and wilderness areas to lethally remove mountain goats. Any lethal action will be completed as humanely as possible. Mountain goats that sustain life-threatening injury during management activities will be dispatched as quickly as possible to minimize suffering.

Area Closures. There could be temporary area closures within the park during management activities, which include capture and translocation and lethal removal operations. In general, trails and campgrounds will remain open to the public in both backcountry and frontcountry areas as long as management personnel determine it is safe to do so. Closures will include areas near ongoing management activities and immediately surrounding staging areas. There will be no park-wide closures, and no area closures will be permanent. The NPS will coordinate a schedule of area closures six months in advance, or as soon as it is feasible, with the Wilderness Information Center, which issues wilderness use permits, to ensure that no permits are issued for areas impacted by management activities.

Baiting. Salt blocks will likely be placed in remote areas of the park to attract mountain goats to suitable areas for carrying out management activities. Baiting areas will either be located away from public use areas or closed to public access to minimize mountain goat-human conflicts.

Interpretive Tools. Park staff will provide information and educational opportunities to the public through interpretive programs and visitor interactions regarding the management of mountain goats. Public outreach will be enhanced to increase the public's awareness of the current mountain goat situation, and detailed information will be provided regarding impending mountain goat management activities or areas of potential closures.

Animal Welfare Tools and Considerations. The NPS will strive to use the most humane techniques possible for animal capture, transport, and handling to maximize individual animal welfare and health. Translocation activities will be conducted in accordance with established WDFW translocation protocols; and when conducting lethal removal using firearms, consideration will be given to the choice of firearm and shot placement to ensure the humaneness of the action.

Research and Monitoring. Research and monitoring activities will take place opportunistically based on available funding. Monitoring efforts could involve periodic flights to evaluate the effectiveness of mountain goat management activities. This will include periodic (every 4 to 6 years) helicopter flights for approximately 2 mornings, 4-8 hours over 2 days.

Carcass Handling and Disposal. Mountain goat carcasses resulting from management activities could be left in the field, but relocated away from trails, campsites, or where visible from areas with high visitor use. If feasible, mountain goats that have been killed could be donated for processing and human consumption. Carcasses could be provided to interested tribes or other willing recipients who may wish to obtain hides and horns. With the projected lethal removal of at least 40% of the mountain goat population, there is a potential for approximately 275–325 carcasses to be left in the field. The actual number will be less due to (1) removal of some carcasses from the backcountry by ground-based crews, and (2) removal of carcasses by helicopter near developed areas or where they can be safely transported to staging areas. Remaining carcasses will be in remote areas, and at least 325 feet from visitor use areas.

Wilderness. Implementation of the selected alternative includes actions in designated wilderness in the park, including the use of helicopters. The NPS prepared a Minimum Requirements Analysis (MRA) in conjunction with the Mountain Goat Management Plan/EIS. This analysis determined that taking action in wilderness was necessary for the administration of the area as wilderness, specifically for the preservation of wilderness character. Although there would be short-term impacts to wilderness during implementation, the selected alternative would result in long-term beneficial impacts to wilderness character through the removal of a non-native species and restoration of alpine soils and native plants. The NPS MRA can be found in Appendix E of the plan/EIS.

COORDINATION AND CONSULTATION

The NPS is the lead agency for this planning process, whereas the USDA Forest Service and WDFW are participating as cooperating agencies. Management of mountain goats in Washington State is the primary responsibility of WDFW, but the USDA Forest Service is responsible for managing the majority of mountain goat habitat outside of the park, on both the Olympic Peninsula and in the North Cascades national forests. The NPS has jurisdiction over actions on NPS lands; however, NPS must also consider the impacts of its actions on other agencies' lands. The USDA Forest Service has jurisdiction over the Olympic National Forest lands and must provide the NPS and WDFW with permission to engage in certain proposed mountain goat management activities on its lands. The USDA Forest Service also manages lands in the North Cascades national forests, where WDFW proposes to translocate mountain goats.

