

**Environmental Assessment
April 1999**

**Brooks River Bear-Viewing Facility
Katmai National Park and Preserve
Alaska**

**United States Department of the Interior
National Park Service**

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PURPOSE AND NEED

The National Park Service (NPS) is considering constructing a new bear-viewing facility near the Brooks River in Katmai National Park and Preserve. This facility would have the following components:

1. A bear-viewing platform on the south shore of the river about 300 feet downstream of the existing Brooks River falls' platform.
2. An elevated boardwalk providing access to the falls platform and the new platform (the boardwalk would replace a portion of the existing Brooks Falls trail).
3. An elevated gathering and interpretive area on the boardwalk where it divides to go to either the falls platform or the new platform.

Figures 1 (location map) and 2 (site map) show the vicinity of the existing and proposed facilities. The purpose of building this bear-viewing facility is to allow visitors to view bears from more locations along the river corridor and to provide access to these sites with minimal disturbance to the areas' natural and cultural resources. An additional purpose of constructing the facility is to implement, in part, the *1996 Brooks River Area Development Concept Plan*.

During the peak visitor use period from late June to early August, visitors may have to wait an hour or more at the lower platform before they can continue on to the falls platform. These delays occur for two reasons: (1) the falls platform is full, so visitors must wait at the lower platform or elsewhere until space becomes available; or (2) bears are on the Brooks Falls trail, preventing people from using the trail. Adding a third platform would provide visitors with an additional place to view bears while waiting for access to the falls platform and would be a new destination in and of itself. The gathering/interpretive area on the boardwalk also would provide a place for visitors to spend time until space on the falls and new platform became available. Building an elevated boardwalk would reduce the "bear jam" problem along this segment of trail, enabling visitors to continue to the platform without having to wait until the bear(s) moved off the trail.

In addition to reducing delays in accessing the falls platform, the new boardwalk is needed for several other reasons. The latter part of the existing Brooks Falls trail extends up along the crest of a river terrace and crosses an archeological site, going through several depressions left from abandoned semi-subterranean houses. In many places, visitor traffic has eroded the protective layer of Katmai ash covering these resources. Abandoning this section of trail in favor of an elevated boardwalk would eliminate the potential for continued human-caused erosion and associated damage to these archeological resources, and would allow the NPS to stabilize the archeological features and protect the resources. Erosion also is creating ruts, exposing tree roots, and creating slick surfaces along this section of trail, causing some visitors to slip and fall; the boardwalk would eliminate this safety concern.

The existing Brooks Falls trail intersects numerous bear paths as it traverses the crest of the river terrace and approaches the falls, yet the rolling topography and high vegetation limit visibility. As a result, visitors may suddenly encounter bears at close range. NPS bear specialists and managers are concerned about visitor safety given the nature and frequency of these close-range encounters. A boardwalk would reduce the potential for direct human-bear encounters. Of equal concern is the possible effect a large numbers of visitors might have on bear behavior, use patterns, and densities, particularly where the Brooks Falls trail traverses the top of the river terrace and approaches the

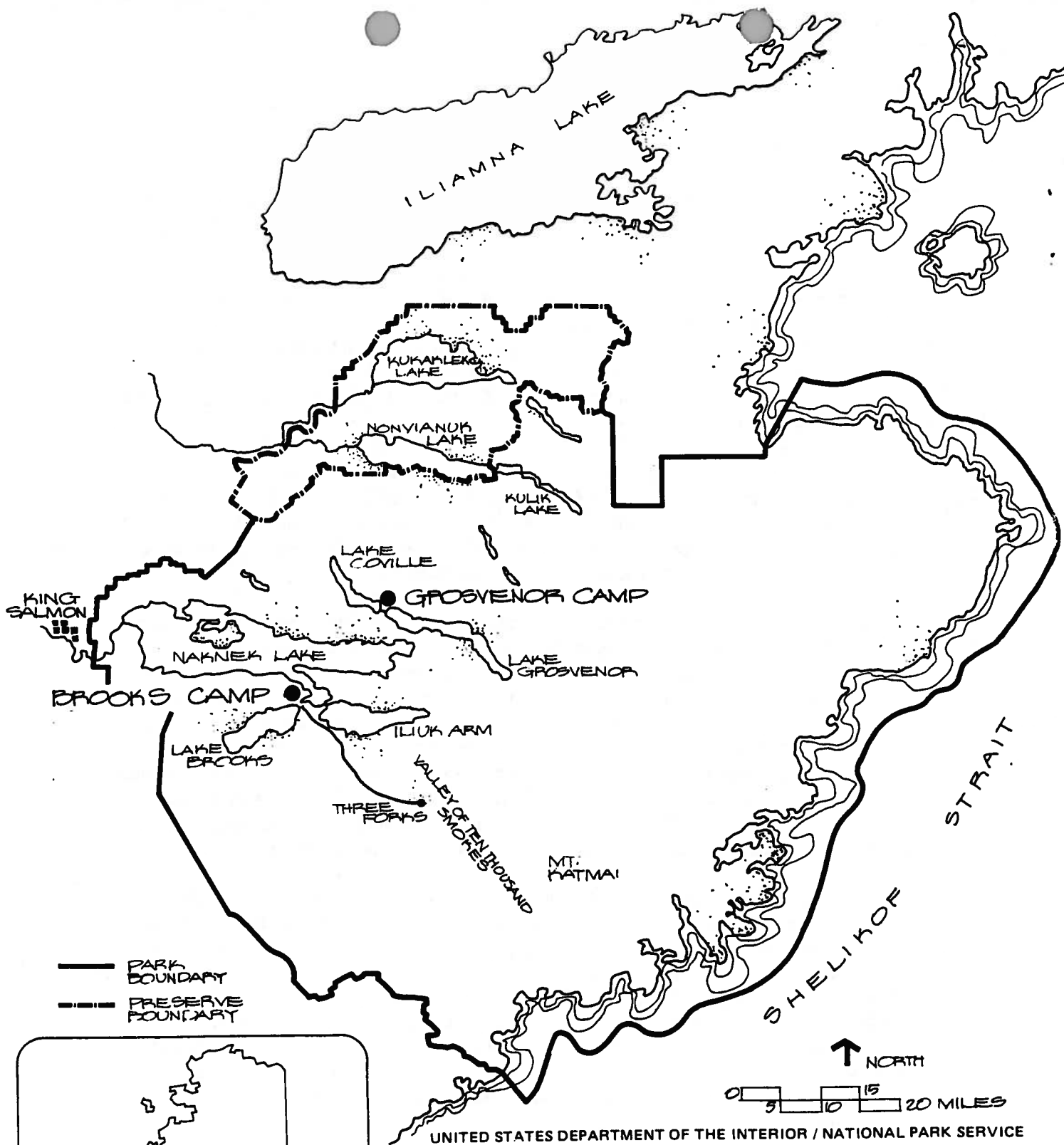


FIGURE 1 **LOCATION**
 KATMAI NATIONAL PARK AND PRESERVE

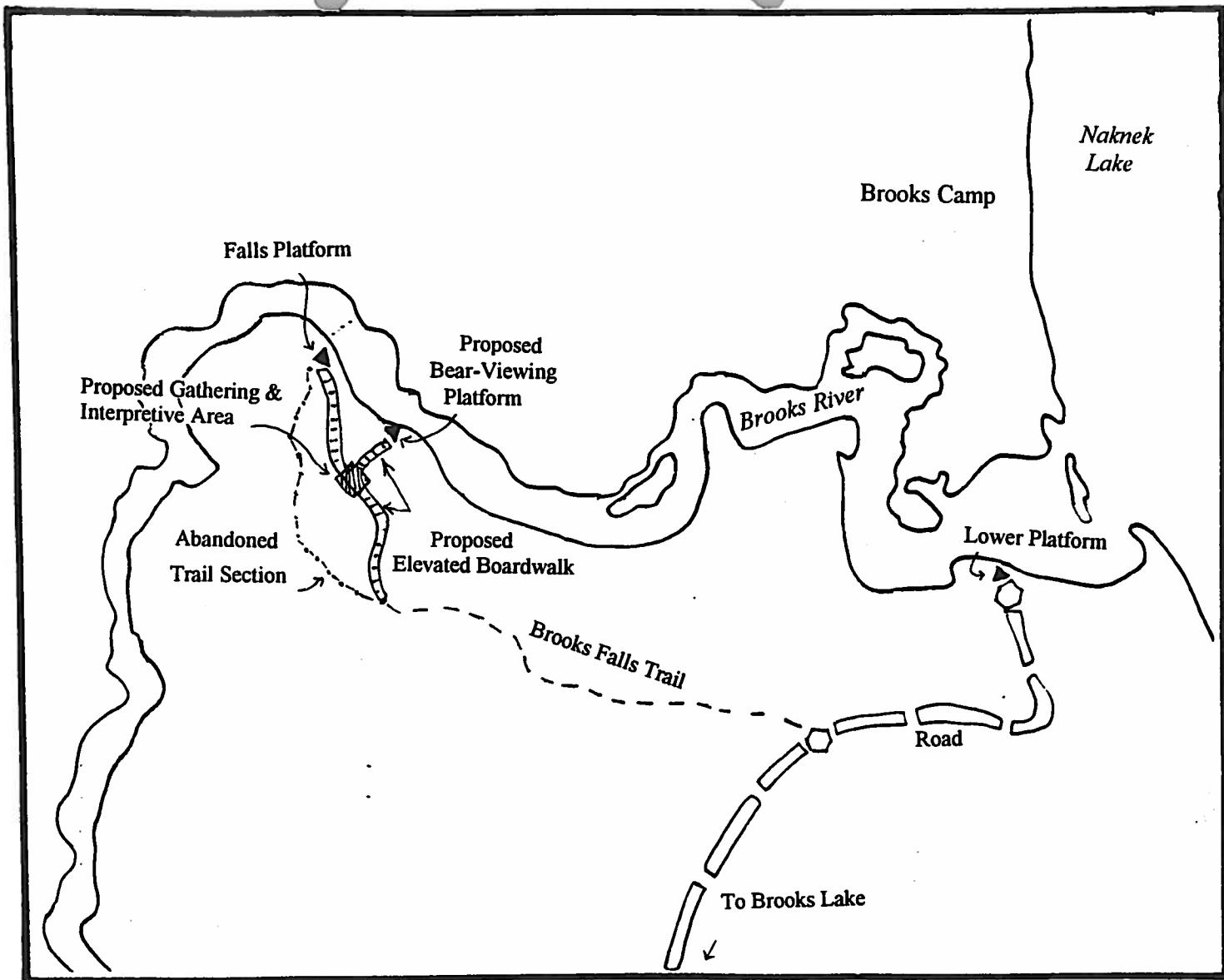


FIGURE 2
PROPOSED VISITOR FACILITIES
SITE MAP

(Not To Scale)

falls platform. Abandoning this section of trail would benefit bears by reducing human activity in this high bear-use habitat.

This environmental assessment presents and analyzes a “no action” and a proposed action alternative, and the associated environmental consequences. It has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, and the regulations of the Council on Environmental Quality (40CFR 1508.9).

