National Park Service
U.S. Department of the Interior

Gates of the Arctic National Park and Preserve
Alaska

General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment

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November 2014

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Gates of the Arctic National Park and Preserve Alaska

Lead Agency: U.S. Department of the Interior, National Park Service

Proposed Action: The National Park Service is preparing an environmental assessment for an update to the 1986 *Gates of the Arctic National Park and Preserve General Management Plan.*

Abstract: The National Park Service is preparing a general management plan amendment for Gates of the Arctic National Park and Preserve. This amendment updates the park's 1986 general management plan. This general management plan amendment also fulfills the requirements of a wilderness stewardship plan. The environmental assessment evaluates three alternatives for managing Gates of the Arctic National Park and Preserve. Alternative A, the "no-action" alternative, consists of the existing park management and serves as a basis for comparison of the other alternatives. Alternative B is similar to alternative A in that it generally reflects current management conditions, but brought up to current National Park Service planning standards through the use of zoning and indicators and standards to guide management. Alternative C would continue protection of the wild character of the park and preserve, but would also foster increased visitor understanding of park resources through increased educational opportunities. Alternative C also includes current National Park Service planning standards through the use of zoning and indicators and standards to guide management. Key impacts of implementing the two action alternatives would be mostly beneficial improvements to wilderness character and visitor use and experience. There would be a few beneficial impacts to natural and cultural resources and subsistence use and a few adverse impacts to natural resources and wilderness character in localized areas, mainly popular sites such as Walker Lake and the Arrigetch Peaks area.

Public Comment: Comments on *Gates of the Arctic National Park and Preserve General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment* can be made via the Internet at http://parkplanning.nps.gov/gaar or by mail or hand-delivery to the address below. All comments must be postmarked, transmitted, or logged no later than 60 days after the plan is released for public comment. This deadline will be posted at http://parkplanning.nps.gov/gaar. Before including your address, telephone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment—including your personal identifying information—may be made public. After the comment period ends, the National Park Service planning team will evaluate all input received and incorporate any resulting changes into the document. If no significant environmental impacts are identified and no major changes are made in the alternatives, then a finding of no significant impact can be prepared and approved by the Alaska regional director. Following a 30-day waiting period, the plan can then be implemented.

For further information you may contact Zachary Babb, National Park Service, 240 West 5th Avenue, Anchorage, AK 99501, phone: 907.644.3531.

HOW TO COMMENT ON THIS PLAN

Comments on this General Management Plan Amendment / Environmental Assessment are welcome and will be accepted for 60 days after this document has been published and distributed. To respond to the material in this plan, written comments may be submitted by any one of these methods:

Mail:

Gates of the Arctic GMPA
National Park Service
Denver Service Center – Read
PO Box 25287
Denver, CO 80225

or

Gates of the Arctic GMPA
National Park Service
4175 Geist Road
Fairbanks, AK 99709

Internet Website:

http://parkplanning.nps.gov/gaar

Hand Delivery:

Written and/or verbal comments may be made at public meetings. The dates, times, and locations of public meetings will be announced in the media and on the Internet website (above) following release of this document.

Before including your address, telephone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. Although you can ask the National Park Service to withhold your personal identifying information from public review, the National Park Service cannot guarantee your request will be granted.

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A GUIDE TO THIS DOCUMENT

This "General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment" (GMP Amendment) prepared for Gates of the Arctic National Park and Preserve (hereinafter Gates of the Arctic or the park) is organized in accordance with Council on Environmental Quality implementing regulations for the National Environmental Policy Act of 1969, as amended, the National Park Service (NPS) "Park Planning Program Standards," and Director's Order 12 and Handbook: *Conservation Planning, Environmental Analysis, and Decision-making*.

Chapter One: Introduction, presents the frame work for the entire document and describes why the GMP Amendment is being prepared and what needs it must address.

> *The primary goal of scoping is to gather information and to identify the range of issues and concerns to be addressed in the management plan. Scoping is accomplished with the park staff and with the general public.*

This chapter details the planning opportunities and issues that were raised during public scoping meetings and initial planning team efforts (see text box).The alternatives in chapter two address these issues and concerns to varying degrees. In addition, the introduction defines the scope of the environmental assessment—specifically what impact topics were or were not analyzed in detail. How this plan relates to other plans and projects is described. The chapter concludes with a description of next steps in the planning process and caveats on implementation of the plan.

Chapter Two: Alternatives, Including the Preferred Alternative, begins by describing the development of the alternatives and identifies the management zones that would be used to manage the park in the future. It includes the continuation of current management practices and trends in the park (alternative A – no action). Two alternatives for managing the park (alternatives B and C) are presented next. Mitigation measures proposed to minimize or eliminate the impacts of some proposed actions in the alternatives are described, followed by a discussion of future studies or implementation plans that would be needed. The environmentally preferable alternative is identified next, followed by a discussion of alternatives or actions that were considered, but dismissed from detailed evaluation. The chapter concludes with summary tables of the alternatives and the environmental consequences of implementing those alternatives.

Chapter Three: The Affected Environment, describes those areas and resources that would be affected by implementing the actions contained in the alternatives. The chapter is organized according to the following topics: natural resources, cultural resources, wilderness character, visitor use and experience, subsistence use, socioeconomics, and park operations.

Chapter Four: Environmental Consequences, analyzes the impacts of implementing the alternatives on topics described in the "Affected Environment" chapter. Methods that were used for assessing the impacts in terms of intensity, type, and duration of impacts are outlined at the beginning of the chapter.

Chapter Five: Consultation and Coordination, describes the history of

public and agency coordination during the planning effort, including Native Alaskan consultations, and any future compliance requirements. The chapter lists agencies and organizations that will receive copies of the document.

The Appendixes present supporting information for the document, along with the reference section and a list of the planning team members and other consultants. The appendixes include an Alaska National Interest Lands Conservation Act section 810 summary evaluation and finding on subsistence, and a description of the minimum requirements process that is followed in evaluating activities in wilderness in Gates of the Arctic National Park and Preserve, and a list of desired conditions and potential strategies for management of Gates of the Arctic National Park and Preserve.

Chapter 1

Introduction

INTRODUCTION

Park planning is a decision-making process, and general management planning is the broadest level of decision making for parks. General management plans are required for all units of the national park system and are intended to establish the overall future management direction of a national park system unit. General management planning focuses on what resource conditions and visitor experiences should be achieved and maintained (desired future conditions) throughout a park unit. General management plans look years into the future and consider the park holistically, in its full ecological and cultural context and as part of a surrounding region. This "General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment" (GMP Amendment) updates the 1986 *General Management Plan / Wilderness Suitability Review*, and provides guidance for a 15- to 20-year time frame. Decisions about how specific programs and projects are implemented will be addressed during more detailed planning efforts that follow this GMP Amendment. This GMP Amendment also fulfills the requirements of a wilderness stewardship plan.

This GMP Amendment was developed by an interdisciplinary team in consultation with National Park Service (NPS) offices; federal, state, and local agencies; Alaska Natives; other interested parties; and input and participation from the general public. In order to fulfill National Environmental Policy Act (NEPA) requirements, this environ-mental assessment was prepared by the planning team in conjunction with the GMP Amendment. A decision document will complete the planning process and implementation of the plan will proceed.

BRIEF HISTORY AND DESCRIPTION OF THE PARK

Lying north of the Arctic Circle in Alaska, Gates of the Arctic is situated in the central Brooks Range—the northernmost extension of the Rocky Mountains. The park[1] is 200 air miles north of Fairbanks (Region Map). Gates of the Arctic is composed of the national park (7,523,897 acres) and two units that make up the national preserve—the Eastern Unit (Itkillik) and the Western Unit (Kobuk River), together containing 948,608 acres. Altogether, the park and preserve is nearly 200 miles long and 130 miles wide, including both the north and south slopes of the Brooks Range. With adjacent Kobuk Valley National Park and Noatak National Preserve, these lands form one of the largest protected parkland areas in the world.

The park is characterized by rugged peaks, glaciated arctic valleys, wild and scenic rivers, and many lakes. Foothills become waves of mountain peaks rising to elevations of 4,000 feet, with the tallest limestone and granite ridges reaching over 7,000 feet. Summers are short with long days, while during the short days of winter, temperatures can plunge to -50 degrees Fahrenheit (°F). The landscape is covered by sparse black spruce forests (called taiga), boreal forest, and arctic tundra. The park contains major portions of the range and habitat of the Western Arctic caribou herd. Moose, Dall sheep, wolverines, wolves, and grizzly and black bears also inhabit the land. Although the landscape appears virtually untouched by contem-porary civilization, people have lived here for at least 12,000 years and the park is

[1] Unless otherwise stated, the term "park" or "Gates of the Arctic" in this document refers to both the park and preserve.

blanketed with numerous archeological and historic sites. Gates of the Arctic is important for subsistence activities by local residents, who harvest fish, wildlife, and vegetation in the park. One Nunamiut (Iñupiat) village, Anaktuvuk Pass, lies within the park. The Koyukon Athabascan Indians also rely on park resources for subsistence activities.

Beginning in 1929, the forester and wilderness advocate Robert Marshall began trekking in the central Brooks Range and named Frigid Crags and Boreal Mountain flanking the north fork of the Koyukuk River. Marshall dubbed these twin peaks "the gates of the Arctic." Marshall's experiences in northern Alaska shaped his wilderness philosophy, and his writings inspired generations of wilderness activists. His ideas were later codified in the 1964 Wilderness Act, and his descriptions of the Brooks Range inspired studies that resulted in establishment of the area as Gates of the Arctic National Park and Preserve.

Today, visitors come to the park to seek remote wilderness and solitude and must rely on the knowledge, skills, and equipment they bring with them. Gates of the Arctic National Park is the nation's second-largest NPS wilderness area. The park is internationally renowned as quintessential wilderness. No trails, signs, or permanent visitor facilities exist within the park, and no roads provide access to the park. (Most of the park's eastern boundary is within 5 miles of the Dalton Highway.) The relatively few visitors who venture into the park often spend days or weeks before encountering another person.

Gates of the Arctic National Park and Preserve was established on December 2, 1980, under the Alaska National Interest Lands Conservation Act (ANILCA; Public Law 96-487; 16 *United States Code* [USC] section 410hh[4][a]), and is part of the national park system. In establishing this national park system unit, ANILCA designated Gates of the Arctic National Park and Preserve (Park Map). The primary difference between the preserve and the national park is that sport hunting and trapping are allowed in the preserve, but not in the park. (Subsistence use, including hunting and trapping, are allowed in both the park and preserve.) Although mostly federal lands, there are state-owned, city-owned, and private lands within the park and preserve. These private parcels include Native allotments and other small tracts and Alaska Native corporation lands.

Section 701(2) of ANILCA designated approximately 7,052,000 acres of the park as wilderness. Due to changes in land status conditions, a land exchange, and map refinements, this figure changed to approximately 7,154,000 acres (see also the "Wilderness Character" in chapter 3).