Endangered Species Act. The NPS has consulted with the US Fish and Wildlife Service (USFWS) on this plan/EIS and its assessment of impacts on species listed under the Endangered Species Act (ESA). The anticipated impacts were provided to USFWS on July 13, 2017, which continued formal consultation with the USFWS. On April 23, 2018, the USFWS concurred with the NPS determinations as discussed in the Biological Opinion. The only federally-listed species that were carried through for detailed analysis in the park were the northern spotted owl and the marbled murrelet. Other federally-listed species that could occur in the project area but were not expected to be affected by the proposed actions were dismissed from detailed analysis. Under the selected alternative, staging area actions will have *no effect* on northern

spotted owl or marbled murrelet, because none of the staging areas in the park are located near suitable northern spotted owl habitat. Any potentially affected marbled murrelet habitat is already degraded due to its location near open roads, because of human presence, increased corvid populations, and noise associated with the use and management of these areas. The ESA effects determination for capture and lethal removal activities is *may affect, but not likely to adversely affect* northern spotted owl or marbled murrelet in the park. The USFWS is reasonably certain that northern spotted owls would continue their foraging behaviors during mountain goat-removal activities and that any effects of such noise and visual stimuli outside the nesting season would be insignificant. There is no designated critical habitat in the park for northern spotted owls and marbled murrelets, and therefore there would be *no effect* to designated critical habitat in the park under any action alternative.

The NPS and partners committed to implementing the following conservation measures:

1. Staging areas will be located in areas that are previously disturbed, and will necessitate the least impact on wildlife and wildlife habitat.
2. During flights from staging areas to work areas, helicopters will generally fly in a direct path.
3. Once established based on weather conditions, previously agreed upon travel corridors, flight paths, and flight altitudes for helicopters will be used during operations.
4. Helicopter flight paths will be a minimum of 500 feet above ground level above marbled murrelet and northern spotted owl habitat.
5. Helicopter staging area preparation or maintenance following the first year of operations, if necessary, will be scheduled prior to the northern spotted owl and marbled murrelet nesting seasons, preferably during the early to late fall, unless otherwise agreed.
6. Ground-based shooting of mountain goats below 4,000 feet in elevation will not occur until after October 1 and will cease by March 1 of each year.
7. Lead-free ammunition will be used for lethal removal activities (aerial and ground-based) to prevent environmental contamination.
8. Contractors and other project workers will properly store and dispose of food and garbage while working on site.
9. If any individual northern spotted owl or marbled murrelet is observed during project operations, a wildlife biologist will be notified and measures to minimize or eliminate disturbance will be applied.

National Historic Preservation Act. In accordance with section 106 of the National Historic Preservation Act, further consultation with the State of Washington Department of Archaeology and Historic Preservation (DAHP) concerning the potential impacts to cultural resources was initiated by the NPS and USDA Forest Service during public and agency review of the plan/EIS. A copy of the draft plan/EIS was provided to the DAHP in July 2017 along with a request for review and concurrence on the determination of effect stated in the plan/EIS document. The NPS provided a copy of the final plan/EIS to the DAHP on April 26, 2018. On May 7, 2018, the DAHP concurred with the determination of no adverse effect on cultural resources for the selected alternative.

BASIS FOR DECISION

The selected alternative will result in long-term, beneficial impacts on most resources, including substantial beneficial impacts on the natural quality of wilderness, wildlife and wildlife habitat, including special-status species; vegetation, including special-status plant species; archeological resources; and soils, as a result of the removal of the majority of adverse impacts on these resources by mountain goats. The beneficial impacts will likely continue indefinitely because any mountain goats remaining on the landscape will be too few for the population to rebound. Long-term, beneficial impacts on visitor use and experience will result from the reduced potential for visitors to encounter mountain goats or to be inconvenienced by area closures related to the presence of conditioned or aggressive mountain goats. There will also be long-term, adverse impacts on visitor experience for those visitors that value seeing mountain goats in the Olympic Mountains.

Mountain goats will be removed from the landscape in a faster and more efficient manner compared to the other alternatives considered, which will most effectively address the objectives of the plan/EIS. The selected alternative will require little long-term management of the mountain goat population. The selected alternative meets the objective of reducing or eliminating the potential for visitor safety issues associated with mountain goats in the park. Also, the selected alternative will reduce or eliminate impacts on sensitive environments and unique natural resources from mountain goats in the park. The selected alternative will provide the best opportunity to manage mountain goats in Washington State in cooperation with the WDFW and USDA Forest Service, and to further public understanding of the high-elevation ecosystems of the park.