IMPACT TOPICS

To focus the environmental assessment, the NPS planning team selected specific impact topics for further analysis and eliminated others from evaluation. Subsequent discussions of the affected environment and environmental consequences related to each alternative focus primarily on these impact topics. A brief rationale for the selection of each topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Considered

Soil and Vegetation. Soil and vegetation may be impacted by construction of the proposed bear-viewing facility. *NPS Management Policies* direct the NPS to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of plants.

Water Resources. It is possible that water may be transported from the Brooks River to construct the proposed facility; if so, water resources may be affected. The Clean Water Act, The National Environmental Policy Act, and *NPS Management Policies* require consideration of impacts on water resources.

Brown Bears and Other Wildlife. The design and construction of the proposed bear-viewing facility could both affect bears, both positively and negatively. The NPS is also concerned about the level of human-bear interactions along the Brooks River. Legislation creating Katmai National Park and Preserve requires the protection of brown bear, moose, sockeye (red) salmon, other wildlife, and their habitat. *NPS Management Policies* direct the NPS to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of wildlife populations.

Archeological and Ethnographic Resources. The banks of the 1.5 mile long Brooks River and its associated series of ancient beach ridges and river terraces are the location of the Brooks River Archeological District, now also designated a national historic landmark. The NPS is responsible for protecting these resources from physical damage. Native Alaskan communities value the Brooks River area because it is within their traditional homeland, and the remains of some of their ancestors are buried there. The National Historic Preservation Act, the National Environmental Policy Act, the NPS Organic Act, *NPS Management Policies*, and NPS-28 (*Cultural Resource Management*) guidelines, require the NPS to consider effects of their actions on these resources.

Visitor Experience. Bear-viewing along the Brooks River is the primary reason visitors are attracted to the area. Bear-viewing opportunities, as well as other aspects of the visitor experience, could be adversely or beneficially impacted by the proposed action.

Local Economy. The proposed action may affect visitation at the Brooks River area, in turn possibly affecting concession, commercial, or local businesses that earn revenue by bringing visitors to the area. The National Environmental Policy Act requires consideration of all impacts on the human environment including economic impacts.

Park Management. Because of safety concerns due to the high potential for bear-human interactions in the Brooks River corridor, NPS staff are required to be on-site to assist and direct visitors and provide interpretive, education, and safety information. The proposed action could affect the level and manner in which staff provide these services.

Impact Topics Dismissed from Further Consideration

Air Resources. The Clean Air Act, The National Environmental Policy Act, and *NPS Management Policies* require consideration of impacts on air resources. Motor vehicle use would be limited to all-terrain-vehicles for transport of materials and equipment; therefore, the impacts on air quality from related emissions would be negligible.

Threatened, Endangered, and Other Special Status Species: The Endangered Species Act requires an examination of impacts on all federally threatened or endangered species. *NPS Management Policies* also require examination of the impacts on these species, as well as federal candidate species, state-listed threatened or endangered species, or state-listed species of special concern. No such species are found in the project area, nor is there potential habitat for these species.

Wetlands and Floodplains. Consideration of impacts on wetlands and floodplains is required by Executive Orders 11990 ("Protection of Wetlands") and 11988 ("Floodplain Management"). The Brooks River floodplain, as defined by Executive Order 11988, is the area that may be inundated at least once within a 100-year period. The proposed bear-viewing facility would lie within the 100-year Brooks River floodplain; however, all components of this facility would meet *NPS Floodplain Management Guidelines* for construction in a floodplain, because they are intended for day use only. Potential impacts of flooding on the facility would be mitigated, because the structures would be elevated. Potential impacts of the proposed action on the floodplain would be mitigated by design; no alternation of hydrologic flow or functional capacity would occur. There are no wetlands within the project area.

Historic Resources. . The National Historic Preservation Act, the National Environmental Policy Act, the NPS Organic Act, *NPS Management Policies*, and NPS-28 (*Cultural Resource Management*) guidelines, require the NPS to consider effects of their actions on historic resources. The only significant historic resource in the vicinity of the project area is the defunct fish ladder located above the Brooks River falls which would not be impacted by the proposed action.

Subsistence. The effects of the proposed action on subsistence uses and needs was dismissed from further analysis because (1) Katmai National Park (including the project area) is closed to

subsistence uses, and (2) the proposed action would not affect regional subsistence resources or activities outside the park. There would be no potential for significant subsistence restrictions. An ANILCA Section 810(a) summary evaluation and analysis is contained in Appendix 1.

Protected Property and Exclusive Use Area. The heirs of Palakia Melgenak own a parcel of land that extends south from the mouth of the Brooks River and east to the ordinary high water mark on the shore of Naknek Lake. A conservation easement has been acquired by the National Park Service on this protected property. A portion of this protected property is for the exclusive use of the heirs. The proposed action would be implemented outside of this protected property and the exclusive use area, and would have neither direct nor indirect impacts on either.

Executive Order 12898, "Environmental Justice." Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires all federal agencies to include environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This project is not expected to result in significant changes in the socioeconomic environment of the project area, and therefore is expected to have no direct or indirect impacts to minority or low-income populations or communities.

BACKGROUND

Katmai National Park and Preserve encompasses approximately 4.3 million acres of public land on the Alaska Peninsula. The park is the largest sanctuary for the Alaska brown bear. Summer and autumn concentrations of bears occur along the park's major salmon streams and are accessible for observation and scientific study.

The most popular bear-viewing areas are along the Brooks River, at Brooks Falls and near the mouth of the river where it empties into Naknek Lake. Brooks River offers more people the opportunity to reliably observe large concentrations of Alaskan brown bears in a natural setting than anywhere else in the state of Alaska, and is one of the principal reasons people come to Katmai National Park and Preserve. On a typical week in July, the number of visitors in this area exceeds the total annual number of people who visit all other established Alaska bear-viewing areas combined (e.g., Pack Creek, McNeil River). (For more information on visitor use, see the "Affected Environment" section.)

Past and Present Visitor Management in the Brooks River Corridor

The NPS has taken several actions to better manage visitors along the Brooks River in order to reduce visitor impacts on bears and to provide for visitor safety. In 1983, a small elevated viewing platform, with a capacity for about 15 people, was constructed on the south shore at the Brooks River Falls. This facility served to concentrate and separate visitors from bears in such a way that their patterns of movement and behavior became predictable.

Over the next decade, as the number of bears using the falls and the number of visitors to the Brooks River area increased, the falls platform became crowded. In an attempt to address the problem, a second platform was constructed in 1992 at the floating bridge on the lower section of

the river. The NPS also implemented a system to rotate visitors and limit viewing time at the falls platform. However, these efforts did not fully resolve the overcrowding issue at the falls. In addition, by the mid-1990s, the falls platform itself was deteriorating and safety was becoming an issue. Therefore, in 1997, to address both the overcrowding issue and the safety hazard, the falls platform was removed and a new, larger platform was built at the same site. This new falls platform was designed to accommodate 40 people.

The replacement and expansion of the falls platform was one action item in a larger plan for management, use, and development of the entire Brooks River area: the 1996 *Brooks River Area Development Concept Plan* (DCP). An environmental impact statement (EIS) was completed for this plan, and alternative plans, with a record of decision signed in 1996. Other actions called for in the DCP/EIS include:

- removal of all NPS and concession facilities north of the Brooks River, and the return of this area to a more natural state;
- construction of new visitor facilities (ranger station/orientation center, lodge, campground, employee housing, and maintenance facility);
- establishment of day use limits for the Brooks River area;
- recommendation of temporary closures on certain sections of the Brooks River during times of intense bear use;
- construction of a mid-river bear-viewing platform located between the existing falls and lower platforms if absolutely necessary given further Limits of Acceptable Change monitoring;
- rehabilitation of the Brooks Falls trail (boardwalks in boggy areas, hardening, removing or trimming some vegetation, and rerouting trail sections); and
- improvement of the area's interpretive program.

Relationship of this Proposal and Environmental Assessment to the 1996 *Brooks River Area Development Concept Plan/Environmental Impact Statement*

Prior to implementing some of the actions described in the 1996 *Brooks River Area DCP/EIS*, and approved in the 1996 record of decision, the NPS must complete further environmental analysis and documentation under the National Environmental Policy Act of 1969. Subsequent evaluation of the proposed mid-river bear-viewing platform and Brooks Falls trail rehabilitation have resulted in changes that warrant additional environmental review in this EA.

The Mid-River Bear-Viewing Platform. As noted above, the DCP/EIS called for construction of a mid-river bear-viewing platform located between the existing falls and lower platforms if absolutely necessary given further Limits of Acceptable Change monitoring. The original site considered for this platform was the river "cutbank," about halfway between the falls and lower platforms. However, after further consideration, the NPS concluded that this site was unsuitable as a platform location for several reasons. The cutbank area is "an important use area for sows with cubs and for other bears which rarely use other more populated (by both bears and people) river areas" (NPS 1993). In addition, the river is eroding the cutbank at a significant rate and, given that this erosion is likely to continue, it would destabilize or otherwise damage the foundations of any platform built there. Finally, the area was found unsuitable because archeological resources exist there, and human burials likely are present as well.

Although the cutbank location was eliminated from further consideration, the NPS and members of Congress nonetheless realized a need for a third platform somewhere along the river between the existing falls and lower platform. As noted in the "Purpose and Need" section of this environmental assessment, in spite of all previous efforts, the number of visitors wishing to view bears from the falls platform continued to be greater than the facility could support at one time. As a result, during the peak season, visitors often had to wait over an hour at the lower platform until space for them became available on the falls platform. A third platform, now proposed for an area upstream of the original "cutbank" location, was determined necessary to alleviate the crowding and wait time at the lower platform, as well as to provide additional bear-viewing opportunities in the river corridor.

The Brooks Falls Trail. The DCP/EIS originally called for maintaining the Brooks Falls trail in the same location, but rehabilitating it by adding boardwalks in boggy areas, hardening, removing or trimming some vegetation, and rerouting trail sections. However, when this conceptual proposal was evaluated more closely subsequent to the DCP/EIS, the NPS found that the minor modifications proposed would not adequately address the many visitor safety and resource issues related to the trail. For example, vegetation along the trail could not be trimmed or removed to the extent necessary to avoid surprise encounters between visitors and bears. Similarly, due to the high density of bears in the area, simply realigning certain trail sections would not reduce the potential for human-bear encounters. Further discussions among bear biologists and other park staff led to the current proposal that the entire length of trail along the top of the river terrace be abandoned and an elevated boardwalk be built at the base of the river terrace. Archeologists concurred with this proposal as it would afford better protection for the cultural resources in the area.

ALTERNATIVES

NO ACTION ALTERNATIVE

This alternative provides a baseline for evaluating the changes and impacts of the other action alternatives. Under this alternative, Katmai National Park and Preserve would continue to maintain the existing visitor facilities along the Brooks River corridor, and no new bear-viewing facilities would be developed.