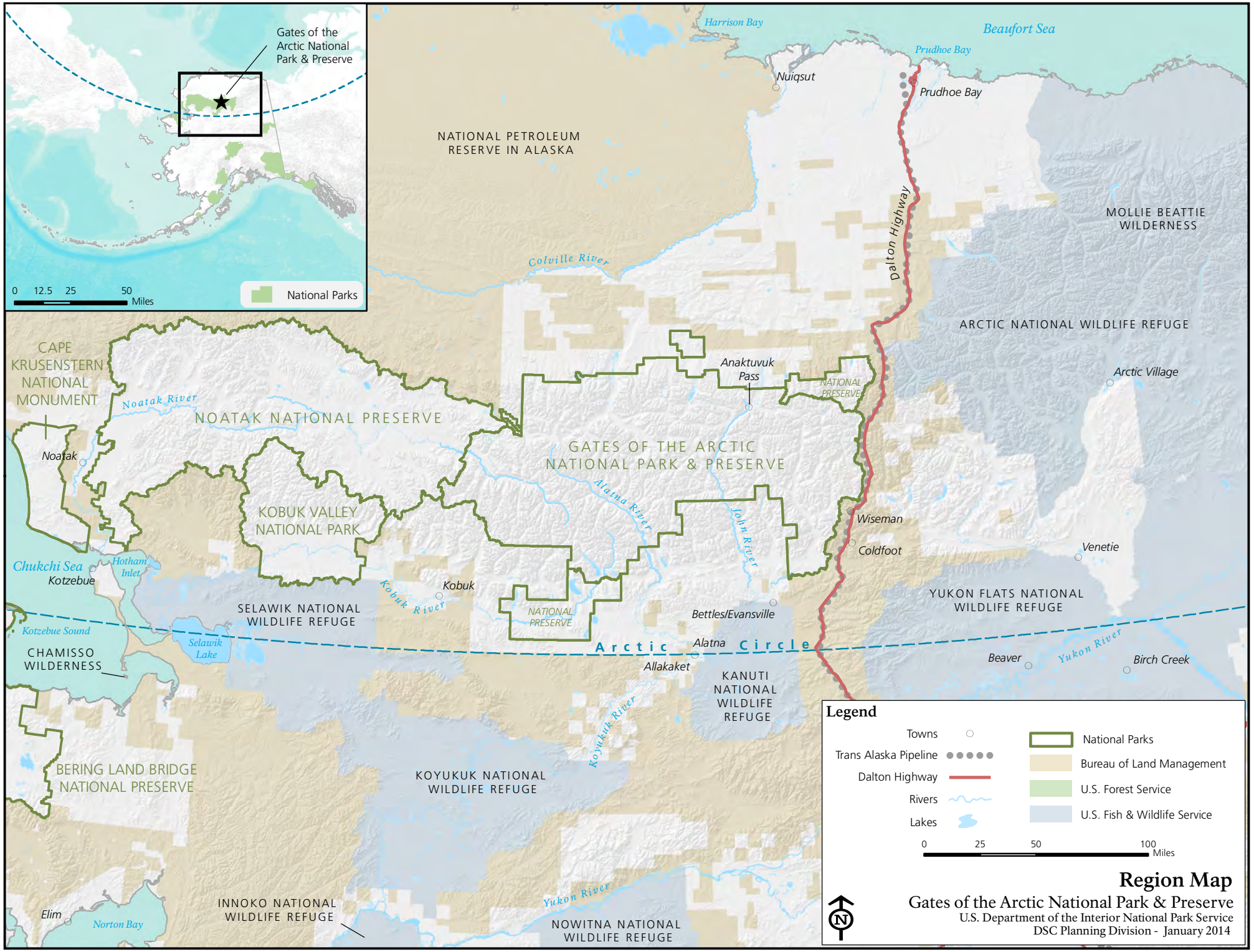
In addition to designating wilderness, section 601 of ANILCA designated six wild and scenic rivers in Gates of the Arctic National Park and Preserve, part of the National Wild and Scenic Rivers System:

- **Alatna River –** drains the central Brooks Range
- **John River –** flows south from Anaktuvuk Pass through Alaska's Brooks Range to the Koyukuk River just below Bettles/Evansville
- **Kobuk River –** flows from its headwaters in the Endicott Mountains and Walker Lake, through a broad valley on the southernmost reaches of the Brooks Range, passing through one of the largest continuous forested areas in the park
- **Noatak River –** drains the largest mountain-ringed river basin in the United States, which is still virtually unaffected by human activities (the entire Noatak River drainage of the

headwaters, which are in Gates of the Arctic, is internationally recognized as a biosphere reserve in the United Nation's "Man in the Biosphere" program)

- **North Fork of the Koyukuk River** – flows from the south flank on the Arctic Divide through broad, glacially carved valleys in the rugged Endicott Mountains of the central Brooks Range
- **Tinayguk River –** is the largest tributary of the North Fork of the Koyukuk

The Arrigetch Peaks and Walker Lake, both within Gates of the Arctic, were designated national natural landmarks in 1968, prior to establishment of the park. National natural landmarks are selected for their outstanding condition, illustrative value, rarity, diversity, or value to science and education. The Arrigetch Peaks were recognized as being a landmark to the Nunamiut (Iñupiat) people. The areas illustrate several phases of alpine glacier activities and reveal abrupt transitions from metamorphic to granitic rock. Walker Lake is a striking and scenic example of the geological and biological relationships of a mountain lake at the northern limit of forest growth. It is typical of the glacial lakes formed in rock basins or behind moraine dams along the Brooks Range. A full range of northern boreal forest and alpine ecological communities thrive in the area.


Gates of the Arctic National Park & Preserve
0 12.5 25 50 Miles
National Parks
Harrison Bay
Beaufort Sea
Prudhoe Bay
Nuiqsut
Prudhoe Bay
NATIONAL PETROLEUM RESERVE IN ALASKA
Dalton Highway
MOLLIE BEATTIE WILDERNESS
Colville River
ARCTIC NATIONAL WILDLIFE REFUGE
CAPE KRUSENSTERN NATIONAL MONUMENT
Noatak River
NOATAK NATIONAL PRESERVE
Noatak
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Alatna River
John River
KOBUK VALLEY NATIONAL PARK
Wiseman
Coldfoot
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SELAWIK NATIONAL WILDLIFE REFUGE
NATIONAL PRESERVE
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Bettles/Evansville
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Selawik Lake
Arctic Circle
Alatna
CHAMISSO WILDERNESS
Allakaket
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Birch Creek
KANUTI NATIONAL WILDLIFE REFUGE
Koyukuk River
BERING LAND BRIDGE NATIONAL PRESERVE
KOYUKUK NATIONAL WILDLIFE REFUGE
Elim
Norton Bay
INNOKO NATIONAL WILDLIFE REFUGE
Yukon River
NOWITNA NATIONAL WILDLIFE REFUGE
Legend
Towns
Trans Alaska Pipeline
Dalton Highway
Rivers
Lakes
National Parks
Bureau of Land Management
U.S. Forest Service
U.S. Fish & Wildlife Service
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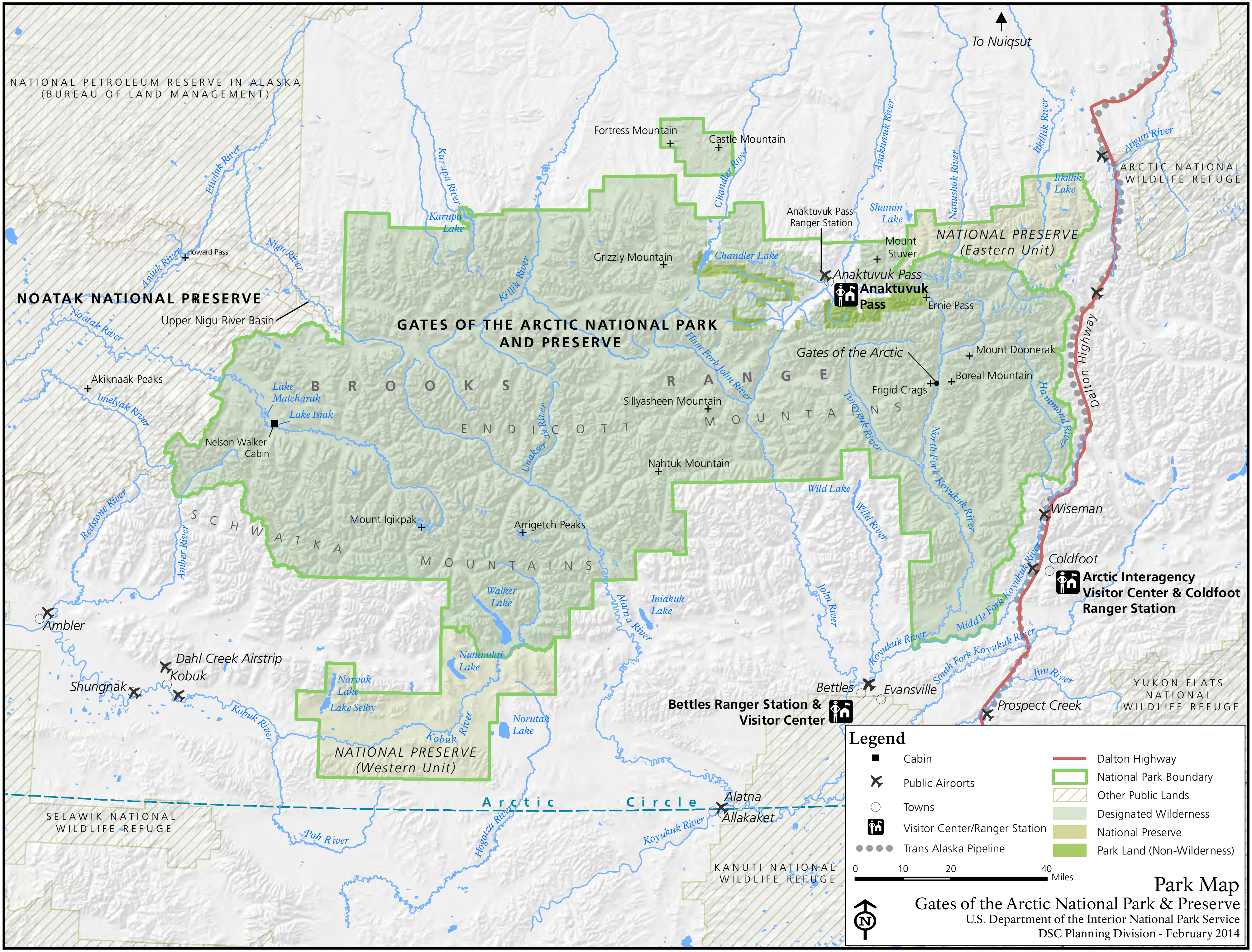
Region Map
Gates of the Arctic National Park & Preserve
U.S. Department of the Interior National Park Service
DSC Planning Division - January 2014


GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE
NATIONAL PETROLEUM RESERVE IN ALASKA (BUREAU OF LAND MANAGEMENT)
NOATAK NATIONAL PRESERVE
ARCTIC NATIONAL WILDLIFE REFUGE
NATIONAL PRESERVE (Eastern Unit)
NATIONAL PRESERVE (Western Unit)
SELAWIK NATIONAL WILDLIFE REFUGE
KANUTI NATIONAL WILDLIFE REFUGE
YUKON FLATS NATIONAL WILDLIFE REFUGE
BROOKS RANGE
ENDICOTT MOUNTAINS
SCHWATKA MOUNTAINS
Arctic Circle
To Nuiqsut
Fortress Mountain
Castle Mountain
Grizzly Mountain
Anaktuvuk Pass Ranger Station
Anaktuvuk Pass
Mount Stuver
Ernie Pass
Gates of the Arctic
Mount Doonerak
Boreal Mountain
Frigid Crags
Sillyasheen Mountain
Nahtuk Mountain
Arrigetch Peaks
Mount Igikpak
Nelson Walker Cabin
Akiknaak Peaks
Howard Pass
Upper Nigu River Basin
Wiseman
Coldfoot
Arctic Interagency Visitor Center & Coldfoot Ranger Station
Bettles
Evansville
Bettles Ranger Station & Visitor Center
Prospect Creek
Alatna
Allakaket
Ambler
Dahl Creek Airstrip
Kobuk
Shungnak
Dalton Highway
Legend
Cabin
Public Airports
Towns
Visitor Center/Ranger Station
Trans Alaska Pipeline
Dalton Highway
National Park Boundary
Other Public Lands
Designated Wilderness
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Park Land (Non-Wilderness)
0 10 20 40 Miles
Park Map
Gates of the Arctic National Park & Preserve
U.S. Department of the Interior National Park Service
DSC Planning Division - February 2014

PURPOSE OF AND NEED FOR THE GMP AMENDMENT

PURPOSE OF AND NEED FOR THE GMP AMENDMENT

The purpose of this GMP Amendment is to update the 1986 General Management Plan for Gates of the Arctic National Park and Preserve. This GMP Amendment will update the 1986 General Management Plan and, together with other elements of the park's Portfolio of Management Plans (portfolio), will guide planning and decision making for the next 15 to 20 years for park resources, visitor use, and facilities. See the end of chapter two for more detail on the planning portfolio.