The NPS did not select alternative B because reduction of the mountain goat population by using only capture and translocation methods would not enable NPS staff to reduce the existing mountain goat population by more than 50 percent. With approximately half of the current mountain goat population in the park remaining, alternative B would not meet the objective to reduce or eliminate impacts on sensitive environmental and unique natural resources and would not protect the wilderness character of the designated park wilderness from an exotic species.

The NPS did not select alternative C because, although it would reduce the mountain goat population in the shortest duration in the park, it would not meet the objective to provide opportunities to reestablish or augment the sustainable native mountain goat populations in suitable mountain goat habitat on lands in the North Cascades national forests.

The selected alternative is grounded in the best available science and represents a balanced approach to reducing or eliminating mountain goats within the park while protecting park resources, providing for the preservation of wilderness character, and augmenting the native mountain goat population in the North Cascades national forests. For these reasons, alternative D was selected for implementation.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The NPS is required to identify the environmentally preferable alternative in the ROD for public review. The NPS, in accordance with NEPA regulations, defines the environmentally preferable alternative as the alternative that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources (43 CFR 46.30).

After completing the environmental analysis, the NPS identified alternative D as the environmentally preferable alternative. Alternative D will allow the NPS to reduce exotic mountain goats more quickly than under exclusive capture and translocation (alternative B). It will provide for the maximum number of mountain goats to be removed from the park, resulting in the maximum level of long-term beneficial

impacts to wildlife, soils, wilderness, and vegetation, including sensitive species, and threatened or endangered species as well as visitor and employee safety. Alternative D will also help WDFW achieve its management goal of restoring depleted populations of mountain goats, a native species, in the North Cascades national forests. Alternative C would not provide for this benefit of capturing and translocating mountain goats to their native ranges.


CONCLUSION

Overall, among the four alternatives considered, the selected alternative (alternative D) best meets the purpose of and need for the plan/EIS, is expected to greatly reduce or eliminate the mountain goat population within the park, and fulfills the NPS statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. The selected alternative incorporates all practical means to avoid or minimize environmental harm and will not result in the impairment of park resources or values or violate the NPS Organic Act.

The required "no-action period" before approval of the ROD was initiated on May 4, 2018, with the U.S. Environmental Protection Agency's *Federal Register* notification of the filing of the final plan/EIS (83 Fed. Reg. 19758).

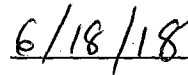
The official responsible for implementing the selected alternative is the Olympic National Park Superintendent.

APPROVED BY:

A handwritten signature in black ink, appearing to read "Stan Austin", is written over a horizontal line.

Stan Austin

Director, Pacific West Region

A handwritten date "6/18/18" is written in black ink.

Date



ATTACHMENT A—NON-IMPAIRMENT DETERMINATION FOR THE SELECTED ALTERNATIVE

This non-impairment determination has been prepared for the selected alternative, as described in the Record of Decision for the *Mountain Goat Management Plan /Final Environmental Impact Statement* (plan/EIS).

By enacting the NPS Organic Act of 1916 (Organic Act), Congress directed the US Department of the Interior and the National Park Service (NPS) to manage units “to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (54 USC 100101).

NPS *Management Policies 2006*, section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

As stated in section 1.4.5 of the NPS *Management Policies 2006*, an action constitutes impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values.” To determine impairment, the NPS must evaluate the “particular resources and values that will be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.”

National park system units vary based on their enabling legislation, natural and cultural resources present, and mission. Likewise, the activities appropriate for each unit and for areas in each unit also vary. For example, an action appropriate in one unit could impair resources in another unit.

As stated in section 1.4.5 of the NPS *Management Policies 2006*, an impact on any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified in the park’s general management plan or other relevant NPS planning documents as being of significance.