Visitors would continue to have access to the two existing bear-viewing platforms on the south shore of the Brooks River: the lower and falls platforms. The 600 square foot lower platform is located at the floating bridge near the river's mouth and can comfortably accommodate a total of about 75 people. This platform is composed of two tiered viewing decks, with a walkway connecting to a third viewing deck. To reach the wooden platform, which is about ten feet high, visitors use either a stairway or an accessible ramp. Gates are located at the top and bottom of the ramp and stairway to prevent bears from reaching the platform. Support structures are positioned to allow bears to pass under the platform if necessary; however, the structures were not purposefully designed to facilitate such movement.

The falls viewing platform is a newly constructed (1997) structure, and was designed to accommodate a combined total of 40 people on its two tiered viewing decks. The decks are connected by a short flight of stairs and enclose a total area of about 400 square feet. The wooden platform is 7 to 10 feet high, and is accessed by a boardwalk about 60 feet long by 4 feet wide and elevated 10 feet above the ground. This short boardwalk connects to the existing Brooks Falls trail on a higher river terrace. A stairway provides access onto the platform from the ground for administrative activities or in case of an emergency. The boardwalk and stairway are gated to bar bear access. Platform support structures were intentionally designed so that bears may pass beneath the platform and boardwalk unencumbered.

Under this alternative, visitors would continue to travel from the lower platform to the falls platform by way of the existing Brooks Falls trail. The 0.6 mile trail begins at a trailhead along the road connecting Naknek and Brooks Lakes. The latter part of the trail extends up along the crest of a river terrace and crosses an archeological site, going through several depressions related to semi-subterranean houses. On this section of trail, the NPS would continue to stabilize eroded areas where necessary to protect archeological resources. Along the first part of the trail, before it ascends the river terrace, the NPS would continue to use gravel fill to mitigate erosion from heavy visitor foot traffic. Trimming of vegetation along the entire trail would continue to enhance visibility. No other actions would be taken to improve conditions along this trail.

Upon their arrival at Brooks River, visitors would continue to be informed of appropriate behavior around bears. In addition, during the two to three weeks in July, when bear numbers are especially high, up to two park staff would continue to be assigned to escort visitors along the section of trail that traverses the top of the river terrace to the falls platform.

PROPOSED ACTION ALTERNATIVE

Alternative 1 is the action alternative proposed by the NPS. Under this alternative, the NPS would a new bear-viewing facility on the south shore of the Brooks River. This facility would have several components: (1) a bear-viewing platform between the lower and falls platforms; (2) an elevated boardwalk accessing the falls platform and the new platform (the boardwalk would replace a portion of the existing Brooks Falls trail); and (3) an elevated gathering and interpretive area on the boardwalk where it divides to go to either the falls platform or the new platform. The new facility would meet accessibility standards established by the 1990 Americans with Disabilities Act. The facility would be rustic in design and built of materials that would blend with the natural environment.

The new bear-viewing platform would be built on the south bank of the river about 300 feet downstream from the falls platform. It would be sited to not be visible from the other two existing platforms. The viewing platform (approximately 400 square feet big) would be designed to accommodate a combined total of 40 people on its two tiered viewing decks (see Figure 3). The platform would be elevated a maximum of eight feet above the ground. A stairway would be provided to allow access onto the platform from the ground in an emergency or for administrative activities. As with the existing platforms, the stairway would be gated to prevent access by bears. Materials used to build the platform, and the structural support features, would be similar to the falls platform. "Post and pad" footings likely would be used. This type of footing usually consists of a wooden post held in place on the ground by a concrete or wooden pad that is buried just below the organic layer but does not disturb deeper soil layers.

An elevated boardwalk, ten feet high, would be constructed to allow visitor access to the new platform, as well as to the existing falls platform. The boardwalk would start close to where the existing Brooks Falls trail begins to climb the river terrace. A ramp would form the entrance to the boardwalk, ascending gradually from the ground to the ten-foot level. This ramp would be designed in a manner to prevent access by bears. The main section of the new boardwalk would extend from the junction with the existing trail to the falls platform and would be 5 feet wide and about 920 feet long. Partway along this main section, another section of boardwalk would form a short spur to the new viewing platform; this spur would be 5 feet wide and 188 feet long. In addition, along the entire boardwalk, wider areas would be developed to allow groups of people to pass each other easily. Gates would be located strategically at the ends and mid-sections of the boardwalk to create at least three visitor safety zones in the unlikely event that a bear got on the boardwalk. As with the viewing platform, it's likely that "post and pad" footings would be used.

An elevated gathering and interpretive area would be located on the boardwalk where it divides to go to either the falls platform or the new platform. This area would have a roof and would be capable of holding up to 40 people. Visitors would be able to receive interpretive information here while waiting for access to the two platforms.

The approximately 900 foot long section of the Brooks Falls trail that currently extends up and along the terrace would be abandoned. This trail section, covering about a fifth of an acre, would be scarified where necessary (e.g., where soil is compacted) and would be allowed to naturally revegetate. Where necessary, fill would be used to prevent further erosion of denuded areas and related damage to archeological resources.

BEAR VIEWING PLATFORM / RANGE OF VIEW

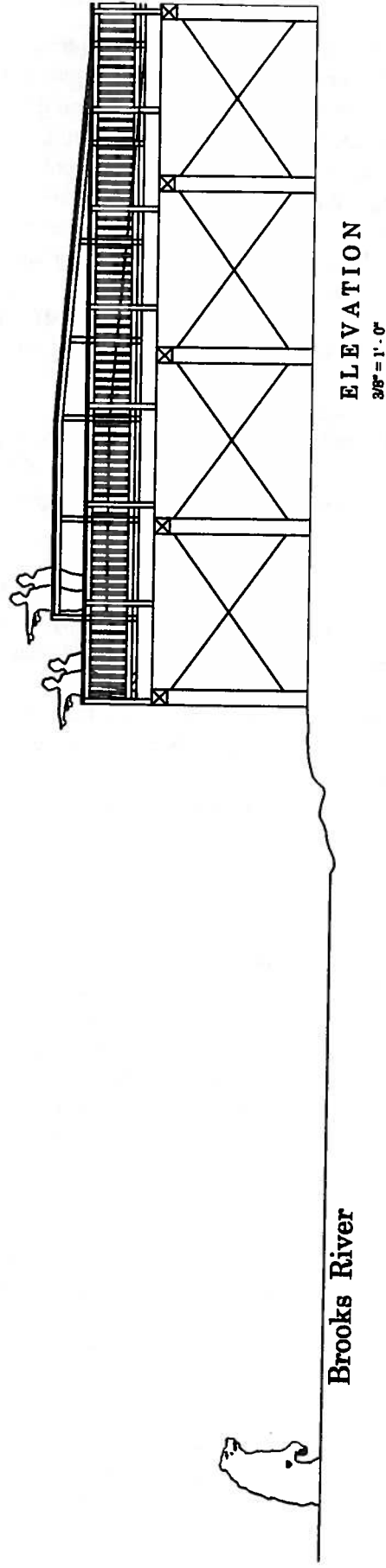


FIGURE 3

PROPOSED BEAR-VIEWING PLATFORM

Prior to construction, about one-half acre of vegetation would be cut to ground level with handtools, including chainsaws, for the facility footprint and associated construction staging and work areas. Equipment and materials would be transported to the project site using four-wheeled all-terrain vehicles along the remaining 2,000 foot section of the Brooks Falls trail. This trail section, which extends from the trailhead at the road to the beginning of the proposed boardwalk, would be upgraded to facilitate the transport of equipment and materials. The trail alignment would be straightened by cutting about 35 small-diameter (6 to 8 inches) birch and spruce trees to ground level. The trail tread would be smoothed by overfilling protruding stumps, roots or rocks with gravel, or by removing such obstacles and backfilling the holes. The entire length of the trail would be hardened with gravel or similar material (however, the trail would not be paved). Upgrading this remaining 2,000-plus foot section of trail also would serve to improve accessibility of the trail.

When construction was completed, most of the half-acre of disturbed area for the facility footprints and staging area would be scarified and allowed to naturally revegetate. About 920 square feet would be permanently lost where each footing is placed on the ground. Also, for safety reasons, trees would be trimmed to prevent them from being used by bears to gain access to the boardwalk or platform.

The platform and boardwalk would be built in one or two phases. If possible, all construction would be completed in one phase in Late Summer 1999 (see "Mitigation" below). If two phases were required, the first phase would occur in Late Summer 1999 and the second phase would be completed in Spring 2000. Under both the one or two phase scenario, all materials and equipment would be transported to the Brooks River area in Late Summer 1999, where they would be stockpiled either at the project site or at an existing staging area such as the maintenance compound at Brooks Camp. Gravel fill would be obtained from existing gravel pits located in the park. If concrete were used for the structural footings, water to mix the concrete would be drawn from Brooks River.

Mitigation

Archeological Resources. Archeological resources are subject to protection under the National Historic Preservation Act of 1966, as amended, the Archeological and Historic Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, the Archeological Resources Protection Act of 1979, and the Native American Grave Protection and Repatriation Act of 1990. The implementing regulations for these acts stipulate procedures for consulting with the Alaska State Historic Preservation Officer, the Advisory Council on Historic Preservation, and interested Native Alaskan groups under section 106 of the National Historic Preservation Act. In addition, the NPS has developed a set of guidelines for the management of cultural resources that follow the laws and regulations.

Every effort would be made to avoid archeological resources during project design and construction. Most of the project area has not been inventoried for archeological resources; therefore, archeological investigations would be conducted before ground disturbance anywhere within the facility footprints, construction staging and work areas, and along the remaining trail section that extends from the road to the start of the boardwalk. (Ground disturbance is defined as any disturbance that involves cutting through the Katmai ash layer into deeper layers, including removing stumps, roots, and rocks.) To facilitate this effort, the specific locations of the boardwalk and platform footings in the floodplain would be located and flagged ahead of time. If archeological resources were discovered in an area slated for disturbance, professional

archeologists would evaluate the significance of the site. Appropriate actions for protecting the resource would be recommended after consultation with the Alaska SHPO, the Advisory Council and other interested parties according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Grave Protection and Repatriation Act of 1990. If there were any alterations to the planned footing locations after the clearance was conducted, these new areas would be investigated and appropriate actions taken (as listed above) if any archeological resources were discovered.

The first 200 feet of the boardwalk would cross an archaeological site included in the Brooks River Archeological District National Historic Landmark. If the boardwalk could not be designed to avoid an effect on this site, a data recovery program would be conducted to mitigate the effects of boardwalk construction. Consultation would take place with appropriate Alaska Native organizations in accordance with the provisions of the Native American Grave Protection and Repatriation Act of 1990.

The section of the Brooks Falls trail that crosses the depressions related to semi-subterranean houses would be closed and rehabilitated so that areas denuded of vegetation or with rutting into or through the Katmai ash layer would be stabilized as needed to protect subsurface archeological deposits. If fill was used in this process, it would be locally obtained sod that retains Katmai ash around the grass roots; this would keep the soil strata in its natural position. Sod-borrow areas would be cleared by an archeologist prior to sod removal.