More specifically, the purposes of the GMP Amendment are as follows:

- Clearly identify desired resource conditions and values to be maintained, and visitor uses and opportunities to be provided in the park.
- Provide a frame work for park managers to use when making decisions about how to best protect resources, how to provide quality visitor opportunities, how to manage visitor use, and what kinds of facilities, if any, to develop in or near the park.
- Fulfill NPS requirements for a wilderness stewardship plan, providing direction for management of the park and preserve's wilderness resources and visitors.
- Provide a frame work for ensuring that park wilderness character is protected.
- Address external developments that may impact the park, including resource development and climate change.

This GMP Amendment is needed because the last comprehensive planning effort for the park was completed in 1986. Since the completion of that plan, the issues, opportunities, and challenges associated with the park have significantly changed. Conditions have changed, both inside and outside the park. The Dalton Highway, which runs near the park's eastern boundary, was opened to the public. A land exchange at Anaktuvuk Pass occurred in 1996, which included a deauthorization of wilderness near Anaktuvuk Pass and added a new area of wilderness along the Nigu River that is now part of the Noatak National Preserve. Visitor use patterns have changed, with use levels increasing along the eastern boundary of the park after the opening of the Dalton Highway to the public. Climate change is affecting ecological systems of the park and those individuals living in the area. A variety of potential developments outside the park could affect park resources and has implications for how visitors access and use the park. Park managers have had 26 years to better understand the natural and cultural resources of the park and the changing needs of park visitors. This includes increased knowledge about park resources; for example, park staff have inventoried more than 1,000 additional archeological and historic sites during the last 26 years.

The 1986 general management plan did not adequately establish wilderness character and visitor experience goals, nor did it specifically identify indicators, measures, and standards for measuring success. This GMP Amendment will provide a frame work under which park

managers can monitor changes in wilderness character and determine if administrative activities and/or visitor use levels are resulting in unacceptable changes, and take appropriate action.

The park faces a number of potential threats such as large-scale oil and gas development and road construction near its northern boundary. This GMP planning process provides an opportunity to proactively develop stronger relationships with neighboring communities that will play a key role in the future of the park.

This GMP Amendment is needed to meet the requirements of the National Parks and Recreation Act of 1978 and NPS policy, which mandate updated general management plans for each unit in the national park system.

Finally, this GMP Amendment is needed because there have been changes since 1986 in NPS *Management Policies 2006* and director's orders on park planning and wilderness management (e.g., preparation of a foundation for planning and management and the revised Director's Order 41: *Wilderness Stewardship*). This GMP Amendment is needed to update park planning documents in line with current NPS policies.

In particular, this plan is needed to fulfill NPS requirements for a wilderness stewardship plan. Most of the park and preserve is either designated wilderness or eligible for wilderness designation. NPS *Management Policies 2006* (6.3.4.2) requires each park with wilderness to develop and maintain a wilderness management plan to guide the preservation, management, and use of wilderness resources. No such plan has been prepared to date for Gates of the Arctic National Park and Preserve.

RELATIONSHIP OF THE GMP AMENDMENT AND THE WILDERNESS STEWARDSHIP PLAN

Wilderness is a key consideration governing how much of Gates of the Arctic National Park and Preserve is perceived and managed. NPS *Management Policies 2006* state that a park's wilderness management plan may be developed as part of another planning document so long as it meets the standards for process and content specified in section 6.3.4. This plan meets the environmental compliance requirements for a wilderness stewardship plan, including sections on purpose and need, alternatives, environmental assessment, and consultation and coordination, as well as providing appropriate administrative guidance (see the scope of the GMP Amendment for more details). Thus, this plan is considered to be both a GMP Amendment and a wilderness stewardship plan.

KEY LAWS, REGULATIONS, AND POLICIES

This section focuses on key statutes, regulations, and policies used to manage Gates of the Arctic National Park and Preserve. ANILCA is the establishing legislation. Gates of the Arctic was established December 2, 1980, under section 201(4)(a) of ANILCA. Section 201 (4)(b)-(e) of ANILCA provides for surface transportation access across the Kobuk River Preserve, described below in "Special Mandates and Administrative Commitments."

Other applicable laws and policy referenced in this section include federal and state laws, federal regulations, and NPS policies. Because this document is an amendment to the 1986 general management plan, some previously

approved park guidance from that plan are carried forward and referenced.

Many national park system unit management directives are specified in laws and policies and are therefore not subject to alternative approaches. For example, there are laws and policies about the management and use of wilderness (i.e., Wilderness Act), managing environmental quality (such as the Clean Air Act, the Endangered Species Act, and Executive Order 11990, "Protection of Wetlands"); laws governing the preservation of cultural resources (such as the National Historic Preservation Act of 1966, as amended [NHPA] and the Native American Graves Protection and Repatriation Act of 1990 [NAGPRA]); and laws about providing public services (such as the Architectural Barriers Act Accessibility Standards)—to name only a few. In other words, a general management plan is not needed to decide that it is appropriate to protect endangered species, control nonnative species, protect historic and archeological sites, conserve artifacts, or provide access for disabled persons. Laws and policies have already decided these and many other issues. Although attaining some conditions set forth in these laws and policies may have been temporarily deferred in a national park system unit because of funding or staffing limitations, the National Park Service will continue to strive to implement these requirements with or without a new management plan.

There are other laws and executive orders that are applicable solely or primarily to units of the national park system. These include the 1916 Organic Act that created the National Park Service, the General Authorities Act of 1970, the National Parks and Recreation Act, and the National Parks Omnibus Management Act (1998).

The NPS Organic Act (16 USC section 1) provides the fundamental management direction for all units of the national park system:

> [P]*romote and regulate the use of the federal areas known as national parks, monuments, and reservations. . . . by such means and measure as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.*

The National Park System General Authorities Act (16 USC, section 1a-1 et seq.) affirms that while all national park system units remain "distinct in character," they are "united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage." The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, amendments state that NPS management of park units should not "derogat[e] . . . the purposes and values for which these various areas have been established." The National Park Service also has established policies for all units under its stewardship. These are identified and explained in a guidance manual entitled NPS *Management Policies 2006*. All alternatives considered in this document incorporate and comply with the provisions of these mandates and policies.

NPS GUIDELINES ON IMPAIRMENT OF NATIONAL PARK RESOURCES

In addition to determining the environmental consequences of implementing the preferred and other

alternatives, NPS *Management Policies 2006*, section 1.4, requires analysis of potential effects to determine whether or not proposed actions would impair the resources and values of a park.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the National Park Service must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values (NPS 2006).

A nonimpairment determination for the selected action will be attached to the decision document for this plan.

GUIDANCE FOR PLANNING

PURPOSE OF GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Much of the basis of park planning is derived from a park's foundation statement, which is a formal description of a core mission of the park. It is a foundation to support planning and management of the park. The foundation statement is grounded in the park's legislation and from knowledge acquired since the park was originally established. It provides a shared understanding of what is most important about the park. The foundation statement describes the park's purpose, significance, fundamental resources and values, primary interpretive themes, and special mandates.

The following key elements of Gates of the Arctic Park and Preserve Foundation Statement have been included here to provide the frame work within which the GMP Amendment has been developed. More detail is provided in the foundation statement itself (NPS 2009).

The purpose of Gates of the Arctic National Park and Preserve is to

> *preserve the vast, wild, undeveloped character and environmental integrity of Alaska's central Brooks Range and to provide opportunities for wilderness recreation and traditional subsistence uses.*

Section 201 of ANILCA states that the park shall be managed for the following purposes, among others:

- To maintain the wild and undeveloped character of the area, including opportunities for visitors to experience solitude and the natural environmental integrity and scenic beauty of the mountains, forelands, rivers, lakes, and other natural features.

- To provide continued opportunities, including reasonable access, for mountain climbing, mountaineering, and other wilderness recreational activities.

- To protect habitat for and the populations of, fish and wildlife, including, but not limited to, caribou, grizzly bears, Dall sheep, moose, wolves, and raptorial birds.

Subsistence uses by local residents shall be permitted in the park, where such uses are traditional, in accordance with the provisions of title VIII (of ANILCA).

SIGNIFICANCE OF GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Significance statements capture the essence of a national park system unit's importance to the nation's natural and cultural heritage. The statements describe the unit's distinctiveness and describe why an area is important within regional, national, and global contexts. This helps managers focus their efforts and limited funding on the protection and enjoyment of attributes that are directly related to the purpose of the park system unit.

Gates of the Arctic National Park and Preserve is nationally and internationally significant for the following reasons (NPS 2009):

- ***Wilderness*:** Gates of the Arctic is acknowledged as the premier wilderness park in the national park system, protecting 7,154,000 acres of diverse arctic ecosystems.

- ***Wilderness Experience*:** Gates of the Arctic provides visitors with opportunities for solitude and challenging wilderness adventures within a remote and vast arctic landscape.

- ***Wild and Scenic Rivers*:** Gates of the Arctic is the headwaters for six designated wild and scenic rivers that support natural systems and human activities across northern Alaska.

- ***Plants and Wildlife*:** Gates of the Arctic protects a functioning arctic, mountain ecosystem in its entirety and provides habitat of world importance for naturally occurring plant and animal populations.

- ***Subsistence*:** Gates of the Arctic protects habitats and resources in consultation with local rural residents to provide subsistence opportunities on lands that have long supported traditional cultures and local residents.

- ***Cultural Resources*:** Gates of the Arctic protects a 10,000-year record of human cultural adaptations to high latitude mountain environments and an unbroken tradition of living on the land.

FUNDAMENTAL RESOURCES AND VALUES

Fundamental resources and values are systems, processes, features, visitor experiences, stories, and scenes that deserve primary consideration in planning and management because they are critical to maintaining the park's purpose and significance. The National Park Service works to preserve those resources and values fundamental to maintaining the significance of Gates of the Arctic National Park and Preserve. That which is most important about the park could be jeopardized if these resources and values are degraded.

Fundamental resources and values were identified for the following topics for Gates of the Arctic (NPS 2009):

- wilderness
- wilderness experience
- wild and scenic rivers
- wildlife
- subsistence resources
- cultural resources

(For more details on park fundamental resources and values, see "Gates of the Arctic National Park and Preserve Foundation Statement" (NPS 2009). Appendix C also identifies the park's fundamental and other important resources and values, and states desired conditions for these resources and values.)

SPECIAL MANDATES AND ADMINISTRATIVE COMMITMENTS RELATED TO GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Special mandates and administrative commitments are essential to consider in managing and planning for park units. Special mandates are requirements specific to a park that expand on or contradict a park's legislated purpose. They are park-specific legislative or judicial requirements that must be fulfilled along with the park's purpose, even if they do not relate to that purpose. Administrative commitments in general are agreements that have been reached through formal, documented processes, such as memoranda of agreement.

The following special mandates apply to Gates of the Arctic National Park and Preserve.

SURFACE TRANSPORTATION CORRIDOR ACROSS THE KOBUK RIVER PRESERVE

Section 201 (4)(b)-(e) of ANILCA provides for surface transportation access across the Kobuk River Preserve. When a proposal for a right-of-way is made, an environmental and economic analysis will be prepared by the Secretary of the Interior and secretary of transportation, which, as mandated by the statute, will focus solely on determining the most desirable route for the right-of-way and terms and conditions that may be required for the issuance of that right-of-way. This analysis will be prepared in lieu of an environmental impact statement. The surface transportation corridor is an obligation that the National Park Service will fulfill in accordance with ANILCA. The right-of-way shall be issued in accordance with the provisions of section 1107 of ANILCA, regardless of the alternatives identified in this plan.

WILDERNESS

The Gates of the Arctic Wilderness was designated by Congress in the Alaska National Interest Lands Conservation Act (ANILCA). The area, encompassing approximately 7,154,000 acres and comprising about 84% of the park unit, is subject to the provisions of ANILCA and the Wilderness Act. These acts mandate how this area is to be managed, and uses that are allowed and prohibited, ensuring that the wilderness character of the area continues to be maintained and protected.