The significance and importance of each resource analyzed, based on the Olympic National Park enabling legislation and 2017 Foundation Document, is discussed in the following sections. For the selected alternative, a determination of non-impairment is made for each of the impact topics carried forward for detailed analysis in the plan/EIS, with the exception of mountain goats, visitor use and experience, and wilderness. A non-impairment determination is not made for mountain goats because they are an exotic species that is subject to lethal removal and translocation under this plan/EIS. A non-impairment determination is not made for wilderness, visitor use and experience, or visitor and employee safety, because these impact topics are not generally considered to be separate park resources and values subject to the non-impairment standard established by the Organic Act and clarified further in section 1.4.6 of *NPS Management Policies 2006*. The Daniel J. Evans Wilderness encompasses about 95% of the park. To ensure consistency with the Wilderness Act of 1964, a minimum requirements analysis was performed to evaluate the use of motorized equipment and mechanical transport for management activities described in the plan/EIS (see appendix E of the plan/EIS).

A description of the current state of each resource topic evaluated for impairment can be found in chapter 3 of the plan/EIS. Each resource or value for which non-impairment is assessed and the reasons that impairment will not occur are described below.

WILDLIFE AND WILDLIFE HABITAT, INCLUDING SPECIAL-STATUS SPECIES

Olympic National Park protects several distinctly different and relatively pristine ecosystems that contain a unique array of habitats and life forms, resulting from thousands of years of biogeographic isolation, along with extreme gradients of elevation, temperature, and precipitation. Many animals and plants in the park exist nowhere else in the world, and the park is key to maintaining populations of native fish, birds, and other wildlife. Mountain goats, an exotic species in the Olympic Mountains, are a source of competition that affects the distribution and abundance of native wildlife species and their habitat, especially ungulates such as Roosevelt elk and black-tailed deer, and endemic animals such as Olympic marmot, Olympic Mazama pocket gopher, and Olympic grasshopper. In addition, two Washington State-listed species do occur in the park, the fisher and bald eagle.

Wildlife and wildlife habitat in the park could be affected by mountain goat management activities under the selected alternative, including human activities associated with capture and lethal removal, the use of staging areas and associated site disturbance, and the use of helicopters and trucks for capture and translocation. Proposed activities associated with the use of staging areas for helicopter-based management of mountain goats will impact wildlife and wildlife habitat, including site preparation and helicopter or vehicular traffic to and from sites. These activities will adversely impact wildlife through potential direct collision, or by producing sound and vibration resulting in the temporary displacement of animals. A large number of species may be directly affected by noise and disturbance associated with human presence, and the use of helicopters, firearms, and other equipment during the implementation of capture and lethal removal activities. The duration of any adverse effect from helicopter use will be limited to portions of two separate 2-week management periods per year, which will occur in mid- to late July and late August to mid-September. The noise produced by vehicles and associated human activities will result in impacts on wildlife lasting from minutes to hours. Most animals affected by noise and disturbance will likely return to areas previously occupied once mountain goat management activities end, and no direct mortality or injury is expected.

Impacts on wildlife and wildlife habitat will be further reduced by several mitigation measures. For example, staging areas have been located in areas that are previously disturbed, where wildlife and wildlife habitat are already affected by human activity. Flight paths for helicopters entering and leaving the staging areas will be designated to avoid adverse impacts on animals within nearby forests. Because mountain goat carcasses could attract coyotes into Olympic marmot habitat and indirectly increase

predation on marmots, all mountain goat carcasses will be removed from active marmot colonies where it is safe to do so. Also, lead-free ammunition will be used for lethal removal activities to prevent environmental contamination. Although there will be intermittent and temporary impacts, the selected alternative is not expected to negatively affect the population viability of any special-status species. Once the selected alternative is implemented and the existing detrimental impacts of mountain goats are reduced or eliminated, these temporary adverse effects will be far outweighed by the long-term benefits to wildlife.

Overall, the selected alternative will have beneficial impacts on wildlife and wildlife habitat in the park because an exotic species adversely affecting the habitat of native species will be removed from the ecosystem. Habitat degradation by mountain goats in alpine and subalpine environments will be reduced or eliminated; competition between mountain goats and native species will also be reduced or eliminated. This long-term benefit to wildlife and wildlife habitat will override the adverse effects of implementing the selected alternative, which are short-term and limited to the disturbance of individuals. Native species will not experience population-level effects. Following completion of the selected alternative, native wildlife in the park will have increased opportunity to persist and thrive in previously occupied mountain goat habitat. The persistence of the park's unique alpine and subalpine wildlife will allow future park visitors to enjoy wildlife viewing in a relatively pristine ecosystem. Therefore, the selected alternative will not result in impairment to wildlife and wildlife habitat in the park, including special-status species.