Soils and Vegetation. Construction limits would be identified in construction documents and specifications, and fenced or signed in the field to protect vegetation from unwarranted disturbance. A construction supervisor would monitor ground and vegetation disturbance to ensure that it is restricted to the minimum area necessary.

After construction was complete, compacted areas would be scarified to promote natural revegetation of the disturbed area. Organic materials removed during construction would be reincorporated in some form into the disturbed area.

Bears. The construction coordinator would consult closely with the park's Chief of Resource Management and NPS bear biologists to assure construction occurred during a period of minimal bear activity. To the extent practicable, all construction activities in the first phase would be scheduled in Late Summer 1999 to coincide with the time when the river does not provide a major source of fish for the bears, and in advance of freeze-up. This generally occurs in August; however, due to variations in the salmon run, actual dates vary from year to year. If a second phase was needed, it would be scheduled to occur in Spring 2000 (i.e., from May through June), allowing construction to be completed prior to the period in July when the bears use the river for catching sockeye salmon.

Both the new platform and the falls platform, as well as the Brooks Falls trail/boardwalk, would be closed to the general public during late evening and early morning hours to allow use of the area by bears without human disturbance.

An NPS bear biologist and other park staff would continue to conduct monitoring in the Brooks River area to determine how human use and facilities affect bears. In particular, monitoring would focus on better understanding the effect of the boardwalk and platforms on bear travel, behavior, age and sex ratios, and total numbers.

AFFECTED ENVIRONMENT

SOILS AND VEGETATION

The Brooks River area is underlain by largely unconsolidated, surficial deposits, composed primarily of alluvial and glacial gravels. Ash layers throughout the soil horizons and pumice deposits along the lakeshores attest to the influence of volcanic activity on the area. The combination of coarse gravels, ash, and organic matter have resulted in well-drained soils with minimal surface runoff.

The south shore of the Brooks River is predominantly characterized by a closed canopy of white spruce and Kenai birch, with an understory of various species of cranberry, willow, and alder. Grassy meadows create small openings in the forest. In Katmai, an estimated 128,000 acres of open and closed canopy white spruce forest exists, 31,400 acres of which is within a 12 mile radius of Brooks River.

WATER RESOURCES

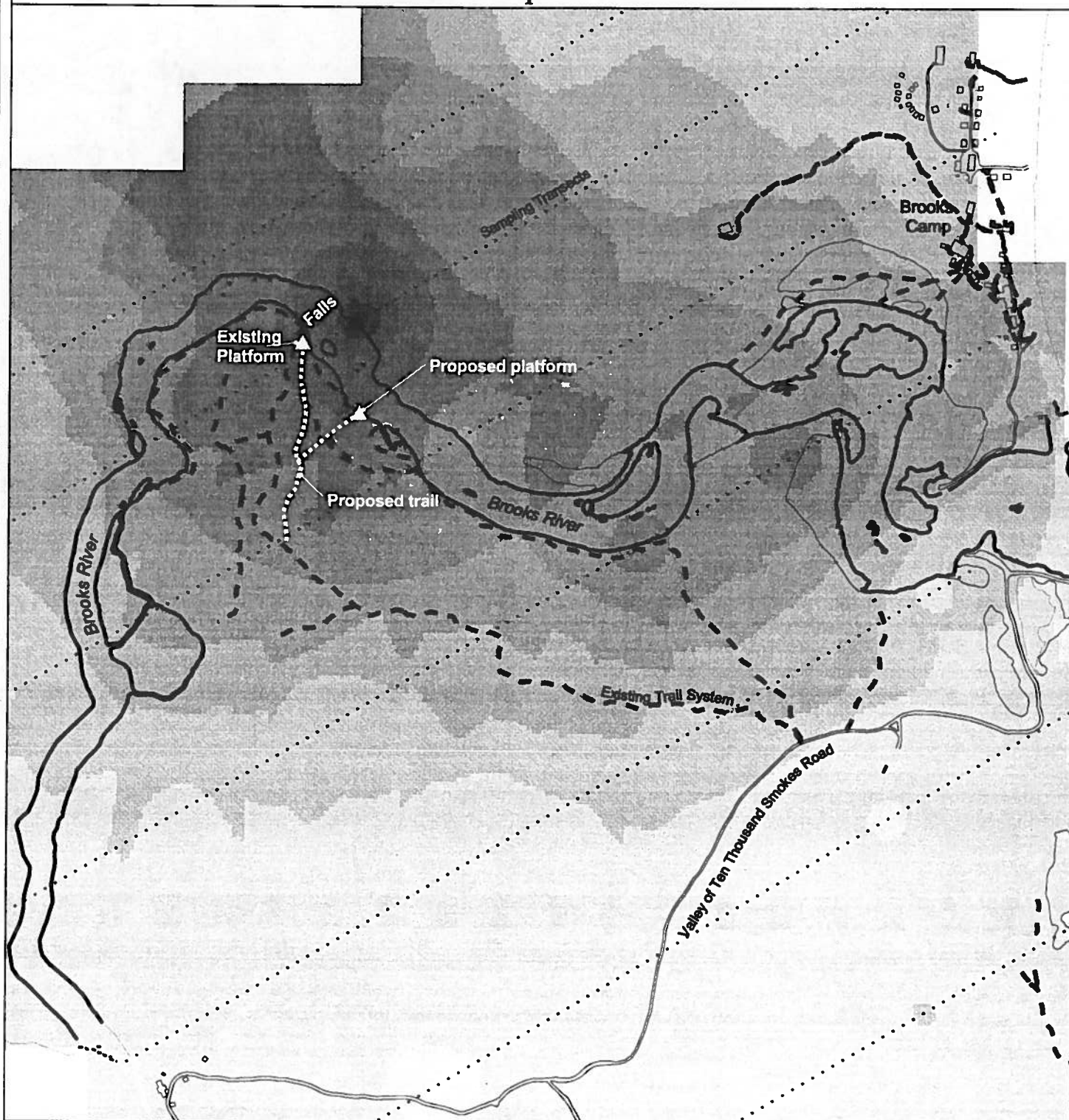
The 1.5 mile Brooks River flows from Lake Brooks to Naknek Lake. A fault line bisects this clearwater river approximately halfway down its length, creating the 6-foot-high Brooks Falls. The lakes and river form a part of the Naknek River system, draining 2,660 square miles of the park and eventually flowing into Bristol Bay, on the Bering Sea side of the Alaska Peninsula. The Brooks Lake drainage itself has no headwater glaciers, and is approximately 310 square miles in size. Water levels rise throughout the summer, peaking in August, likely reflecting gradual melting of frozen groundwater. Brooks River discharge is about 250 cubic feet per second.

BROWN BEARS

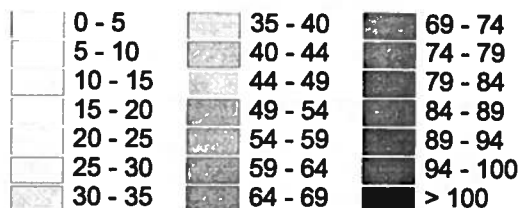
The brown bear is one of the most conspicuous of the wildlife species found within the Brooks River corridor. The major bear concentrations in the Brooks River area occur in July and from late August through October as bears use the area to feed on the red salmon. As many as 40 to 60 bears arrive to fish for the salmon in the river (there are an estimated 1,500 and 2,000 bears parkwide (Sellers et al. 1998)). The bears remain in the river corridor through the latter part of July, after which most disperse to other streams with later-timed runs. Bears begin returning to the Brooks River again in late August to catch spawning and spawned-out salmon concentrated in the river. The Brooks River has salmon available longer than any other river in the park, because it has both the earliest run of salmon in the season, as well as late accumulations of spawned-out salmon in October (Troyer 1980).

Data collected in 1998 revealed that the area traversed by the existing Brooks Falls trail along the top of the river terrace is heavily traveled by bears (Figure 4) (NPS 1999b). Other data collected in the 1998 field season suggest that this same area also contains a high density of bear beds (the highest density of bear bedding in the Brooks River area occurs on top of the terrace just west of the trail (Figure 5)) (NPS 1999b).

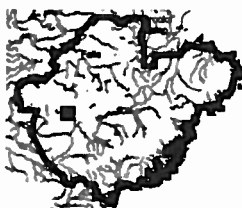
FIGURE 4 Interpolated Bear Trail Intensity
in Area of Proposed Boardwalk



Bear Trail Intensity Values



Map Location

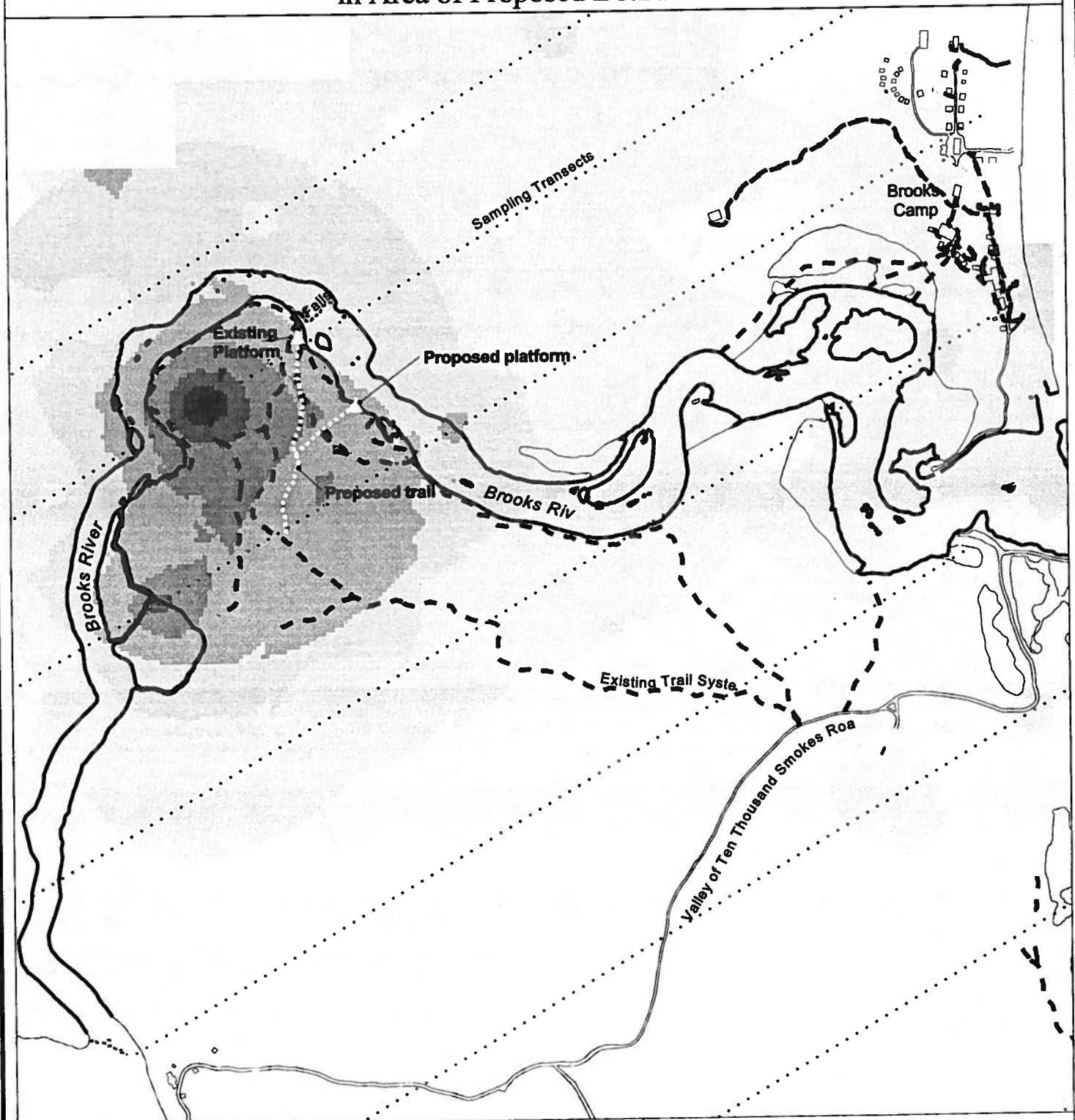


National Park Service
Alaska Support Office
GIS Team

0.05 0 0.05 0.1 0.15 Miles
1 : 6,336 1 inch = 0.10 miles



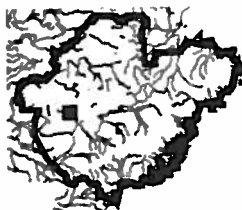
FIGURE 5 Interpolated Bear Bed Density
in Area of Proposed Boardwalk