ANAKTUVUK PASS LAND EXCHANGE

After the park was established, NPS officials imposed a ban on all-terrain vehicle (ATV) use on park lands. Anaktuvuk Pass residents needed access to the wildlife on which they depend for food and the ban limited their travel on traditional lands. Meanwhile, the National Park Service became increasingly concerned that the six- to eight-wheeled ATVs (Argos, a preferred brand) were disturbing the tundra and eroding wilderness character. In 1994, the National Park Service Arctic Slope Regional Corporation, Nunamiut Corporation, and City of Anaktuvuk Pass executed an agreement to conduct a land exchange within Gates of the Arctic National Park and Wilderness. The purpose of the land exchange was to accommodate and control ATV use for subsistence hunting near the village of Anaktuvuk Pass. The land exchange permitted ATV access for hunters to position themselves to hunt caribou and other prey within the boundaries of the

Anaktuvuk Pass Land Exchange. The land exchange also was intended to eliminate the potential for incompatible developments on private lands and open private lands in Gates of the Arctic National Park to dispersed public recreational use. A component of the resolution required the deauthorization of designated wilderness and the designation of other lands as wilderness. See the Gates of the Arctic National Park and Preserve Park Atlas (NPS 2013a) for further details.

Congress ratified the agreement in section 302 of the Omnibus Parks and Public Lands Management Act of 1996, Public Law 104-333, which also created an addition to the Noatak National Preserve and Noatak Wilderness to balance the amount of wilderness being authorized and deauthorized. The exchange provided ATV use on 126,632 acres of nonwilderness park lands, relinquishment of surface and subsurface development rights on 116,435 acres of corporation lands, and public pedestrian and dog sled access across 148,484 acres of Native lands, to reach NPS-administered lands. The exchange was completed on June 22, 2007.

This GMP Amendment recognizes these changes in land status and ATV use provided for in the exchange, and makes needed technical corrections to eligible wilderness in the eastern preserve unit (NPS 2013a).

WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act (Public Law 90-542) established a national system of wild, scenic, and recreational rivers. The act preserves selected rivers that possess outstanding scenic, recreational, geological, cultural, or historic values and maintains their free-flowing condition for future generations. Gates of the Arctic National Park and Preserve contains six designated wild and scenic rivers (Alatna, John, Kobuk, Noatak, North fork of the Koyukuk, and the Tinayguk). While these wild and scenic rivers are within the boundaries of the park and are subject to ANILCA, management requirements are also provided by the Wild and Scenic Rivers Act (Public Law 90-542).

Section 3(b) of the Wild and Scenic Rivers Act also requires a comprehensive river management plan be prepared for the park's wild and scenic rivers. This GMP Amendment is not intended to fulfill this requirement, but a comprehensive river management plan would be prepared in a subsequent planning effort.

SCOPE OF THE GENERAL MANAGEMENT PLAN AMENDMENT / ENVIRONMENTAL ASSESSMENT

PLANNING ISSUES AND CONCERNS TO BE ADDRESSED

Human Impacts on Natural and Cultural Resources

As human use increases, certain resources may sustain unacceptable impacts. Popular destinations in the park, such as the North Fork of the Koyukuk River, Noatak River, Walker Lake, and the Arrigetch Peaks, have higher potential for impacts to resources due to human use. Social trails and campsites are developing in locations that are not resilient to such disturbances and management response may be necessary. Humans have inadvertently introduced invasive species, which can have impacts on pristine ecosystems such as that in Gates of the Arctic. Other human factors include oil and mineral extraction operations in areas neighboring the park, shifts in visitor use patterns, and changes in resident zone populations and communities.

Cultural resources are impacted by human activities as well. Looting artifacts and inadvertent disturbance of cultural resources occasionally occur, and may increase with increased visitation.

This plan includes direction on management of human activities in Gates of the Arctic, in order to protect natural and cultural resources as well as visitors' and subsistence users' experiences. This plan also includes guidance on the appropriate level and type of NPS administrative and management activities in the park and preserve, as these activities may also have impacts on resources and visitor experiences.

Visitor Use and Experience

There are several factors that impact visitor experience. Some of the issues and concerns about visitor experience relate to the wilderness designation that encompasses the park and eligibility of the preserve. Questions have been raised regarding appropriate visitor use management of the park and preserve that would allow a range of wilderness-based experiences (challenge, solitude, etc.). The National Park Service also clarifies visitor experiences via management zones, which are part of this GMP Amendment. Management zones allow different user experiences and administrative activities to be designated for all locations within a national park system unit. How to best educate visitors about their experience in a wilderness area is also a planning issue, as access to information about the park is changing with social media and the Internet.

Other concerns include the amount and type of visitor facilities that should be provided, if any, and where they should be placed. Currently, there are very few NPS facilities near Gates of the Arctic, and those within the park are limited to cabins used for emergency purposes unless designated otherwise. Another concern is the potential increased use of the Dalton Highway and the possibility of a transportation corridor through the Kobuk Preserve to the Ambler Mining District. These actions may concentrate visitation to the park and preserve, resulting in both more visitor

opportunities and potential impacts on specific park resources and values.

This plan provides guidance on how to address the location, types, and management of visitor experiences and visitor amenities in and near Gates of the Arctic. Management zoning, including identification of visitor experience, resource, and administrative desired conditions, is also addressed and included to bring the general management plan up to current NPS standards.

Research Activities and Data Collection

Research provides important information that helps staff understand and protect the natural and cultural resources. Research benefits the broader scientific community and society. However, some research activities can adversely impact wilderness character. There are concerns among park staff and the public about what level and types of research activities should be allowed in Gates of the Arctic Wilderness. Also, the minimum requirements process and related restrictions for wilderness can pose challenges to those who are trying to conduct research activities in designated wilderness.

In addition, the National Park Service faces many gaps in its knowledge of the natural and cultural resources of the park and visitor use data. For example, there is little information on population size and trends for fish, moose, and nongame species in the park.

This plan includes direction on what level and types of research activities are appropriate and desired in Gates of the Arctic.

Wilderness Management

There are concerns among the public and among park staff about the appropriate management of one of the premier wilderness parks in the national park system. There are four qualities of wilderness character that the National Park Service strives to maintain: (1) undeveloped, (2) natural, (3) untrammeled, and (4) opportunities for solitude and primitive, unconfined recreation. Changing visitor-use patterns and levels in Gates of the Arctic provide challenges to wilderness management because of the sometimes conflicting goals of maintaining naturalness and minimizing human influence on the environment. One issue is whether the National Park Service should actively manage changing landscapes impacted by human disturbance. New technology and recreational equipment can also impact wilderness character by altering how visitors travel and recreate in Gates of the Arctic. At issue is how much education, including backcountry orientation and educational encounters with NPS staff, is appropriate in this wilderness park. On the one hand, education can help reduce/avoid visitor impacts to wilderness resources, while on the other hand, education can adversely affect some visitors' experiences, confining their visits and reducing opportunities for solitude and discovery.

This plan includes guidance on how to address questions about wilderness management in Gates of the Arctic Park and Preserve. It includes a study of wilderness management that satisfies wilderness stewardship planning requirements.

Western Unit (Kobuk River Preserve) Transportation Right-of-Way

A right-of-way through the Western Unit (Kobuk River Preserve) is authorized

under ANILCA to provide surface transportation access to the Ambler Mining District. The Alaska Industrial Development and Export Authority is conducting preliminary investigations and research activities along two study routes through the Kobuk River Preserve. There are concerns about the effects on park resources such as wildlife movement, effects on subsistence activities, the spread of invasive species, and visitor experiences, which are unknown. However, decisions have not yet been made on where the transportation corridor would run and the design of the corridor. While the direct effects of the transportation corridor are not evaluated in this GMP Amendment, the study of the corridor is addressed under cumulative effects. As mandated in section 201(4)(d) of ANILCA, an environmental and economic analysis will be completed once an application is submitted for the issuance of a right-of-way.

This plan includes desired conditions for resources and visitor use and experience for the lands adjacent to a potential transportation corridor.

Park Operations

The sheer size (over 8.4 million acres) and remote nature of Gates of the Arctic creates unique needs for park operations. The National Park Service provides facilities and staff to manage resources, support visitors, react to emergencies, and provide for subsistence activities. Changing use in and around Gates of the Arctic requires an updated approach to deciding the appropriate locations and types of facilities and administrative presence to fulfill the park mission. An issue related to park operations is whether the National Park Service should consider entering into partnerships with other agencies and stakeholders to better manage resources and visitors. Of concern is whether the National Park Service can continue to sustainably operate all of its existing facilities in Anaktuvuk Pass, Coldfoot, Bettles, and Fairbanks.

This plan includes direction on the appropriate locations and types of facilities and administrative presence to efficiently and sustainably manage Gates of the Arctic, while meeting its mission and that of the National Park Service to provide for resource protection as well as visitor enjoyment.

PLANNING ISSUES AND CONCERNS NOT ADDRESSED IN THIS GMP AMENDMENT

Several issues or concerns are not addressed in this GMP Amendment because they

- are already prescribed by law, regulation, or policy (see the "Special Mandates and Administrative Commitments," and "Guiding Principles for Park Management" sections)
- would be in violation of laws, regulations, or policies
- were at a level that was too detailed for a general management plan and would be more appropriately addressed in subsequent planning documents
- have already been addressed in recent planning documents
- cannot be addressed at this time due to uncertainty and lack of detail, but may be addressed in a future planning effort

Subsistence Use

Part of the purpose of Gates of the Arctic National Park and Preserve is to provide opportunities for traditional subsistence uses. Subsistence is one of the elements that define the area's distinctiveness and why the area is important within the regional context. Subsistence is a fundamental value for the park, and a primary use of the park. Concerns have been raised regarding the protection of subsistence uses within the park. In particular, local residents are concerned about management decisions or activities that have the potential to impact their subsistence uses of the park. There is also concern about the potential for conflicts between recreational and subsistence users, with subsistence users concerned that recreational visitors would disturb wildlife.

Although this GMP Amendment evaluates the effect of the alternatives on subsistence, the plan does not directly change subsistence uses and opportunities in the park. The subsistence use management directions in the 1986 general management plan still apply in the park and preserve. As noted in the strategies for subsistence use in appendix C, the issues regarding subsistence use are addressed through the Gates of the Arctic National Park and Preserve Subsistence Resource Commission and in the park subsistence management plan, which is regularly reviewed and updated. Conflicts between subsistence users and nonconsumptive users will continue to be addressed on a case-by-case basis.

Cabin Management

As noted in the visitor experience issue, there are several nonhistoric cabins in the park, which are used in limited situations for administrative or emergency purposes. Some concerns include the availability of more facilities in the park for public use, such as cabins, and having no cabins in the wilderness area. At issue is whether the cabins are needed for public health and safety, or should visitors instead rely on adequate preparation and survival skills. Other issues include preserving cabins that have historic and cultural value and whether cabins that fall into disrepair should be replaced or allowed to molder.

As noted in the alternatives, a cabin management plan is being drafted that will address this issue in depth.

Proposing New Wilderness

Both preserve units have been determined to be eligible for wilderness designation. An outstanding question is whether the National Park Service should propose new areas in Gates of the Arctic for wilderness designation. The 1964 Wilderness Act and section 1317 of ANILCA require all NPS lands not currently designated as wilderness to be evaluated to determine if these lands are suitable for wilderness designation. NPS *Management Policies 2006* (section 6.2.2) also require all NPS lands and waters found to be eligible for wilderness to be formally studied to develop a recommendation for Congress for wilderness designation.

When planning first began for the Gates of the Arctic General Management Plan Amendment, a wilderness study was intended to be combined with the plan. A notice of intent to prepare an environmental impact statement on the GMP Amendment / Wilderness Study was published in the *Federal Register* on January 27, 2010. Public scoping occurred in the spring of 2010, and a wilderness study newsletter was sent to the public in the winter of 2011. Also in 2011, the National Park Service updated both the designated and eligible wilderness acreages for all Alaska park wilderness

areas based on current digital mapping and GIS technology and updated land status information to provide more accurate numbers. In Gates of the Arctic National Park and Preserve, the 2011 calculations showed there are 7,154,000 acres of designated wilderness and approximately 914,000 acres of lands eligible for wilderness designation. The eligible lands reflect lands that have been determined suitable by the 1986 General Management Plan and updated land status information, and includes State of Alaska and ANCSA-selected lands that were not conveyed and will remain in federal ownership.