VEGETATION, INCLUDING SPECIAL-STATUS PLANT SPECIES

Mountain goats occupy high-elevation alpine and subalpine vegetation communities at or above treeline. Their summer range is composed primarily of subalpine meadows, fragile alpine herbaceous communities, and sparsely vegetated scree and rock slopes. As described previously for wildlife species, the historical biogeographic isolation of the Olympic Peninsula has produced 29 known endemic plant species, some of which occur in mountain goat habitat and are likely to occur near staging areas such as Cotton's milkvetch, Olympic bellflower, Flett's fleabane, Olympic rock mat, Olympic Mountain groundsel, Olympic cut-leaf synthyris, and Olympic violet. Management activities associated with the selected alternative could also take place within habitat for several plants that are of special concern to the State of Washington, including triangular-lobed moonwort, tall bugbane, royal Jacob's ladder, and Olympic cut-leaf synthyris. Mountain goats damage vegetation and destabilize soils through herbivory, trampling, and wallowing behaviors, which could adversely affect these species. By reducing or eliminating the impacts of mountain goats, the selected alternative will have substantial benefit to alpine and subalpine plant communities in the park, including special-status plant species.

Adverse impacts on vegetation under the selected alternative could result from crushing of vegetation associated with helicopter landings during capture of mountain goats as well as trampling of vegetation by management personnel entering mountain goat habitat on foot and handling captured mountain goats on the ground. Lethal removal activities using helicopters will not likely involve landing of helicopters in areas of potentially sensitive alpine and subalpine vegetation, except possibly to move mountain goat carcasses. Adverse impacts on vegetation from crushing by helicopter skids will be temporary and negligible. It is expected that management activities will take place with decreasing frequency as the mountain goat population is reduced, and the potential for adverse impacts will thus continue to diminish. After the cessation of management activities, it is likely that areas of affected vegetation will quickly recover, without any active restoration efforts. If trampling or crushing of vegetation by ground crews result in adverse impacts on vegetation, those actions are not expected to have adverse impacts on special-status plants at the species level.

Site preparation at three staging areas in the park could involve site leveling and grading, where necessary, which will cause direct, adverse impacts from removal or crushing of vegetation within the

footprint of the staging areas. To avoid or minimize impacts on vegetation, staging areas will be located in previously disturbed areas and vegetation removal will be minimized to the greatest extent possible. Clearing of a small number of trees, all less than 20 inches in diameter at breast height, could be required to enable safe helicopter flight at staging areas, and mowing or clearing of small shrubs will be necessary to facilitate operations at the Sweets staging area, which is located in a disturbed meadow composed of nonnative grasses. To prevent the introduction or spread of exotic, invasive species, staging areas will be inspected for invasive plants prior to any activities at staging areas and equipment and tools will be cleaned completely and free of weeds, seed, debris, and mud.

By removing approximately 90% of the mountain goat population, the implementation of the selected alternative will likely result in the elimination of mountain goat herbivory, trampling, and wallowing, thereby resulting in long-term, beneficial impacts on vegetation. Native plant species will not experience wide-scale effects. Following completion of the selected alternative, plant species in the park will have increased opportunity to persist and thrive in previously occupied mountain goat habitat, free of mountain goat grazing or wallowing. Thus, the selected alternative will not result in impairment to vegetation, including special-status plant species, in the park.