Bear Bed Density Values

0 - 3	9 - 12	18 - 21
3 - 6	12 - 15	21 - 23
6 - 9	15 - 18	23 - 27

Map Location



National Park Service
Alaska Support Office
GIS Team

0.05 0 0.05 0.1 0.15 Miles

1 : 6,336 1 inch = 0.10 miles



Several research efforts have been conducted on bears and humans at Brooks over the past 20 years (NPS 1993). Generalizations from this research are difficult to make at this point. Some level of behavioral changes in some classes of bears are correlated with some types of human activities; however, the significance of this is debated (NPS 1993, Olson and Gilbert 1994, Olson et al. 1997). Population level effects do not appear to have occurred to this point (NPS 1993, NPS 1998b). The NPS is currently conducting a complete review of research and monitoring from Brooks and other viewing areas in an attempt to resolve some the debate (NPS 1999a). A final report is expected to be produced from this work by fall 1999.

Bear-Human Interactions

The existing Brooks Falls trail intersects numerous bear paths as it traverses the crest of the river terrace and approaches the falls, yet the rolling topography of the trail and high vegetation limit visibility. As a result, visitors may suddenly encounter bears at close range. Research elsewhere has indicated that sudden encounters are the most common factor associated with aggressive bear reactions to people in North America (Herrero 1985; Middaugh 1987). Though such encounters at Brooks River have led to very few actual physical contacts between bears and people (NPS 1998b), NPS bear specialists and managers remain concerned about visitor safety given the nature and frequency of the close-range encounters in this area.

To address this concern, the NPS has taken several actions. Upon arriving at Brooks River, visitors are informed by park staff about proper behavior around bears. In addition, staff patrol the river corridor in an effort to prevent close encounters between visitors and bears. During especially high bear use times, park staff personally escort visitors along the section of the Brooks Falls trail that crosses the top of the river terrace. These efforts have reduced, but have not eliminated, the potential for a negative incident between bears and humans to occur.

OTHER WILDLIFE

Mammals in the Brooks River area, in addition to brown bear, include moose, wolves, mink, short-tailed weasel, river otter, beaver, porcupine, snowshoe hare, lynx, Arctic ground-squirrel, red squirrel, red-backed vole, northern jumping mouse, little brown bat, and several species of shrew.

A variety of birds frequent the Brooks River area including the bald eagle, northern goshawk, harlequin duck, glaucous-winged, mew, and Bonaparte's gull, common merganser, ravens, black-billed magpies, bank swallows, mallards, Arctic tern, American dippers, and many other forest birds such as the American robin, gray jay, varied and hermit thrushes, black-capped and boreal chickadees, and dark-eyed juncos.

ARCHEOLOGICAL RESOURCES

Extensive archeological remains suggest that people have lived in the Brooks River area for more than 4,000 years. These remains include at least 22 separate archeological sites containing more than 750 depressions related to abandoned semi-subterranean houses. These depressions and associated cultural resources make up the Brooks River Archeological District, a property on the National Register of Historic Places. This property has been determined to be nationally significant for its potential to yield scientific information regarding the prehistoric human occupation of

Alaska. The banks of the 1.5 mile long Brooks River and its associated series of ancient beach ridges and river terraces are the location of the Brooks River Archeological District, now upgraded to the status of a national historic landmark.

The national historic landmark is comprised of the abundant surface and subsurface cultural remains of 22 well-preserved archeological sites, dating from 2,500 B.C. to historic times, that are located near the river and adjacent Brooks and Naknek Lakes. The existing Brooks Falls trail runs the length of one archeological site, containing evidence of the earliest habitation of the falls area by humans, including depressions left from semi-subterranean houses, cache pits, artifacts, and possibly graves. This site extends from the point at which the trail tops the river terrace all the way to the falls platform. Approximately the first 200 feet of the proposed boardwalk crosses another archeological site within the NHL. The site currently crossed by the Brooks Falls trail is undergoing severe erosion from natural or human sources.

A series of 10 tephras (volcanic ash falls) including the 1912 "Katmai Ash" that have been deposited over the past 6,500 years in the Brooks River area, enhance the national historic landmark's value in that they are excellent time markers in the stratified archeological deposits, and are certain indicators of post-depositional disturbances. The Katmai ash also serves as a protective covering for the archeological resources.

ETHNOGRAPHIC RESOURCES

The Brooks River area, or Kitivik (as it was known by Native people), appears to have been a satellite encampment to the Old Savoonski villages during much of the 19th century. According to Native consultants, Kitivik was used primarily as a fishing camp, containing a few winter cabins substantial enough to afford shelter and located south of the river, along the beachline but in the trees. After the 1912 Katmai eruption up to the mid-20th century some residents of Old Savoonski resided at Kitivik for longer periods. The ethnographic resources (i.e., those resources having some physical manifestation that are important to Native peoples originally associated with Kitivik), include, but are not limited to the following: red salmon; landscape features such as the beachline, the river mouth and to a lesser degree the falls; former fish rack, cabin and tent sites, and other historic era habitation sites; selected plants used in the past for medicinal purposes and as food; a few historic era burials; Dumpling Mountain, and Iliuk Arm of Naknek Lake; waterfowl; trapping lines; and dog team stake yards. A complete list of ethnographic resources, their exact locations, and most important, their significance, has not yet been documented or assessed.

VISITOR EXPERIENCE

Brooks River is a world-class sportfishing area for rainbow trout and red salmon, and provides unparalleled wildlife photography. Brooks Camp, on the north side of the river, serves as the starting point and base for most visitors to the area. From Brooks Camp, visitors cross a floating footbridge to the south shore of the river where they engage in a number of activities, one of the most popular of which is watching bears.

Bear-viewing and photography dominate the visitor experience. Two elevated viewing platforms allow visitors to watch bears in safety while lessening the potential for affecting bear movement or behavior. The largest platform is located at the floating footbridge on the lower river where the

river narrows. A second platform is at the Brooks River falls, and is reached by walking along the road between Naknek and Brooks Lakes for a short distance, then taking the Brooks Falls trail. Both platforms are very popular with visitors and often crowded during peak visitor use times. From late June to early August visitors may have to wait an hour or more at the lower platform before they can continue on to the falls platform. These delays occur either because the falls platform is already at capacity, or because bears on the existing Brooks Falls trail prevent visitors from using the trail to reach the platform.

The visitor season at Brooks begins in early June and continues through most of September. Visitor numbers have increased substantially in recent years, particularly day users (people who come for only the day). The total number of annual visitor days in 1980 was 5,280, of which about 471 were related to day use and the rest were overnight. By 1990, total annual visitor days were 10,231, of which 3,289 were day use related – an increase of 93 % and nearly 700%, respectively. Visitation continued to rise from 1990 to 1992, but then leveled off somewhat through 1996 and decreased in 1997 and 1998 (Table 1).

Table 1. Visitor Use in the Brooks River Area: 1992-1996

Visitors	1992	1993	1994	1995	1996	1997	1998
Lodge	3,658	3,439	4,458	4,355	4,140	4,128	4,171
Campground	3,659	3,653	3,705	2,600	3,609	2,724	2,270
Day Use	6,603	6,300	6,131	6,204	6,391	5,703	4,171
TOTAL	13,920	13,392	14,294	13,159	14,140	12,555	12,877

LOCAL ECONOMY

Several visitor facilities at Brooks River, including the Brooks Lodge, are commercially owned and operated by Katmailand, Inc. under an NPS concession contract. Commercial services offered by Katmailand, Inc. include canoe and kayak rentals, a fishing tackle and souvenir shop, food service, a bar, and several guest cabins for overnight stays. The concessionaire also offers a daily bus tour along the Valley of 10,000 Smokes road and provides shuttle service between Brooks Lake and Brooks Camp. A staff of approximately 18 Katmailand employees live and work at Brooks Camp during the visitor season (NPS 1996).

The communities closest to the project area are King Salmon and Naknek. No roads connect these two towns to any sizable population centers. Regularly scheduled commercial flights from Anchorage serve the airport at King Salmon which, in turn, provides scheduled commercial float planes to Brooks Camp. The development of a large hotel in King Salmon and recent involvement of major tour companies also have increased the number of people being flown to the Brooks River area. Numerous private lodges from as far away as Lake Clark National Park and Preserve also fly increasing numbers of guests to Brooks River for sportfishing and bear viewing. Limited commercial boat service to Brooks Camp is available.

PARK MANAGEMENT

Administration and operation of the existing bear-viewing platforms, the Brooks Falls trail, and the river corridor in general require ongoing facility maintenance, resource protection, and visitor interpretation/education. Maintenance activities include clearing fallen limbs and other debris from the trail in the spring, applying gravel to rutted sections, cutting grass along the trail as it approaches the falls platform, and doing minor touch-ups and repair of the platforms and gates. Park scientists inventory and monitor natural and cultural resources in the area to improve human knowledge and understanding of these resources. Management actions also are taken to protect known resources. For example, where erosion is degrading the archeological sites crossed by the Brooks Falls trail, efforts are made to stabilize the areas using fill. In addition, ranger patrols focus on preventing close encounters between visitors and bears in order to decrease the potential for harm to either people or bears.

Park staff also track visitor use of the falls platform. One ranger is stationed at the lower platform to maintain the waiting list of people wanting to access the falls platform; a second ranger is stationed at the falls platform, enforcing visitor time limits, and informing the ranger at the lower platform when space becomes available for more visitors. During the two to three weeks in July, when bear numbers are especially high, up to two additional park staff are assigned to escort visitors along the section of trail that traverses the top of the river terrace to the falls platform. Interpretive and educational programs are available to inform visitors about the area, and park staff meet and orient most visitors to bear safety concerns.