As the planning process proceeded, it became evident that the timing of conducting a wilderness study was complicated by the congressionally authorized transportation corridor in the Western Unit. It is not clear yet where this corridor will pass through the preserve or other parameters of the potential right-of-way. Consequently, the National Park Service is deferring the preparation of a wilderness study in Gates of the Arctic until decisions regarding the corridor have been made. On November 20, 2013, the National Park Service published a notice in the *Federal Register* to terminate the wilderness study and environmental impact statement on the General Management Plan Amendment / Wilderness Study. The initial work on the Wilderness Study and comments from public comment on the wilderness study options has been preserved for future use.

In the interim, under NPS *Management Policies 2006*, the eligible areas in the preserves will continue to be managed to protect their wilderness character until Congress takes action on whether to designate the areas as wilderness.

External Pressures, Boundary Issues

Communities, transportation corridors, and other developments near Gates of the Arctic have impacts on the park and preserve. Although some of these external pressures have yet to be fully understood, there is general consensus that certain types of pressures might increase in the future. For example, mineral exploration along several boundaries of the park could affect water quality, use in the park, introduce invasive species, and disrupt wildlife corridors. Growth of the community at Anaktuvuk Pass has the potential to impact water quality in the John River due to trash dumping in and near the river. Increased use of the Dalton Highway could increase the number of visitors accessing Gates of the Arctic from the highway corridor.

Other concerns arise from the differences between NPS management objectives and policies compared to those of neighboring agencies. For example, oil and natural gas exploration is the primary focus of the National Petroleum Reserve-Alaska, which borders Gates of the Arctic to the northwest. Until the last decade, this area was largely undisturbed wilderness administered by the Bureau of Land Management (BLM). Planning and development of oil and gas leasing has been more active in the last five years, and potential impacts to Gates of the Arctic are not fully understood at this time.

None of the alternatives in this plan directly address these external forces, nor are indirect effects expected to interact with the impacts of the action. The National Park Service will continue to participate in external planning efforts that have the potential to affect park resources and values to ensure compatible land use management. In addition, the park land protection plan (NPS 2014a) provides general directions

and goals for addressing external pressures such as collaborating with land management agencies, private landowners, and Alaska Native corporations. It also contains updated information about private inholdings and allotments.

Climate Change

Climate change refers to any substantial changes in average climatic conditions (such as average temperatures, precipitation, or wind) or climatic variability (such as seasonality or duration of certain temperature ranges) lasting for an extended period of time (decades or longer). Recent reports by the U.S. Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change (IPCC 2007) provide clear evidence that climate change is occurring and is likely to accelerate in the coming decades. The impacts of climate change are expected to be more severe in Alaska, where air temperature is warming at a faster rate than in other places on the globe, resulting in accelerated changes to vegetation, water resources, wildlife, and other processes such as permafrost extent. Human use of and access to these natural resources is also changing as a result of a changing climate.

There are two different issues to consider with respect to climate change: (1) what is the contribution of the proposed action to climate change such as greenhouse gas emissions and the "carbon footprint," and (2) what are the anticipated effects of climate change on park resources and visitors that are affected by the management alternatives? Because the contribution of the proposed actions to climate change in all of the alternatives is negligible, the first issue has been dismissed as an impact topic. Potential effects of climate change on park resources and visitors are included in chapter three.

Thus, unlike the other issues noted above, this plan does not provide definitive solutions or directions to resolving the issue of controlling impacts of climate change on Gates of the Arctic National Park and Preserve. Rather, the plan provides some general directions and strategies that can help minimize park contributions to climate change (see appendix C for the desired conditions and strategies). In addition, the National Park Service is addressing climate change in Alaska parks through other planning efforts. The "Alaska Region Climate Change Response Strategy" (NPS 2010b) presents a frame work and goals and objectives for planning for climate change in and near Alaskan national parks.

IDENTIFICATION OF IMPACT TOPICS

Impact Topics in the Plan

The planning team selected the impact topics for analysis based on the potential for each topic to be affected by the alternatives. Also included is a discussion of some impact topics that are commonly addressed in general management plans, but that are dismissed from detailed analysis in this plan for the reasons given.

The "Environmental Consequences" chapter contains a more detailed description of each impact topic to be affected by the actions described in the alternatives.

Impact Topics Retained and Dismissed

To focus the analysis on key or important impacts, some impact topics have not been analyzed for their effect on the human environment. Impact topics have

been retained if there could be appreciable impacts from the actions of the alternatives considered. All other impact topics have been dismissed from detailed analysis. Impact topics were dismissed if they were considered during the planning process, but determined not to be relevant to the development of this GMP Amendment because either: (a) implementing the alternatives would have no effect, negligible effect, or minor effect on the resource, or (b) the resource does not occur in the park.

WILDERNESS STEWARDSHIP

This GMP Amendment, together with the documents listed below, serves as the wilderness stewardship plan for Gates of the Arctic National Park and Preserve. Together, these documents meet all the requirements for a wilderness stewardship plan. Relevant sections in this plan governing wilderness stewardship include:

- the management zone descriptions in table 2 in chapter two
- guidance on monitoring wilderness character and user capacity in chapter two
- guidance on managing commercial services in wilderness in chapter two
- the management directions in the alternatives in chapter two
- the description of current conditions of the wilderness area in chapter three
- the minimum requirement process in appendix B
- the desired conditions for wilderness and wilderness experience in appendix C of this plan

Other documents that address or are important for stewardship of Gates of the Arctic Wilderness include:

- the "Wilderness Character Narrative" (NPS 2012b)
- the park atlas for Gates of the Arctic National Park and Preserve (NPS 2013a)
- NPS *Management Policies 2006* (NPS 2006)

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
Natural Resources (including vegetation, wildlife, and water quality)	Retained	One of the primary natural resources of the park is its vegetation communities and wildlife. Actions presented in the alternatives could beneficially or adversely affect these resources, which would be of concern to park managers and the public, as well as visitors and other park users. Water quality in Gates of the Arctic is exceptionally high. Water quality in the Kobuk and Noatak rivers is considered to be unaffected by people, and most of the other surface waters in the park remain almost totally pristine.	NPS Organic Act; Clean Water Act; Wild and Scenic Rivers Act; Executive Order 12088, "Federal Compliance with Pollution Control Standards"; NPS *Management Policies 2006*
Wilderness Character	Retained	The majority of Gates of the Arctic National Park and Preserve is designated wilderness. Wilderness is a fundamental resource and value of the area. Preserving the "wild, undeveloped character" of the area is one of the purposes for which the park was established. Providing opportunities for solitude and challenging wilderness adventures, as well as being a premier wilderness park in the national park system, are identified as two of the values of what is significant about the area. Thus, park wilderness character is extremely important to consider in managing the park—nearly every NPS management action in the park relates directly or indirectly to the management of wilderness.	The Wilderness Act, NPS *Management Policies 2006,* Director's Order 41:*Wilderness Preservation and Management*
Cultural Resources (including archeological resources, historic structures, and ethnographic resources)	Retained	The lands and waters of what is now Gates of the Arctic National Park and Preserve have supported human activities for many thousands of years. Therefore, there are archeological resources, historic structures, and ethnographic resources within the park that are important historically as well as to contemporary users of park lands. Outstandingly remarkable values associated with Gates of the Arctic's wild and scenic rivers include traditional routes — a cultural value. The Wild and Scenic Rivers Act mandates that outstandingly remarkable values be protected and enhanced. Because management actions proposed in	Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended (16 USC 470); Native American Graves Protection and Repatriation Act of 1990; Wild and Scenic Rivers Act; Advisory Council on Historic Preservation (ACHP) implementing regulations regarding the "Protection of Historic Properties" (36 CFR 800); *Secretary of the Interior's Standards for the Treatment of Historic Properties*; NPS Director's Order 28:*Cultural Resources Management Guideline; Secretary of the Interior's*

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Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
		the alternatives may have impacts on archeological resources, historic structures, and/or ethnographic resources, this topic was retained for further analysis.	*Standards and Guidelines for Archeology and Historic Preservation*; NPS *Management Policies 2006*; Director's Order 28A: *Archeology*(2004); Executive Order 13007,"Indian Sacred Sites"(1996)
Visitor Use and Experience (including access, recreational opportunities and experiences, and interpretation and education)	Retained	Management of visitor activities, visitor facilities and user capacity are key elements being addressed in this plan, Because of the remoteness and wild character of the park, visitor use in Gates of the Arctic presents a unique set of circumstances related to access, recreational opportunities and experiences, and how park staff and others interpret and educate visitors. The alternatives presented in this plan may impact visitor use, including visitation levels, access, and recreational opportunities.	NPS Organic Act; Wild and Scenic Rivers Act, NPS *Management Policies 2006*
Subsistence Use	Retained	The park and preserve provide opportunities for subsistence users and subsistence use. The alternatives presented in this plan may have effects on subsistence use.	Alaska National Interest Lands Conservation Act; NPS *Management Policies 2006*
Socioeconomics (including commercial services)	Retained	Gates of the Arctic National Park and Preserve affects local businesses and the economies of individuals and communities in the area. Recreation-related tourism is an important element of the regional economy. Any actions in the alternatives that would alter visitor use levels or visitor use patterns would be of concern to many local businesses, including guides, outfitters, concessioners, and local residents, subsistence users, the general public, and NPS managers.	National Environmental Policy Act
Park Operations	Retained	This topic covers such topics as NPS staffing, maintenance activities, management flexibility, productivity, operational efficiencies, and response times. Park operations could be affected by the actions in the alternatives.	NPS *Management Policies 2006*

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
Threatened and Endangered Species	Dismissed	There are no federally listed species that inhabit, breed in, or overwinter in the park. (The yellow-billed loon, which is a federal candidate for listing, may occasionally visit the park, but there is no suitable habitat for this species in Gates of the Arctic; it normally inhabits the Arctic Coastal Plain and Seward Peninsula.) Likewise, there are no state listed species in the park.	Endangered Species Act, NPS *Management Policies2006*
Fisheries	Dismissed	Gates of the Arctic supports several important fisheries, including large arctic char and chum salmon runs and sheefish spawning grounds. However, the alternatives being considered would not affect water quality, flows, or the spawning grounds in the park. Although sportfishing might increase in some areas as a result of the alternatives, with continued monitoring and enforcement of fishing regulations, impacts of the alternatives would be negligible.	NPS Organic Act; Wild and Scenic Rivers Act; ANILCA: NPS *Management Policies 2006*
Air Quality	Dismissed	While comprehensive data have not been collected in Gates of the Arctic, air quality is generally considered excellent in the park. Gates of the Arctic is designated a class II airshed under the 1963 Clean Air Act, as amended. class II airsheds include areas where air pollution is cleaner than federal air quality standards, and future air quality degradation is protected to a moderate degree. Some minor air pollution is evident in the park. Arctic haze (a mixture of pollutants within the polar air mass) occasionally reduces visibility in the park, especially during the winter and spring. Smoke from forest and tundra fires can also degrade air quality from June to August. Airplane use through and above the park can have minor impacts on air quality in localized areas. However, the overall impact of park operations and alternatives proposed in this document is negligible with respect to air quality. Management actions and mitigation of air pollution are similar across all alternatives. Therefore, this impact topic was dismissed.	Clean Air Act; NPS *Management Policies 2006*