THREATENED OR ENDANGERED SPECIES

The park provides habitat for several species of resident and migratory animal species that are considered endangered, threatened, or candidate species under the Endangered Species Act (ESA). Monitoring trends of and preventing adverse effects to ESA-listed species is important to comply with legal requirements and to help the park understand and track ecosystem health and integrity. ESA-listed species in the park that were evaluated for potential effects by proposed mountain goat management activities included the northern spotted owl (endangered) and marbled murrelet (threatened). Three additional animals and one plant are listed under the ESA, including the streaked horned lark (threatened), yellow-billed cuckoo (threatened), Taylor's checkerspot butterfly (endangered), and whitebark pine (candidate). These four species utilize or occur in habitats that will not be affected by actions in the plan/EIS, or have never been documented as occurring in the park. Because management activities could not possibly affect them, these four species were not analyzed in the plan/EIS and would not be impaired. No threatened or endangered fish in the park will be affected by proposed mountain goat management activities. The use of staging areas to implement the selected alternative will not impact the northern spotted owl because none of the staging areas in the park are located near suitable northern spotted owl habitat. All potential staging areas have been evaluated by wildlife biologists from the NPS, Washington Department of Fish & Wildlife (WDFW), and US Department of Agriculture (USDA) Forest Service to ensure that impacts could be avoided to suitable habitat for both species. One staging area (Sweets) in the park is in proximity to potential habitat for the marbled murrelet, but any potentially affected marbled murrelet habitat is already degraded due to its location near open roads, because of human presence, increased corvid populations, and noise associated with the use and management of these areas.

Capture and lethal removal activities under the selected alternative may impact both the northern spotted owl and marbled murrelet. During capture and lethal removal activities, it is anticipated that northern spotted owls will continue their foraging behaviors and that any effects of noise and visual stimuli outside the nesting season will be insignificant. Both species may be impacted from the presence of helicopters flying over suitable habitat. During the marbled murrelet nesting season, helicopter operations more than 440 yards from known nests or from suitable nest trees in unsurveyed nesting habitat, will not affect this species. Helicopter operations 111 yards to 440 yards from habitat may affect marbled murrelet due to noise. However, except for take-offs and landings, discussed above, flight paths will maintain a minimum of 500 feet above marbled murrelet and northern spotted owl habitat, reducing the potential for impacts. Also, the duration of noise exposure will likely not last more than a few minutes and will be limited to the two separate 2-week management periods annually.

If any individual northern spotted owl or marbled murrelet is observed during project operations, a wildlife biologist will be notified and measures to minimize or eliminate disturbance will be applied. Although individuals may experience temporary impacts from noise, no mortality or population-level impacts are anticipated. Therefore, the selected alternative will not result in impairment to threatened or endangered species in the park.

ACOUSTIC ENVIRONMENT

The natural soundscape in the Olympic Mountains is a special resource to park visitors. The park is one of the best examples of a natural soundscape found anywhere in the national park system and includes natural sounds that are part of the biological or physical resources of the park. Proposed mountain goat management activities, specifically the use of helicopters and firearms, will result in noise that could impact visitors, wildlife, and wilderness character within the park.

Adverse impacts on the acoustic environment will result from elevated sound levels at staging areas by vehicles, helicopters, and human activity, along with intermittent helicopter noise and human activity in the backcountry during mountain goat capture and lethal removal activities. Impacts will be infrequent and sometimes locally intense due to the use of helicopters and firearms during the two separate 2-week management periods per year of initial management. Helicopters would operate up to a maximum of 12 days during each management period and a maximum of 8 hours per day. For lethal removal actions, it is possible for firearm noise to impact the acoustic environment over greater distances than helicopter noise, especially when under optimal atmospheric conditions or unobstructed by vegetation and topography. However, when occurring simultaneously with helicopter use during helicopter-based lethal removal, it is not anticipated that firearm use will have a substantial additive effect to the overall adverse impacts on acoustic resources due to the intensity and sustained nature of helicopter noise, the actual existing conditions on the landscape, and the fact that firearm noise will be instantaneous.

Several measures will be taken to minimize potential effects on the acoustic environment during implementation of the selected alternative. Helicopter flight paths to and from staging areas will be designed to minimize noise impacts to the greatest practicable extent. Also, temporary area closures in the immediate vicinity of mountain goat management activities will minimize noise impacts on backcountry and wilderness visitors.

Although the selected alternative will adversely impact the acoustic environment, a reduction of at least 90% or extirpation of mountain goats in the park will eliminate the need for future mountain goat management activities and reduce the need for firearms and helicopters to be used regularly after the initial 5-year management period. Park staff will no longer need to conduct aversive conditioning and hazing of mountain goats in areas of high visitor use, which includes clapping, shouting, and using paintball guns or nonlethal shotgun rounds. Also, periodic population surveys via aircraft will not be necessary to monitor mountain goats in future years after the selected alternative is implemented. Thus, due to the short duration of impacts under the selected alternative and the elimination of future impacts, the integrity of the acoustic environment in the park will persist for the enjoyment of future park visitors. Therefore, the selected alternative will not result in impairment to the acoustic environment in the park.