ENVIRONMENTAL CONSEQUENCES

This section of the document analyzes the environmental impacts of implementing the alternatives. Impacts are defined as the potential environmental problems (direct, indirect, short term, long term, and cumulative), that may result from a federal action, if taken.

NO ACTION ALTERNATIVE

Soils and Vegetation. The large number of visitors walking along the Brooks Falls trail would continue to cause soil compaction and soil erosion over the long run. These impacts would be minor because they would be limited to soils within the trail corridor – about one-half acre within the approximately 640 acre Brooks River area.

Less than one-quarter acre of vegetation would be lost annually due to continued trimming of vegetation along low-visibility sections of the Brooks Falls trail and around the existing platforms. Given that there are about 31,400 acres of open and closed canopy white spruce forest within a 12 mile radius of Brooks River, the loss of this amount of vegetation would be minor and would not affect the viability of local or regional plant populations.

Conclusion. There would be minor impacts on soils and vegetation along the Brooks Falls trail.

Water Resources. There would be no water resources impacted, as no facilities would be constructed under this alternative.

Conclusion. No water resources would be affected.

Brown Bear. There would be no direct loss of bear habitat, because there would be no new facilities constructed under this alternative. As described in the "Affected Environment," human activity in the Brooks River does not appear to have caused population-level effects on bears, though it may be altering bear behavior. Whether these trends continue into the future depends on the degree to which other environmental variables affect them (e.g., to what extent does the size and timing of the salmon run influence bear density at Brooks River?).

Sudden close encounters between bears and people would continue to occur frequently along the Brooks Falls trail, because the trail would continue to be routed at ground-level through areas of high bear concentrations on top of the river terrace. Although it has rarely been the case in the past, it is possible that such an encounter in the future could lead to actual physical contact between a bear and a person, potentially harming the visitor and requiring the bear to be destroyed. If the latter were to occur, it would be considered a major adverse impact on that individual bear, though the overall population of bears would not be affected. Visitor education, ranger patrols, and other NPS actions would continue to be taken at Brooks River (see Existing Conditions under "Bear-Human Interactions") to reduce the potential for this to happen, but could not eliminate it.

Conclusion. There would be no direct loss of bear habitat, because there would be no new facilities constructed under this alternative. Human activity in the Brooks River does not appear to have caused population-level effects on bears, though it may be altering bear behavior; it is unknown whether these trends would continue into the future. Sudden close encounters would

continue to occur frequently between bears and people along the Brooks Falls trail. If actual physical contact were to occur from such an encounter, the bear could be destroyed – a major adverse impact on that individual bear, though the overall population of bears would not be affected.

Other Wildlife. There would be no direct loss of habitat for moose, porcupine, wolves, lynx, and other wildlife that inhabit the Brooks River area, because there would be no facilities constructed under this alternative. Wildlife in the Brooks River area that has become accustomed to human use (e.g., common merganser, squirrels, gray jay, gulls) probably would not be affected significantly by continued human activity at existing levels. However, wildlife that is sensitive to human presence (e.g., lynx, northern goshawk, wolf) likely have been and would continue to be disturbed or displaced by visitor activity in this area. Such indirect impacts could range in intensity from short term and minor (such as an animal having to move temporarily out of the way of a passing human), to long term and major (such as an animal permanently abandoning a prime foraging area). Though individual wildlife may be affected in this way, it is doubtful that wildlife populations within the park in general would be adversely impacted as similar wildlife habitat is available throughout Katmai National Park and Preserve.

Conclusion. There would be no direct loss of wildlife habitat, because there would be no facilities constructed under this alternative. Individual wildlife that are sensitive to humans likely would continue to suffer impacts that could range from minor short term effects to major long term effects; however, it is doubtful that wildlife populations within the park in general would be adversely affected.

Archeological Resources. Visitor traffic on the section of the Brooks Falls trail that traverses the top of the river terrace would continue to erode the protective layer of Katmai ash covering archeological resources there. Given that this situation continues and no mitigative actions are taken by the NPS, the Katmai ash layer could eventually erode away completely. The resulting exposure of the archeological resources to wind, water, foot traffic, and other factors would increase the potential for adverse impacts on these resources (e.g., breakage, wearing, removal).

Conclusion. Continuing erosion of the Katmai ash layer on the Brooks Falls trail could expose archeological resources to adverse effects over the long term.

Ethnographic Resources. No action would be taken under this alternative that would impact known ethnographic resources. The NPS would continue to consult with appropriate Native groups with regard to ethnographic resources and potential impacts from future park projects.

Conclusion. There would be no impacts on known ethnographic resources.

Visitor Experience. Over the long term, crowding and long delays at the lower platform while visitors wait for access to the falls platform would continue to adversely affect the experience of visitors who come to the Brooks River area expecting few other people, an unregulated bear-viewing experience, or both. Depending on the size of the crowds, the extent of delay, and the attitude of the visitor, these impacts could range from minor to major. Other visitors would accept the crowds and delays and would not feel their experience was degraded.

Keeping the entire existing Brooks Falls trail open to visitor use would have long term benefits for those visitors who seek the experience and thrill of walking on-the-ground through a heavy bear use area where the potential of a close-range encounter with a bear is high. On-the-other-hand, keeping this ground-level trail open might deter other people from visiting, especially those who prefer a more removed route to the falls platform, with a low chance of encountering bears at close-range; effects of this alternative on these visitors likely would be long term and negative. Both positive and negative effects could range from minor to major depending on how much or how little the visitor enjoys the opportunity to encounter bears at close-range.

Visitor safety would continue to be a concern given the nature and frequency of close-range encounters between bears and people along the portion of the Brooks Falls trail that traverses the top of the river terrace. Though it has rarely occurred in the past, it is likely that such an encounter in the future could lead to actual physical contact between a bear and a person. If a visitor were to be harmed as a result, that individual would suffer minor to major adverse impacts, depending on the type of injury. In addition, it is likely the experience of other visitors also would be adversely impacted if management were forced to respond to the incident by instituting stricter controls on visitor use in the area (e.g., requiring visitors to be accompanied by park staff at all times).

Conclusion. Over the long run, there would be minor to major adverse or beneficial impacts on visitors' experiences, depending on individual visitors and the type of experience they seek at Brooks River. Sudden close encounters would continue to occur frequently between bears and people along the Brooks Falls trail. If a visitor were to be harmed as a result, that individual would suffer minor to major adverse impacts; it is also likely that the experience of other visitors would be adversely impacted.

Local Economy. No action would be taken that would affect concession, commercial, or local businesses.

Conclusion. There would be no impacts, positive or negative, on the local economy.

Park Management. To manage visitor use in the summer, a park staff person would continue to be stationed at the lower platform and at the falls platform. Maintaining the Brooks Falls trail, including stabilizing eroded areas to prevent further damage to archeological resources, also would require staff time and resources, though the amount would vary depending on the work involved.

In addition to such regularly scheduled duties, park staff would continue to spend much of their time responding to visitor safety concerns and access delays associated with the Brooks Falls trail and platform (described in "Visitor Experience" above). For example, during July when bear numbers are high, one or two staff would continue to have to escort visitors to the falls platform along the last section of the Brooks Falls trail on an as-needed basis to reduce the potential for bear-human conflicts. Park staff time also would continue to be required to respond to multiple complaints from Congress, commercial operators, and some visitors about crowded conditions and the lack of opportunities to view bears at Brooks River. While assigned to these duties, none of the staff would be available to conduct other park management activities; therefore, this alternative would have moderate adverse effects on park management.

Conclusion. There would be moderate adverse impacts on park management due to the extra staff time required to respond to access delays, visitor safety concerns, and public complaints about crowding and the lack of bear-viewing opportunities.

Cumulative Impacts. Cumulative impacts are defined as the *incremental impacts* on the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions (also referred to as regional actions), including those taken by both federal and nonfederal agencies, as well as actions undertaken by individuals. Cumulative impacts may result from singularly minor but collectively significant actions taking place over a period of time (CEQ Sec 1508.7).

Conclusion. There would be no cumulative impacts under the no action alternative.

PROPOSED ACTION ALTERNATIVE

Soils and Vegetation. An estimated 920 square feet of soil would be permanently displaced due to placement of structural footings. Construction activities also could indirectly impact soils within the approximately one-half acre area that is cleared for the facility footprint and staging/work areas by causing soil compaction. Soil compaction, in turn, could decrease soil permeability and increase the potential for surface runoff or soil erosion. However, once construction was complete, most of the disturbed area (excepting the 920 square feet of soil actually displaced by the footings), would be scarified and allowed to naturally revegetate. Vegetation would likely become reestablished in the disturbed area within about two years. This fact, in addition to the relatively flat topography of the project area, would ensure minimal long term impacts from runoff and soil erosion in this area. Soils compaction also would occur along the first 2,000 feet of the Brooks Falls trail due to transporting equipment and materials and surfacing the trail with gravel; however, hardening the trail would minimize compaction-related impacts such as surface run-off and erosion.

About one-half acre of grassy meadow, birch trees and alder/willow vegetation, and possibly a few white spruce trees, would be cleared initially for construction of the boardwalk and platform. Most of the ground cover would naturally regenerate in this area within about two years after the facilities were built, though an estimated 920 square feet of vegetation would be permanently lost due to placement of structural footings. Few, if any, trees would be reestablished, because management would remove or trim those that could provide bear access onto the boardwalk or platform. About 35 small-diameter (6 to 8 inches) paper birch and white spruce trees would be removed along the first 2,000 feet of the Brooks Falls trail in order to improve the trail alignment for movement of equipment and materials to the construction site. Given that this type of vegetation is common throughout the park, including along the Brooks River, the above loss of vegetation would be minor and would not impact local or regional plant populations.

The NPS also would allow natural revegetation along the section of the Brooks Falls trail that currently extends along the top of the river terrace. This would result in the restoration of about one-fifth acre of grassy meadow and white spruce forest vegetation within 3 to 5 years. The use of fill material where necessary, would reduce the potential for soil erosion or surface run-off in this area. Revegetation of this area would have minor long term benefits to soil and vegetation in general, as the area restored would be very small and is not considered critical to the overall viability of local or regional plant populations.

Conclusion. An estimated 920 square feet of soil would be permanently displaced due to placement of structural footings. Short term and long term adverse impacts on soil and vegetation

would be minor. Allowing the abandoned section of the Brooks Falls trail to naturally revegetate would provide minor long term benefits for soil and vegetation.

Water Resources. If concrete footings were used for facility foundations, an estimated 2,500 gallons of water would be drawn from the Brooks River to mix the concrete. However, this amount would not significantly impact water flow or other hydrologic characteristics of the river, as 2,500 gallons is approximately 334 cubic feet, which is less than the amount of water flowing past any one point in the river within a two second time period. A screen would be placed around the pump to prevent fish from being drawn into the pump. For this reason, and because of the small amount of water taken from the river, neither salmon nor salmon spawning would be significantly impacted by this project.

Conclusion. Water resources would not be significantly affected.