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
Floodplains and Wetlands	Dismissed	No new facilities or construction is proposed in any of the action alternatives in potential floodplain areas. Under all the alternatives, the National Park Service would work with partners and other agencies to reduce impacts to wetlands, especially in the vicinity of Anaktuvuk Pass. No construction activities are proposed that would have impacts on wetlands, and visitor and management impacts on wetlands would be negligible.	Clean Water Act; NPS *Management Policies 2006;* Director's Order 77-2: *Floodplain Management*; Executive Order 11988: "Floodplain Management"; Director's Order 77-1: *Wetland Protection*; Executive Order 11990: "Protection of Wetlands"
Soundscape	Dismissed	Natural sounds are important to the natural functioning of park ecosystems and to the visitor experience at Gates of the Arctic, especially as it relates to wilderness character and solitude. However, no new developments are being proposed in the alternatives and changes in visitor use patterns would have no more than a minor adverse impact in localized areas on the park's soundscape.	NPS *Management Policies 2006*; Director's Order 47: *Soundscape Preservation and Noise Management*
Soils	Dismissed	The alternatives presented in this plan would have negligible impacts on soil resources in the park. No construction activities would occur in park boundaries, and restoration of some sites may have negligible temporary impacts with overall, long-term benefits to soil resources.	NPS Organic Act; NPS *Management Policies 2006*
Geologic Resources (including paleontological resources)	Dismissed	None of the alternatives would result in ground disturbance that could affect geologic resources.	NPS Organic Act; Wild and Scenic Rivers Act, NPS *Management Policies 2006*
Wild and Scenic Rivers	Dismissed	There are six designated wild and scenic rivers in Gates of the Arctic: the Alatna, John, Kobuk, Noatak, North Fork of the Koyukuk, and the Tinayguk rivers. These rivers, and their outstandingly remarkable values, would not be affected by the alternatives presented in this plan. Under all alternatives, the six rivers would continue to receive full protection and the National Park Service would ensure no actions are taken that would adversely affect the wild and scenic values of the rivers.	National Wild and Scenic Rivers Act (section 5[d]), NPS *Management Policies 2006*

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
Scenic Resources	Dismissed	This impact topic was dismissed because no developments or actions are being proposed in the alternatives that would affect park viewsheds.	NPS Organic Act; National Wild and Scenic Rivers Act (section 5[d]), NPS *Management Policies 2006*
Cultural Landscapes	Dismissed	At Gates of the Arctic, some cultural landscapes continue to be important in contemporary times. Two cultural landscape inventories have been completed for the park, documenting the Agiak Lake and Itkillik Lake caribou hunting landscapes (Wilson & Ferreira 2007; Ferreira & Davenport 2011). None of the actions proposed in the alternatives are expected to impact cultural landscapes in the park, whether they are documented formally or not.	National Historic Preservation Act of 1966, as amended (16 USC 470); Advisory Council on Historic Preservation implementing regulations regarding the "Protection of Historic Properties" (36 CFR 800); Director's Order 28: *Cultural Resource Management*; NPS *Management Policies 2006*; "NPS Alaska Regional Management Guidelines;" *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1996); Programmatic agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008); National Environmental Policy Act
Museum Collections	Dismissed	The museum collections for Gates of the Arctic have grown steadily over the past few years and now comprise over 260,000 individual objects. The majority of the collections are stored in a state-of-the-art curation facility in the Fairbanks Administrative Center, while others are curated in partner repositories such as the University of Alaska Museum of the North (Fairbanks), NPS Alaska Regional Curatorial Center (Anchorage), and the Alaska & Polar Regions Department at the University of Alaska Fairbanks. None of the alternatives would impact museum collections, and museum collections would continue to be acquired, accessioned and cataloged, preserved, protected, and made available for access and use according to NPS standards and	Museum Act (16 USC 18f, 18f-2, 18f-3), National Historic Preservation Act; American Indian Religious Freedom Act; Archeological and Historic Preservation Act; Archeological Resources Protection Act; Native American Graves Protection and Repatriation Act; NPS *Management Policies2006*; USDI *Manual on Museum Property Management* 411 DM; *NPS Museum Handbook*; Director's Order 24: *Museum Collections Management* and Director's Order 28: *Cultural Resources Management*; 36 CFR 79 "Curation of Federally-

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
		guidelines.	Owned and Administered Archaeological Collections"
Natural or Depletable Resource Requirements and Conservation Potential	Dismissed	None of the alternatives being considered would result in the extraction of resources from the park. The alternatives would not include new development.	Council on Environmental Quality (CEQ) regulations
Carbon Footprint	Dismissed	For the purposes of this planning effort, "carbon footprint" is defined as the sum of all emissions of carbon dioxide and other greenhouse gases (e.g., methane and ozone) that would result from implementation of any of the alternatives. It has been determined that the action alternatives described in this document would only emit a negligible amount of greenhouse gases that contribute to climate change; therefore, this impact topic has been dismissed from further analysis. The reasons for dismissing this impact topic are that (1) no substantial changes in aircraft use or other motorized travel are proposed under the alternatives, and (2) no new construction of facilities is proposed under the alternatives. Because of the negligible amount of greenhouse gas emissions that would result from each alternative, a quantitative measurement of their carbon footprint was determined by the planning team not to be practicable.	*NPS Environmental Quality Division "Draft Interim Guidance: Considering Climate Change in NEPA Analysis"*
Environmental Justice	Dismissed	None of the alternatives being considered would have a disproportionately high and adverse effect on any minority or low-income population or community.	Executive Order 12898,"General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"
Conflicts with Land Use Plans, Policies, or Controls	Dismissed	Whenever actions taken by the National Park Service have the potential to affect planning, land use, or development patterns of adjacent or nearby lands, the effects of these actions must be considered. This plan would not affect land development or plans for areas outside the park. Therefore, none of the alternatives would affect other land use plans, policies, or controls beyond the park's boundary.	Council on Environmental Quality Regulations; *DO-12 Handbook*

TABLE 1. IMPACT TOPICS RETAINED AND DISMISSED FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Impact Topic	Retained or Dismissed	Rationale	Relevant Law, Regulation, or Policy
Energy Requirements and Conservation Potential	Dismissed	Under all alternatives, the National Park Service would continue to implement its policies of reducing costs, eliminating waste, and conserving resources by using energy-efficient and cost-effective technology (NPS 2006c). Irrespective of this GMP Amendment, NPS staff would continue to look for energy-saving opportunities in all aspects of park operations. The proposed alternatives would not include additional infrastructure or facilities. Although there may be differences in the number of motorized vehicles (aircraft, motorboats) operating in the various alternatives, only minor changes in overall energy consumption in the park would be expected due to the alternatives.	NPS *Management Policies2006*; Council on Environmental Quality Regulations

PORTFOLIO OF MANAGEMENT PLANS FOR GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

Planning is a basic element of management throughout the national park system. Park managers are guided by a variety of plans and studies, covering many topics. The revised NPS planning frame work brings all these plans into a single, unified system. The totality of a park's plans is referred to as the Portfolio of Management Plans (portfolio). The portfolio is a dynamic compilation of planning guidance in which certain planning elements are removed and updated, or new elements added as needed. The portfolio consists of basic descriptions of a park's purpose, such as the Foundation Statement; comprehensive plans such as this GMP Amendment; implementation plans such as a site management plan; and strategic program plans such as a long-range interpretive plan. Resource studies, descriptions, and inventories, such as atlas maps, support planning and may help identify issues that merit future planning efforts to resolve. The portfolio of management plans for Gates of the Arctic National Park and Preserve will include the 1986 GMP, this GMP Amendment, the Foundation Statement (NPS 2009), the land protection plan (NPS 2014a), the wilderness character narrative (NPS 2012b), the park atlas maps, the wild river value statements (2014b), and other future components that, as an assemblage, meet the full range of park planning needs. The portfolio can be found online at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

The 1986 General Management Plan provides direction on a variety of topics, including natural and cultural resource management; subsistence; sport hunting; fire management; wilderness management; and visitor access, recreation, and use. This GMP Amendment updates guidance about visitor facilities and administrative needs. The amendment also considers topics that were either not addressed or briefly

discussed in the original GMP (such as commercial services) and provides desired conditions and strategies for overall management of the park (appendix C). For topics not addressed in this plan, managers would follow other management guidance or plans in the portfolio.

Several plans in particular have influenced or would be affected by the approved *Gates of the Arctic National Park and Preserve General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment*. Some of these plans have been prepared by the National Park Service, while others have been prepared by other entities. These other plans are briefly described here, along with their relationship to this document.

National Park Service Plans

***Gates of the Arctic National Park and Preserve General Management Plan, Land Protection Plan, and Wilderness Suitability Review* (1986)**

The combined plan contains management actions addressing issues and problems facing the park in the 1980s. The primary objectives of the plan are to maintain the wild and undeveloped character of the area, provide continued opportunities for wilderness recreational activities, protect park resources and values, and offer opportunities for traditional subsistence practices by local residents. The plan emphasizes the collection of baseline resource data, outlines the requirements of a subsistence plan, discusses visitor capacity indicators and standards, and describes park operations. The general management plan also provides guidance on revegetation and rehabilitation actions needed to return certain areas of the park to its pristine condition.

The wilderness suitability review proposed 1,009,638 acres of nonwilderness lands to be designated wilderness.

The current planning effort updates the 1986 general management plan.

***Final Legislative Environmental Impact Statement on All-Terrain Vehicles (ATVs) for Subsistence Use in Gates of the Arctic* and *Record of Decision* (1992)**

This legislative environmental impact statement, ratified by Congress in 1995, authorized an exchange of federal park and wilderness land with Alaska Native regional and village corporations. This exchange was completed in 1996, but a comprehensive survey of the lands was only completed recently.

The 1992 agreement allows ATV access by Anaktuvuk Pass residents to position themselves to hunt caribou and other prey on park land. The exchange between the National Park Service, Arctic Slope Regional Corporation, and Nunamiut Corporation provided broad public access easements through the Arctic Slope Regional Corporation and Nunamiut lands.

To allow ATV access, the exchange deauthorized some park wilderness and designated new wilderness areas that were formerly Arctic Slope Regional Corporation and Nunamiut lands. The all-terrain vehicle as defined by the agreement is a six- or eight-wheeled, off-road vehicle with low-pressure tires and weighing a maximum 1,200 pounds empty or 2,000 pounds fully loaded. The Argo is a popular brand of all-terrain vehicle used by the residents of Anaktuvuk Pass.

The 2014 GMP Amendment is consistent with and complements the 1992 agreement. All of the maps in this plan reflect up-to-date revisions made to the park boundary resulting from the 1992 agreement.

"Gates of the Arctic National Park and Preserve Land Protection Plan" (2014)

There are approximately 164,000 acres of nonfederal lands within the boundary of the

park and preserve, representing about 2% of the lands in the unit. This plan focuses primarily on these nonfederal lands within the park boundary. The land protection plan, updated in 2014 from the 1986 plan, describes the methods of cooperation with owners of small land tracts and Native lands, mining claims, Native corporation lands, and interactions with adjacent land-managing entities. The land protection plan discusses land ownership and uses, including compatible and incompatible uses, external conditions affecting land protection, and protection alternatives. Recommendations for land protection actions are provided, ranked in priority order.

All of the actions in the 2014 GMP Amendment are consistent with the park land protection plan.

Relationship of this GMP Amendment to Other Federal and State Plans

***Noatak National Preserve General Management Plan* (1986)**

The general management plan presented the management direction for Noatak National Preserve. The plan identified legal mandates for the preserve, listed issues confronting the preserve, provided a description of the preserve, and identified the minimum management actions necessary to maintain the environmental and cultural integrity of the preserve. The Noatak River, a designated wild and scenic river, flows through both the preserve and Gates of the Arctic National Park. Management of river resources and visitors in the 1986 preserve plan and the 2014 GMP Amendment are consistent and complement each other.

***Final Environmental Impact Statement Wilderness Recommendation, Gates of the Arctic National Park and Preserve* (1988)**

The environmental impact statement presented and evaluated a series of wilderness recommendation alternatives. The preferred alternative proposed 330,846 acres of the more than 1,000,000 acres of proposed wilderness (identified in the 1986 suitability review) to be designated as wilderness. However, this process was never completed.

***Dalton Highway Master Plan* (1998)**

The master plan, developed by the Dalton Highway Advisory Board and Planning Board, was intended to guide development of the highway corridor in a coordinated and effective manner. The road (originally the "haul road" for the trans-Alaska pipeline) runs from the Elliott Highway, 1 mile west of Livegood, to Deadhorse Airport, a few miles from Prudhoe Bay and the Arctic Ocean. The master plan addressed recommendations for development and public services (public safety, sanitation facilities, emergency medical services, information services). One of the "development nodes" was Coldfoot, which was recommended for expanded services. The plan also addressed management issues on adjacent BLM and North Slope Borough lands, including fish and wildlife concerns, off-road access, and future travel impacts. Recommendations included a seasonal hunter check station and additional state trooper enforcement. The plan also called for increased coordination between landowners and managers along the Dalton Highway corridor.