SOILS

Mountain goats cause soil disturbance and erosion by wallowing, trailing, and trampling. In the park, alpine and subalpine soils tend to be shallow, poorly developed, and fragile, making them sensitive to disturbance. Any proposed management that reduces or eliminates exotic mountain goats from areas with sensitive soils would result in beneficial impacts on soils.

The selected alternative will primarily cause impacts to soils at staging areas in the park. However, mitigation measures to limit these effects include restoration activities, such as soil aeration and restoration and erosion control structures (if needed) to reverse the effects of compaction. Impacts on soils from continued wallowing, trailing, and trampling behaviors of the remaining mountain goat population will persist during the initial management phase of the selected alternative; however, there will be substantial, long-term, beneficial impacts on soils after the mountain goat population has been reduced and these activities no longer occur.

Ultimately, the reduction or elimination of mountain goats will benefit the conservation of sensitive alpine and subalpine soils because these soils will no longer be disturbed by mountain goats and resulting erosion. Impacts will progressively decrease until management activities are complete and any remaining mountain goats will not have measurable impacts on soils, resulting in long-term, beneficial impacts on soils in the park. Areas where soils are most heavily affected by mountain goats will begin to recover over time as vegetation becomes reestablished and holds the soil in place, improving the condition of the resource over its current condition. Therefore, the selected alternative will not result in impairment to soils in the park.

ARCHEOLOGICAL RESOURCES

People have lived on and been drawn to the Olympic Peninsula for millennia. Its diverse landscape and natural resources provided for generations of native peoples. Today these resources still have great significance to native peoples. Hundreds of archeological sites document more than 9,000 years of human occupation of the park, and approximately 650 sites reveal clues about the 200-year history of exploration, homesteading, and community development in the Pacific Northwest. An estimated one percent of the park has been systematically inventoried for archeological resources, although results from this work indicate that there are thousands of archeological sites within the project area. Mountain goat wallowing behavior has the potential to degrade or destroy both documented and undocumented archeological resources in the park. Mountain goat wallowing has had an adverse effect on archeological resources in the Olympic Mountains.

There will be no direct effects from either the capture or lethal removal of mountain goats because the associated management activities will not impact archeological sites. There is the potential for indirect, adverse impacts on archeological resources from the continued presence of mountain goats prior to the project's completion. Once initial management activities begin, the potential for adverse effects to archeological resources will diminish as mountain goats are reduced or eliminated from the park. The reduction of the mountain goat population will benefit archeological resources over the long term because the number of mountain goats will be reduced to levels such that there is little chance for archeological sites to be impacted.

To further protect archeological resources, if previously unidentified cultural resources are encountered during implementation of the project, activities will cease pending an investigation and evaluation of these materials by a qualified archeologist. Also, mountain goat baiting locations (i.e., salt block placement) will be reviewed by cultural resource staff prior to their use to ensure that baits are not placed within or near archeological sites. Staging areas will be surveyed if ground disturbing activities are required, in consultation with the Washington State Historic Preservation Office (SHPO) prior to implementation and use. Therefore, implementation of the selected alternative will not result in impairment to archeological resources.

SUMMARY

In the best professional judgment of the NPS staff involved with the plan/EIS, no impairment of the park's resources or values will result from the implementation of the selected alternative (alternative D). This conclusion has been made based upon the impact analysis performed in the plan/EIS, after reviewing relevant scientific studies, in consultation with subject matter experts and others who have relevant knowledge or experience, and following civic engagement and public involvement.

The implementation of the selected alternative will affect many natural resources in the park. However these effects include substantial beneficial impacts from the removal of adverse impacts associated with the presence and management of mountain goats in the park. There would be no impairment to wildlife and wildlife habitat, including special-status species; vegetation, including special-status plant species; threatened or endangered species; the acoustic environment; soils; or archeological resources. The beneficial impacts on these resources will likely continue indefinitely because any mountain goats remaining on the landscape will be too few for the population to rebound.