Brown Bear. About half an acre of bear habitat would be temporarily cleared of vegetation for facility footprints and construction staging/work area; however, the lack of vegetation would not necessarily keep bears from moving through or otherwise using the area as habitat. All but 920 square feet of this area would be scarified after construction, and forbs, grasses, and shrubs would naturally regenerate within about two years. Abandoning the section of the Brooks Falls trail on top of the river terrace and near the falls platform would allow the natural revegetation of about one-fifth an acre of bear habitat within 3 to 5 years. More importantly, abandoning this trail section would benefit bears by reducing human activity in this high bear use area. Due to the widespread availability of bear habitat in Katmai National Park and Preserve, and along the Brooks River specifically, both the short term loss and long term gain of habitat would not significantly affect individual bears or the Brooks River bear subpopulations in general.

Noise and human activity associated with actual facility construction may displace some bears from the project site, although construction would occur when there are relatively few bears in the area (see mitigation under "Proposed Action" alternative). Displacement effects on individual bears would likely be minor (e.g., forcing a bear to temporarily leave a fishing area or day bed), but would be unlikely to significantly affect behavior or health of the bear.

Once the third viewing platform was constructed, it is expected that bears generally would become accustomed to it and to the associated human use (NPS 1998b, personal communication with Schoen, Smith, and Aumiller 1999a). Though bears may initially avoid the elevated boardwalk, it is likely that most would eventually become used to its presence, as well. Bear behavior observed in relation to the existing, albeit much shorter, boardwalk that extends from the falls platform provides support for this latter assumption. During the 1998 summer field season, park staff recorded multiple instances of bears crossing underneath this boardwalk (NPS 1998b). Because it is expected that bears would largely adjust to the new visitor facilities and activity, their use of the river corridor (e.g., for river access, daybedding, mating) would not be significantly affected (personal communication with Schoen, Smith, and Aumiller 1999a). The alignment of the boardwalk perpendicular to the river and existing bear paths (as opposed to bisecting the paths), also would help ensure that bear movement would not be impeded.

Closing both the new platform and the falls platform, as well as the Brooks Falls trail/boardwalk, to the general public during late evening and early morning hours would benefit bears and, in particular, would have a very positive effect on those bears that avoid people (personal communication with Schoen 1999b). This is because the closure would provide bears with a

consistent and predictable time period during which they could use this area without human disturbance.

Abandoning the section of the Brooks Falls trail that crosses the top of the river terrace and instead providing an elevated boardwalk at the base of the terrace, would better separate visitors from bears, greatly decreasing the frequency of sudden close-range encounters between the two. This would benefit bears to a moderate degree by reducing the chance that an individual bear would come into physical contact with a person, and be destroyed as a result.

Conclusion. About a half-acre of bear habitat would be temporarily cleared of vegetation, and about a fifth acre of high use bear habitat would be naturally revegetated; however, neither of these impacts would significantly affect individual bears or the Brooks River bear subpopulations in general. Facility construction may displace some bears, but effects would likely be minor and would not be long term. Use of the river corridor by bears would not be significantly affected by the new facilities. Closing both the new platform and the falls platform, as well as the Brooks Falls trail/boardwalk, to the general public during late evening and early morning hours would benefit bears and, in particular, would have a very positive effect on those bears that avoid people. The elevated boardwalk would better separate visitors from bears, moderately benefiting bears.

Other Wildlife. About a half-acre of habitat for moose, porcupine, lynx, wolves, and other wildlife that inhabit the Brooks River area would be temporarily cleared of vegetation for facility footprints and construction staging/work area. All but 920 square feet of this area would be scarified after construction, and forbs, grasses, and shrubs would naturally regenerate within about two years. Because wildlife dependent on this type of vegetation would be expected to return to the area once this ground cover was reestablished, there would be only a short term loss of habitat for these animals. However, habitat would be permanently lost for animals dependent on birch or spruce since few trees would be allowed to grow back in the vicinity of the platform and boardwalk (see "Soils and Vegetation" above). Abandoning the section of the Brooks Falls trail on top of the river terrace and near the falls platform would allow the natural revegetation of about one-fifth an acre of grassy meadow and white spruce forest habitat within about 3-5 years. Due to the widespread availability of similar habitat in Katmai National Park and Preserve, and because this type of habitat is not critical to the survival of any wildlife species, these losses and gains of habitat would be unlikely to significantly affect individual animals or wildlife populations in general.

Increased noise and human presence associated with construction activities and continuing over the life of the facilities could disturb individual animals, or cause some to abandon habitat in the vicinity of these developments. Such impacts could range in intensity from short term and minor to long term and major.

Conclusion. There would be both a short term and long term loss of less than a half-acre of wildlife habitat, and a long term gain of about a fifth acre of wildlife habitat. These losses and gains of wildlife habitat would be unlikely to significantly affect individual animals or wildlife populations in general. Construction activities could have minor to major short term or long term impacts on individual animals.

Archeological Resources. To protect archeological resources from construction activities, the NPS would carry out mitigation measures described in the alternative section. As a result there would be no adverse effects on archeological resources.

Closing the section of the Brooks Falls trail that extends along the top of the river terrace, and revegetating and otherwise rehabilitating this area, would positively affect archeological resources in this area by preventing further erosion of the protective layer of Katmai ash and restoring this layer where it has already eroded.

Conclusion. Construction of the boardwalk and platform would not adversely impact archeological resources. Closing and rehabilitating the section of the Brooks Falls trail that extends along the top of the river terrace would positively affect archeological resources.

Ethnographic Resources. A complete list of ethnographic resources, their exact locations, and their significance has not yet been documented or assessed for the Brooks River area. However, based on information provided by Native consultants, there are several ethnographic resources in the area (see "Affected Environment"). Due to the nature and location of these known resources, the proposed action is not expected to have a significant impact, either positive or adverse. The NPS would continue to consult with appropriate Native groups with regard to ethnographic resources and potential impacts from park projects. If feasible, project designs would be altered to mitigate any adverse effects to ethnographic resources identified during consultation.

Approximately the first 700 feet of the Brooks Falls trail (from where it leaves the road) is within the property conveyed to the NPS in fee by the heirs of Palakia Melgenak. As per the "Agreement for the Sale, Purchase, and Conveyance of Lands Between the Heirs, Devisees, and/or Assigns of Palakia Melgenak and the United States of America" (page 6), the United States, through the NPS, will consult with the Heirs concerning all proposed developments, improvements on this section of the trail.

Conclusion. The proposed action alternative is not expected to significantly impact ethnographic resources in the Brooks River area. The NPS would continue to consult with appropriate Native groups with regard to ethnographic resources and potential impacts from park projects.

Visitor Experience. The addition of a third bear-viewing platform, as well as the elevated boardwalk and interpretive/gathering area partway along the boardwalk, would have a major positive long term impact on the experience of those visitors who desire more opportunities for bear-viewing and interpretation along the river corridor.

The elevated boardwalk would decrease the potential for delayed access to the falls platform that, in the past, has been caused by bears on the trail (there would still be some potential for this kind of delay because the first 2,000 feet of the Brooks Falls trail would remain on the ground and, occasionally, bears do prevent visitors from walking on this section of trail). This would be a moderate beneficial impact on the visitor experience. In addition, the boardwalk would provide major benefits to visitors by better separating visitors and bears, and, thus, greatly improving visitor safety.

Constructing the elevated boardwalk would have a long term positive impact on the experience of those visitors who would prefer this more removed route to the falls platform, with a low chance of encountering bears at close-range. However, this boardwalk would have a long term negative impact on the experience of other visitors who seek the experience and thrill of walking on-the-ground through a heavy bear use area where the potential of a close-range encounter with a bear is highest. These impacts, positive and negative, could range from minor to major depending on how much or how little the visitor desired a feeling of security when walking through bear territory.

Though the new bear-viewing facility would be rustic in design and materials, it may still be considered by some visitors as aesthetically unappealing and a distracting manmade feature in otherwise natural surroundings. In addition, the noise of visitors walking along the wooden boardwalk, as opposed to on softer soils, also may degrade some visitors' experience. The intensity of such impacts would again depend on how many visitors were concerned about such things and the degree of this concern.

Closing both the new platform and the falls platform, as well as the Brooks Falls trail/boardwalk, to the general public during late evening and early morning hours would have minor adverse effects on the visitor experience, because few people visit these areas during these times.

Upgrading the remaining 2,000-plus feet of the original Brooks Falls trail (from the road to the beginning of the proposed boardwalk), would improve accessibility and reduce the potential for accidents resulting from visitors tripping on exposed tree stumps and other obstacles, or slipping on the muddy surface of the trail. Improving the trail this way would make walking along it more enjoyable for most people without detracting from its primitive characteristic.

Conclusion. The new facilities would have a major positive long term impact on the experience of those visitors who desire more opportunities for bear-viewing along the river corridor. Over the long run, there would be both positive and negative impacts on other aspects of the visitor experience, depending on individual visitors and the type of experience they seek at Brooks River. The boardwalk would provide major benefits to visitors by better separating visitors and bears, and, thus, greatly improving visitor safety. Closing both the new platform, falls platform, and the Brooks Falls trail/boardwalk to the general public during late evening and early morning hours would have minor adverse effects on the visitor experience. Upgrading the remaining 2,000-plus feet of the original Brooks Falls trail would improve accessibility and make walking along it more enjoyable for most people.

Local Economy. Constructing the bear-viewing platform and boardwalk would increase opportunities for people to view bears in the Brooks River area, potentially attracting more visitors to the area. Designing these new facilities to meet accessibility standards would further encourage more people to visit Brooks River. Greater visitor numbers could benefit the Brooks River concessionaire and other commercial operators by increasing the demand for their services and increasing their revenues over the long run. Increased visitation to the park could also beneficially impact local businesses in King Salmon and Naknek, the two communities through which most visitors pass on their way to the park. Such economic benefits could range from minor to major, depending on the size of the visitor increase, and how many new visitors used concession, commercial, or other local businesses.

Conclusion. The proposed facilities could attract more visitors to Brooks River, benefiting concession, commercial, or other local businesses by increasing the demand for their services and increasing revenues over the long run. Such economic benefits could range from minor to major.

Park Management. Four park staff would be needed at all times to manage visitor use on the viewing platforms and along the Brooks Falls trail/boardwalk during the summer season. One NPS employee would be stationed at each of the three platforms. In addition, to allocate visitor use on the falls and the new platform, one employee would be stationed at the interpretive/gathering area partway along the boardwalk. Staff time would also be needed to stabilize eroded areas along the

abandoned section of the Brooks Falls trail in order to prevent further erosion of denuded areas and related damage to archeological resources.

In spite of the increased number of staff required to manage visitor use at the viewing platforms and along the Brooks Falls trail/boardwalk, overall park management under this alternative would be moderately improved. Staff could more efficiently and effectively manage visitor use, rather than continuously dealing with crowding on platforms, access delays, and visitor safety concerns. For example, the elevated boardwalk would better separate visitors and bears, enhancing visitor safety and eliminating the need for staff to escort visitors along the terrace section of the Brooks Falls trail in July. In addition, it's expected that, by providing additional opportunities for bear-viewing, there would be fewer complaints about the lack of such opportunities, freeing up staff time for other duties.