This master plan and its management goals served as background information for the current plan. All of the actions in the 2014 GMP Amendment, with respect to Dalton Highway facilities, are consistent with the master plan.

***Dalton Highway Scenic Byway Corridor Partnership Plan* (2010)**

This plan was developed by the Alaska Department of Natural Resources for the Alaska Department of Transportation and Public Facilities, State Scenic Byways Program. The Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, byway businesses, residents, and stakeholders participated in the planning process. The plan is not regulatory and does not supersede local authorities or management mandates. The plan:

- acknowledges the issues and concerns relating to managing the Dalton Highway corridor (e.g., lack of visitor services, impacts to the natural and cultural environment, hunting, and off-road vehicles) and identifies possible solutions
- provides an assessment of the intrinsic qualities of the byway
- assesses current and future byway visitation and the challenges associated with managing recreational travel on an industrial haul road
- provides an overview of existing signage and interpretation
- provides a frame work that will help the local byway organization succeed in reaching their stated vision, goals, and objectives

The plan also discusses the potential impacts of increased traffic on the highway due to its designation as a scenic byway and improvements to the road. The byway plan does not specifically address issues that directly affect management of the park (with the exception of hunting and the use of off-road vehicles off the road). The plan does not make specific project recommendations, although possible solutions to issues are listed. None of the actions mandated in the alternatives of the 2014 GMP Amendment are inconsistent or conflict with the goals and objectives in the scenic byway plan.

Potential Ambler Mining District Right-of-Way Environmental and Economic Analysis (to be completed)

The Alaska Industrial Development and Export Authority and Alaska Department of Transportation and Public Facilities is currently conducting environmental studies and evaluating alignment options for a transportation corridor across Kobuk Preserve. If the state submits an application for a right-of-way under sections 201(4)(b)-(e) of ANILCA, the Secretaries of the Interior and Transportation will prepare an environmental and economic analysis to determine the best route through the preserve and the terms and conditions that may be required. The National Park Service recognizes this right-of-way, mandated under ANILCA, will be established under all of the alternatives considered in this GMP Amendment. None of the actions in the alternatives in this plan are inconsistent or conflict with the implementation of the future right-of-way. The terms and conditions in the Ambler Mining District Right-of-Way Environ-mental and Economic Analysis will supplement the actions in this GMP Amendment.

Central Yukon Resource Management Plan (RMP) (to be completed)

This plan is being prepared by the Bureau of Land Management and covers approximately 16 million acres of BLM-managed lands adjacent to Gates of the Arctic National Park and the Dalton Highway Utility Corridor. The plan will provide direction on future resource conditions and actions needed to achieve those conditions, special area designations, and allowable land uses. NPS staff will provide input and participate in the review of this future plan to ensure actions on BLM lands are consistent with this GMP Amendment.

IMPLEMENTATION OF THE GENERAL MANAGEMENT PLAN AMENDMENT

In order to fulfill NEPA requirements, this environmental assessment was prepared by the planning team in conjunction with the GMP Amendment. A decision document will complete the planning process and implementation of the plan will proceed.

Once the planning process is completed, the selected alternative will guide management of the park over the next 15 to 20 years. It is important to note that not all actions in the alternative would necessarily be implemented immediately. Although this *Gates of the Arctic National Park and Preserve General Management Plan Amendment / Wilderness Stewardship Plan / Environmental Assessment* provides the analysis and justification for future park funding proposals, this plan does not guarantee future NPS funding. Many actions would be necessary to achieve the desired conditions for natural resources, cultural resources, and educational and recreational opportunities as envisioned in this GMP Amendment. The National Park Service will seek funding to achieve these desired conditions; although the National Park Service hopes to secure this funding and will prepare itself accordingly, sufficient funding to achieve all desired conditions may not be available. Park managers will need to continue to pursue other options, including expanding the service of volunteers, drawing upon existing or new partnerships, and seeking alternative funding sources. Even with assistance from supplemental sources, NPS managers may be faced with difficult choices when setting priorities and full implementation of the plan could be many years in the future. The GMP Amendment provides the frame work within which to make these choices.

With regard to visitor use management and maintaining wilderness character, implementation of this plan will be based on continual monitoring of the indicators and measures identified in table 3 and on adaptive management—making decisions using the best available information, gathering new information, learning from previous efforts, and adapting, as necessary. Adaptation and change can be expected as monitoring continues, new scientific data and information is obtained, and new opportunities and circumstances arise. When monitoring shows that standards are being exceeded, or that trends indicate a risk that standards would be exceeded, the National Park Service would act to manage use employing the potential strategies listed in table 3. In general, the least restrictive strategy (e.g., education) would be employed, while the most restrictive strategies (e.g., regulations and closures) would be the last actions taken.

Chapter 2

Alternatives

INTRODUCTION

This chapter describes three alternatives for managing Gates of the Arctic National Park and Preserve over the next 15 to 20 years. The three alternatives embody the range of what the public and NPS staff want to see accomplished regarding natural resource conditions, cultural resource conditions, visitor use and experience, wilderness, and management at Gates of the Arctic. Alternative A, the no-action alternative, presents a continuation of current management direction and provides a comparison to the action alternatives. The action alternatives are alternatives B and C. These alternatives present different ways to manage resources and visitor use and to improve management of the park.

The National Park Service would continue to follow existing agreements and servicewide mandates, laws, and policies regardless of the alternatives considered in this document. (See the discussion of key laws, regulations, and policies in chapter one. Likewise, parkwide desired conditions (and potential strategies to achieve those conditions) for topics ranging from ecosystem management to sustainability are presented in appendix C and would apply regardless of which alternative is ultimately selected for implementation.

Before describing the alternatives, this chapter explains how the alternatives were developed. Other sections describe the management zones (a key element of the alternatives) and the approaches taken to address boundary adjustments and user capacity / wilderness character. After alternatives B and C are described, mitigation measures that would be used to reduce or avoid impacts are listed, needed future studies and implementation plans are noted, the process is described by which the NPS preferred alternative was identified, the environmentally preferable alternative is identified, and several actions are noted that the planning team considered but dismissed. At the end of the chapter, there are tables that summarize the key differences among the alternatives, and the differences in impacts that would be expected from implementing each alternative based on the analysis in "Chapter Four: Environmental Consequences."

It should be noted that several of the sections before the description of the alternatives, including the management zones, wilderness character, and user capacity, apply only to the action alternatives—alternatives B and C. These sections are referenced in the alternatives.

FORMULATION OF THE ALTERNATIVES

Many aspects of the desired conditions of the park are defined in the establishing legislation set forth in ANILCA, the park's purpose and significance statements, and the servicewide mandates and policies that were described earlier. Within these parameters, the National Park Service solicited input from local residents and subsistence users, corporations, organizations, and agencies with economic or recreational interest in the park, and other private citizens who have visited in the past. Planning team members gathered information about existing visitor use and the conditions of park resources and facilities. Then a set of management zones and management alternatives were developed to reflect the range of ideas proposed by NPS staff and the public.

The two action alternatives included in this chapter were developed on key issues identified by the public and NPS staff during the scoping period (see "Scope of the General Management Plan Amendment / Environmental Assessment" section in chapter one). For each of these issues, a series of management options or actions were identified. After holding public meetings and analyzing public comments, the planning team grouped the options into different alternatives. The alternatives were revised after soliciting a second round of public input (see "Chapter Five: Consultation and Coordination" for complete details on public and agency involvement). Each alternative is intended to effectively and efficiently manage the park and address priority management issues. Both of the action alternatives seek to incorporate resource protection and visitor opportunities, and were developed to be functional and viable. Although all the alternatives are consistent with maintaining the park's purposes, significance, and fundamental resources and values, they vary in their focus with regard to visitor opportunities, and research and education.

The alternatives focus on *what* resource conditions and *what* visitor uses, experiences, and opportunities should exist at Gates of the Arctic National Park and Preserve, rather than on details of *how* these conditions, uses, and experiences should be achieved. Thus, the alternatives do not include many details on resource or visitor use management.

The implementation of any alternative depends on future funding and environmental compliance. This plan does not guarantee that funding will be forthcoming. The plan establishes a vision of the future that would guide day-to-day and year-to-year management of the park, but full implementation could take many years.

POTENTIAL FOR BOUNDARY ADJUSTMENTS

The National Park and Recreation Act of 1978 requires general management plans to address whether boundary modifications should be made to national park system units. In the case of Gates of the Arctic National Park and Preserve, no specific boundary adjustments were identified as being necessary. Thus, none of the alternatives propose changes to the park or preserve boundaries.

However, this plan does not prohibit small additions or boundary adjustments such as those needed for administrative uses that are allowed under ANILCA 1301 (b) or may be identified in the future by other land planning processes. The purchase of any lands for visitor or operational facilities outside the existing NPS boundaries would likely require congressional approval. This plan does not preclude consideration of boundary adjustments should needs or conditions change.

An update of the park land protection plan has recently been completed (NPS 2014a). Updates to the land protection plan are required under ANILCA. Separate from this GMP Amendment, the land protection plan recommends a series of actions in priority order for nonfederal lands in the park that need to be protected.

MANAGEMENT ZONES

Management zones apply to different areas of a national park system unit and describe the desired conditions for resources and visitor experience in those areas. Together, they identify the widest range of potential resource conditions, visitor experience, and facilities for the national park system unit that fall within the scope of the unit's purpose, significance, and special mandates. Three management zones were identified for Gates of the Arctic National Park and Preserve (table 2).

In formulating the two action alternatives, the management zones were placed in different locations or configurations on a map of the park and preserve, according to the overall concept of each alternative. Maps showing the location of the zones in each alternative are presented later in this chapter.

TABLE 2. MANAGEMENT ZONE DESCRIPTIONS

	Zone 1	Zone 2	Zone 3
General Description	This zone is used by a wide range of recreational users. They may occasionally encounter other visitors in this zone, especially at the most popular spots at peak times of the year. The physical environment generally appears to have been affected primarily by the forces of nature. However, some exceptions may be made to ensure resources are protected and visitor experience goals are maintained. Limited temporary structures may be allowed. Naturally functioning ecosystems are the norm.	Remote and oftentimes difficult to access, it may take significant planning and effort to get to this zone. Zone 2 offers opportunities for high levels of solitude, challenge, adventure, and discovery. The physical environment is largely unmodified by contemporary humans. Limited temporary structures may be allowed. Naturally functioning ecosystems are the norm.	This zone requires that visitors be completely self-reliant, and that they are ready to be immersed in an environment that fully embodies the four qualities of wilderness character. This zone retains the highest level of protection for the qualities of wilderness character and often represents the most remote, inaccessible, and vast areas within the central Brooks Range. This zone provides a powerful sense of solitude and offers the epitome of the challenges and joys of the remote, undeveloped, untrammeled, and virtually untouched backcountry. Naturally functioning ecosystems are the norm.