Conclusion. Overall park management under this alternative would be moderately improved.

Cumulative Impacts. Past, present, and reasonable foreseeable future actions within the Brooks River area include the following:

- Future actions anticipated by the 1996 *Brooks River Area Development Concept Plan/Environmental Impact Statement (DCP/EIS)*, including: removal of all NPS and concession facilities north of the Brooks River; designation of the north side of the river as a people-free zone; construction of new visitor facilities (ranger station/orientation center, lodge, campground, employee housing, and maintenance facility); establishment of day use limits for the Brooks River area; and recommendation of temporary closures on reaches of the Brooks River during times of intense bear use.
- Past and ongoing disturbance to cultural resources due to NPS and concessionaire construction activities and visitor use (some of the actions implemented through the DCP/EIS would mitigate and/or reduce the potential for this disturbance).
- Past and ongoing human development and use in prime bear habitat (though facilities would be relocated according to the DCP/EIS, the cumulative amount of area disturbed due to past and future actions would be greater than existing conditions).

The cumulative impacts of implementing the proposed action alternative in addition to the above past, present, and reasonably foreseeable future actions within the Brooks River area would be negligible or minimal for all impact topics.

CONSULTATION AND COORDINATION

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APPENDIX 1

SUMMARY EVALUATION AND FINDINGS, ANILCA, SECTION 810(a)

Appendix 1

Summary Evaluation and Findings, ANILCA, Section 810(a)

BACKGROUND

Subsistence uses, as defined by the Alaska National Interest Land Conservation Act (ANILCA), section 803, means "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tolls, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade." Subsistence activities include hunting, fishing, trapping, and collection berries, edible plants, and wood or other materials.

Subsistence uses are allowed within Katmai National Preserve in accordance titles II and VIII of ANILCA. Lands and waters within Katmai National Park are closed to subsistence uses.

INTRODUCTION

This section was prepared to comply with title VIII, section 810 of the Alaska National Interest Land Conservation Act (ANILCA) of 1980. It summarizes the evaluations of potential restrictions to subsistence activities that could result from authorizing construction of a new bear-viewing facility along the Brooks River. The *Environmental Assessment, Brooks River Bear-Viewing Facility, Katmai National Park* describes a no action and a proposed action alternative for consideration.

EVALUATION PROCESS

Section 810(a) states:

"In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands... the head of the head of the federal agency... over such lands ... shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency-

- (1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to Section 805;
- (2) gives notice of, and holds, a hearing in the vicinity of the area involved; and
- (3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary. . .

and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

ANILCA created new units and additions to existing units of the national park system in Alaska. Katmai National Park was created by ANILCA Section 202(2) for the following purposes (among others): "to protect habitats for, and populations of, fish and wildlife including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural and recreational features."

A proclamation by President Woodrow Wilson in 1918 created Katmai National Monument from a reservation of approximately 1,700 square miles. Three major purposes of the monument designation were: 1) to preserve an area important to the study of volcanism, 2) to preserve the Valley of Ten Thousand Smokes, and 3) to conserve an area potentially popular with persons seeking unique scenery and for those with scientific interest (ALASKA Travel Publications 1974). Increased in 1931 to include Lake Brooks, Grosvenor Lake, Lake Coville and part of Naknek Lake, in 1942 to include offshore islands within five miles of the monument coastline, and again in 1969 to include the remainder of Naknek Lake, the monument grew to contain 4,361 square miles.

With the passage of ANILCA in 1980, the designation of 3.7 million acres of the monument was changed to a national park, and an additional 308,000 acres was included as a national preserve. In addition, 3.4 million acres of the park and preserve were designated as wilderness. The taking of fish and wildlife for subsistence uses is allowed by ANILCA within Katmai National Preserve, pursuant to Section 203, however, subsistence activities are not authorized within Katmai National Park.

The potential for significant restriction of subsistence uses must be evaluated for the proposed action's effect upon "...subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use" (Section 810, ANILCA).

PROPOSED ACTION ON FEDERAL PUBLIC LANDS

The National Park Service (NPS) is considering an alternative that would develop a new bear-viewing facility near the Brooks River. A detailed discussion of the project and the no action and the proposed action alternatives is provided in the *Brooks River Bear-Viewing Facility Environmental Assessment, Katmai National Park*. The *Environmental Assessment* is also being prepared in accordance with the National Environmental Policy Act of 1969. Briefly, the *Environmental Assessment* proposes the following alternatives:

No Action – No new bear-viewing facilities would be constructed at Brooks River.

Proposed Action Alternative – The National Park Service (NPS) is considering constructing a new bear-viewing facility near the Brooks River in Katmai National Park and Preserve. This facility would have the following components: (1) a bear-viewing platform on the south shore of the river about 300 feet downstream of the existing Brooks River falls' platform; (2) an elevated boardwalk providing access to the falls platform and the new platform (the boardwalk would replace a portion of the existing Brooks Falls trail); and (3) an elevated gathering and interpretive area on the boardwalk where it divides to go to either

the falls platform or the new platform.

AFFECTED ENVIRONMENT

This section summarizes the affected environment as it pertains to subsistence resources and use. The proposed action will affect a very small section of land on the south side of the Brooks River (for a comprehensive description of the study area, refer to the *Environmental Assessment*). The project site lies completely within Katmai National Park. Lands within Katmai National Park are closed to subsistence uses. However, ANILCA authorized subsistence uses within Katmai National Preserve, and on adjacent federal public lands managed by the Bureau of Land Management and the U.S. Fish and Wildlife Service. Becharof National Wildlife Refuge shares a common boundary with the park and is the closest land to the project site where Title VIII subsistence is allowed.

Regional subsistence activities that occur outside the park include hunting, fishing, trapping, berry picking and plant gathering. Caribou, moose, beaver, snowshoe hare, fox, lynx, mink, wolf, wolverine, river otter, ducks, geese, waterfowl, edible plants and berries, salmon, trout, pike, whitefish, and white spruce constitute the major subsistence resources used by local residents.

The area in the vicinity of the project site supports nesting habitat for ducks, geese, and swans, grouse, and ptarmigan. The area is used by large mammal species, particularly bear, moose, and to a limited extent caribou. Smaller mammals using the area include wolverine, wolf, red fox, lynx, porcupine, snowshoe hare, mink, marten, weasel, beaver, river otter, Arctic ground squirrel, and red squirrel.

The Brooks and Naknek rivers and lakes provide spawning and rearing habitat for salmon (primarily sockeye) which migrate from Bristol Bay to the Naknek River, to Naknek Lake and to the Brooks River. Subsistence harvest of salmon occurs in the Naknek River downstream of the park boundary. About 23,500 sockeye and 27,300 total salmon were harvested by subsistence users in the Naknek River system¹ downstream of the Park boundary in 1994 (personal communication, Pippa Cooley, ADF&G Subsistence Resource Specialist). Subsistence harvest of sockeye in the Naknek-Kvichak district has been fairly stable over the last 20 years (ADF&G, 1991). Most salmon harvested in the Naknek River system have been produced within Katmai National Park.

The NPS recognizes that patterns of subsistence use vary from time to time and from place to place depending on the availability of wildlife and other renewable natural resources. A subsistence harvest in a given year may vary considerably from previous years because of weather, migration patterns, and natural population cycles.

SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources which could be impacted.

The evaluation criteria are:

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;
- what affect the action might have on subsistence fisherman or hunter access;
- the potential for the action to increase fisherman or hunter competition for subsistence resources.

1) The potential to reduce populations:

No Action Alternative: The area in the vicinity of the project site is used by large mammals, particularly bear, moose, and to a limited extent caribou. Similarly, furbearers and small mammals (lynx, beaver, otter, mink, weasels, fox, hare, squirrel, grouse) use this area. The Becharof National Wildlife Refuge and Katmai National Preserve are the closest lands to the project site where subsistence is allowed. The boundary between the park and the refuge is irregular, however the closest refuge land to the project site is a distance of 16 miles. The closest preserve land to the project site is 23.5 miles. Some movement by individuals of these species onto refuge or preserve lands where subsistence uses are allowed probably occurs.

Under this no action alternative, there would be no significant impacts to fish and wildlife populations in or upland of the Brooks River.

Proposed Action Alternative: About a half-acre of bear habitat would be temporarily cleared of vegetation, and about a fifth acre of high use bear habitat would be naturally revegetated; however, neither of these impacts would significantly affect individual bears or the Brooks River bear subpopulations in general. Facility construction may displace some bears, but effects would likely be minor and would not be long term. Use of the river corridor by bears would not be significantly affected by the new facilities. Closing both the new platform and the falls platform, as well as the Brooks Falls trail/boardwalk, to the general public during late evening and early morning hours would benefit bears. The elevated boardwalk would better separate visitors from bears, moderately benefiting bears.

There would be both a short term and long term loss of less than a half-acre of habitat for large mammals such as moose, and for furbearers and small animals such as lynx, beaver, otter, mink, weasels, fox, hare, squirrel, and grouse. There would be a long term gain of about a fifth acre of habitat for these animals. These losses and gains of habitat are unlikely to significantly affect individual animals or wildlife populations in general. Construction activities could have minor to major short term or long term impacts on individual animals.

Salmon migrate to spawning areas in the Brooks River in the spring and summer. If concrete footings were used for facility foundations, an estimated 2,500 gallons of water would be drawn from the Brooks River in order to mix the concrete. However, this amount would not significantly impact water flow or other hydrologic characteristics of the river, as 2,500 gallons is approximately 334 cubic feet, which is less than the amount of water flowing past any one point in the river within a two second time period. A screen would be placed around the pump to prevent fish from being drawn into the pump. For this reason, and because of the small amount of water taken from the river, neither salmon, nor salmon spawning would be significantly impacted by this project.

NPS regulations and provisions of ANILCA provide adequate protection for fish and wildlife populations. Under the proposed action alternative, there would be no significant impacts to populations and habitat.

2) Restriction of Access:

All rights of access for subsistence harvest on NPS lands are granted by Section 811 of ANILCA. None of the alternatives under consideration should in any way affect the access to resources by local subsistence users. No restrictions on access to subsistence users or resources are proposed within any of the alternatives.

3) Increase in Competition:

None of the alternatives under consideration should in any way produce any significant increase in competition for subsistence resources.

AVAILABILITY OF OTHER LANDS

The project site is within Katmai National Park, therefore the alternative action proposed must occur there. There are no other alternative locations for the action.

The proposed action is consistent with NPS mandates. Because the proposed action occurs on federal land which are not available for subsistence use, the proposed actions do not affect the availability of federal land for subsistence use. No major impact on subsistence uses is expected under the proposed action.

ALTERNATIVES CONSIDERED

The evaluation has described and analyzed the alternatives of this *Environmental Assessment*, with emphasis on the proposed action.

VIII. FINDINGS

This analysis concludes that the proposed action will not result in significant restriction of subsistence uses.

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