TABLE 2. MANAGEMENT ZONE DESCRIPTIONS

	Zone 1	Zone 2	Zone 3
Visitor Use and Experience	**Social Conditions** Encounter Rates: Visitors occasionally encounter other parties. They generally encounter three or fewer parties per trip. Requirements for commercial group sizes for recreational backpacking and river trips would continue as follows: ▪ maximum of 10 people (including the guide[s]) for backpacking ▪ maximum of 10 people (including the guide[s] for river trips Challenge: moderate degree of self-reliance, advance planning, and time commitment. During some peak use periods and/or at popular sites, campers may see or hear other parties. Visitors may occasionally encounter park staff. **Soundscape Conditions** Natural sounds predominate. Human voices and noises from motorized/mechanized vehicles (including aircraft) may be heard occasionally, but are usually faint. **Recreational Improvements** Limited recreational improvements are allowed (ANILCA 1315[d] and 1316[a]) to ensure visitor safety and resource protection, including designated trails and campsites.	**Social Conditions** Encounter Rates: Visitors are unlikely to encounter other parties. Visitors generally encounter two or fewer parties per trip. Requirements for commercial group sizes for recreational backpacking and river trips would continue as follows: ▪ maximum of 10 people (including the guide[s]) for backpacking ▪ maximum of 10 people (including the guide[s] for river trips Challenge: high degree of self-reliance, advance planning, and time commitment. Visitors, when camping, should not expect to see or hear other parties. Visitors unlikely to encounter park staff. **Soundscape Conditions** Natural sounds predominate. Human voices and noises from motorized/mechanized vehicles (including aircraft), may be heard occasionally, but are usually faint. **Recreational Improvements** Limited recreational improvements are allowed (ANILCA 1315[d] and 1316[a]) to ensure visitor safety and resource protection, including designated trails and campsites.	**Social Conditions** Encounter Rates: Visitors rarely encounter other parties. Requirements for commercial group sizes for recreational backpacking and river trips would continue as follows: ▪ maximum of 10 people (including the guide[s]) for backpacking ▪ maximum of 10 people (including the guide[s] for river trips Challenge: extremely high degree of self-reliance, advance planning, and time commitment. Visitors, when camping, should not expect to see or hear other parties. Visitors very rarely encounter park staff. **Soundscape Conditions** Natural sounds predominate. Human voices and noises from motorized/mechanized vehicles (including aircraft) are almost never heard and are usually faint. **Recreational Improvements** No recreational improvements are allowed, except those provided by ANILCA section 1315(d) and 1316(a).

TABLE 2. MANAGEMENT ZONE DESCRIPTIONS

	Zone 1	Zone 2	Zone 3
Administrative Infrastructure, Facilities, and Transportation/ Access	Temporary administrative structures or facilities may be permitted on a case-by-case basis and would be limited to those required for resource protection, research and monitoring, and protection of public health and safety. Snowmachines, motorboats, and aircraft provide administrative access.	Temporary administrative structures or facilities may be permitted on a case-by-case basis and limited to those required for resource protection, research and monitoring, and protection of public health and safety. Snowmachines, motorboats, and aircraft provide administrative access, but at lower levels than zone 1.	No temporary administrative structures or facilities allowed. Very limited use of snowmachines and motorboats, and limited use of aircraft for administrative access.

VISITOR USE MANAGEMENT AND WILDERNESS CHARACTER MONITORING

INTRODUCTION

General management plans for national park system units are required by the National Parks and Recreation Act of 1978, 16 USC 1a-7(b), and NPS *Management Policies 2006*, sections 2.3.1.1 and 8.2.1 (NPS 2006a) to identify and address implementation commitments for visitor use management and visitor capacity, also known as carrying capacity. The National Park Service defines visitor use management as the proactive and adaptive process of planning for and managing characteristics of visitor use and the physical, social, and managerial setting through a variety of strategies and tools to sustain desired resource conditions and visitor experiences. In short, visitor use management strives to maximize recreational benefits to visitors while meeting resource and experiential protection goals.

Wilderness character monitoring is a separate process that consists of choosing measures that represent a relevant and cost effective way to determine how wilderness character is changing over time (USFS 2008). Both the 1964 Wilderness Act and NPS *Management Policies 2006* require monitoring natural and cultural resource conditions and long-term trends in wilderness character. Thus, wilderness character monitoring is important for improving wilderness stewardship.

The frame works used for addressing user capacity and wilderness character have the same goal of protecting resources (natural, cultural, and visitor experience) through monitoring established measures and determining if the conditions are approaching the designated standard. User capacity focuses solely on visitor use and the associated impacts to resources and visitor experience, whereas wilderness character monitoring focuses more holistically by evaluating any potential impacts including administrative and visitor use. For this plan, the wilderness character monitoring frame work was overlaid on the user capacity requirements because the former encompasses the latter. These measures will help park staff protect and enhance wild and scenic river values over time.

This section of the plan identifies user capacity and wilderness character measures, standards, and management strategies for Gates of the Arctic National Park and Preserve. The components are defined and described as follows:

- indicators and related measures specify conditions to be assessed for progress at attaining desired conditions, preserving wilderness character, protecting wild and scenic river values, and satisfying user capacity requirements
- standards (either qualitative or quantitative) guide management decisions on the minimum acceptable condition for measures and serve as triggers for management action
- management strategies comprise a toolbox of options considered for implementation in order to maintain or restore desired conditions

Given the broad scope of the wilderness character measures across the four

wilderness qualities, the relatively limited existing data available, and the fact that many of the conditions being evaluated are outside of NPS management control, some standards are qualitative changes in trends. The qualitative changes in trends and quantitative standards would then trigger the modification or initiation of management actions. Most of the visitor use related standards are quantitative because managing visitor use is largely within the agency's control (Sharp et al. in press).

It is important to note that the frameworks for wilderness character and user capacity are forms of adaptive management in that they are iterative processes in which management decisions are continuously informed and improved. Measures will be monitored, conditions will be compared to standards, and management strategies will be adjusted as appropriate. The goal of this adaptive management process is to protect the exceptional condition of park resources and visitor experience through informed, proactive, and transparent management. With a meaningful set of measures, standards, and management strategies, these elements collectively support protection of desired conditions, wilderness character, and wild and scenic river values.

USER CAPACITY IN THE NATIONAL PARK SYSTEM

Managing user capacity in national parks is inherently complex and depends not only on the number of visitors, but also on where the visitors go, what they do, and the "footprints" they leave behind. In managing for user capacity, park staff and partners throughout the National Park Service rely on a variety of management tools and strategies rather than relying solely on regulating the number of people in a park or area. In addition, the ever-changing nature of visitor use in parks requires a deliberate and adaptive approach to user capacity management.

Gates of the Arctic National Park and Preserve receives between 400 and 800 visitors per year that enter the park boundaries during the peak summer season. This low level of use is primarily a result of the remoteness of the park, the travel cost required to gain access, and the brevity of the summer season. Given these factors, use levels are not expected to change substantially over the life of this plan. Since use levels at the park are low, an increase in use can likely be accommodated in the future. Nevertheless, increases in visitor use and associated impacts to resources would be monitored to ensure that NPS commitments to the park's legislative and policy mandates, desired conditions, and related standards are being achieved.

Visitor use is, and will continue to be, monitored and regulated to an extent through the number of commercial use authorizations (CUAs) that are offered to air taxis, outfitters, and guides. This amount of use, along with the existing NPS knowledge of resource and social conditions within the park, allows the National Park Service and its partners to protect resources and provide high-quality visitor experiences, which achieves desired conditions and meets the measures and standards outlined in table 3. Also, there is no indication at this time that use levels are having an adverse effect on wilderness character or river values, including water quality and the free flowing condition of the rivers.

It is anticipated that if use levels increased, visitor experience at key destinations in the park would be the wilderness value most sensitive to adverse impacts as a result of increased contacts between visitors. This would affect the high levels of solitude and sense of remoteness currently found in the park. There may also be concerns that

increased use levels would result in the growth of unauthorized visitor created facilities (campsites and trails) which could affect soil, vegetation and wildlife habitat. The measures and standards in table 3 will help park staff track changes in these visitor experience and resource conditions to determine if increases in use levels are having effects on desired conditions.

WILDERNESS CHARACTER MONITORING

Monitoring wilderness character is important for several reasons: (1) to comply with the law (the Wilderness Act), (2) to fulfill agency policy (NPS *Management Policies 2006*), and (3) to improve wilderness stewardship. The Wilderness Act states that wilderness areas "shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character…" NPS *Management Policies 2006* states, "Management will include the protection of these (wilderness) areas, for the preservation of their wilderness character…" (NPS 2006). Since the majority of the park is federally designated or eligible wilderness, monitoring wilderness character is essential to protect the properties that make Gates of the Arctic National Park and Preserve unique.

Wilderness character is described as four necessary and interrelated qualities: untrammeled, natural, undeveloped, and solitude or primitive and unconfined recreation (USFS 2008). Together, the four qualities comprise an integrated ecological and social system of wilderness, as follows:

1. Untrammeled—The Wilderness Act describes wilderness as "an area where the earth and its community of life are untrammeled by man," and "generally appears to have been affected primarily by the forces of nature." In short, wilderness is essentially unhindered and free from human control or manipulation. This quality is degraded by contemporary human activities or actions that control or manipulate the components or processes of ecological systems inside wilderness.

2. Natural—The Wilderness Act also describes wilderness as "protected and managed so as to preserve its natural conditions." In short, wilderness ecological systems are substantially free from the effects of contemporary civilization. This quality is degraded by intended or unintended effects of people on the ecological systems inside wilderness after the area was designated.

3. Undeveloped—The Wilderness Act further states that wilderness is "an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation," "where man himself is a visitor who does not remain," and "with the imprint of man's work substantially unnoticeable." This quality is degraded by the presence of structures, installations, habitations, and by the use of motor vehicles, motorized equipment, or mechanical transport that increases people's ability to occupy or modify the environment.

4. Solitude or a primitive and unconfined type of recreation—The Wilderness Act states that wilderness has "outstanding opportunities for solitude or a primitive and unconfined type of recreation." This quality protects the opportunity for people to experience true wilderness settings; it does not provide for a specified level of enjoyment people will have therein. This quality is degraded

by circumstances that reduce these opportunities, including visitor encounters, signs of contemporary civilization, recreation facilities, and management restrictions on visitor behavior.

(See chapter three for a description of how the four qualities of wilderness character apply to the Gates of the Arctic Wilderness.)

The four qualities of wilderness character capture the intent that Congress put forth in the Wilderness Act as well as the guidance in NPS *Management Policies 2006*. Both point to monitoring current conditions and tracking long-term trends in wilderness character.

The *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (*Keeping it Wild*) (USFS 2008) frame work was used as a guide in developing table 3. The purpose of the *Keeping It Wild* frame work is to improve wilderness stewardship by providing managers with a tool to assess how wilderness character is changing over time. Analyzing wilderness character through this frame work is integral to meeting the goals and objectives of this GMP Amendment.

The planning team considered many potential measures, which are specific aspects of wilderness on which data are collected to assess trends (USFS 2008); the measures described below were considered the most significant, given the importance and vulnerability of the resources or visitor experiences affected. The planning team also reviewed examples from other parks with similar issues to help identify meaningful measures. Standards were determined that represent the minimum acceptable condition, and the trigger at which point management strategies would be considered.

Initial monitoring would determine if the measures are accurately measuring the conditions of concern and if the standards truly represent the minimally acceptable condition. Park staff might decide to modify the measures or standards and revise the monitoring program if better ways are found to track changes in wilderness character. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments would be less likely to occur so that consistency in data can be established. Finally, if conditions change appreciably, park staff might need to identify new measures to ensure that wilderness character desired conditions are achieved and maintained. Information on the NPS monitoring efforts and any changes to the measures and standards will be shared with the public.

Although the staff would continue monitoring wilderness character measures and standards throughout the park, the rigor of monitoring (e.g., frequency of monitoring cycles, amount of geographic area monitored) might vary considerably depending on how close existing conditions are to the standards. For instance, if the existing conditions are far from exceeding the standard, the rigor of monitoring might be less than if the existing conditions are close to or trending toward the standard.

MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

The following analyses are related to the measures, standards, and potential management strategies presented in table 3, and are intended to provide more detail and clarification. The potential strategies presented in the text and table are not an exhaustive list; they are intended to show a range of actions that would be taken to maintain or restore

desired conditions. For example, management actions may include providing information about low impact recreational use and the principles of Leave No Trace, educating visitors about sensitive resources, conducting studies and research, or limiting use in certain areas. The strategies are shown in order from least to most restrictive. In general, the least restrictive strategies would be implemented first, while the most restrictive strategies would be the last ones to be implemented.

Untrammeled Quality

Measures for untrammeled wilderness quality focus on authorized and unauthorized actions undertaken by federal land managers and others, respectively, that manipulate the biophysical environment.

Tracking the number of authorized and unauthorized actions was identified as important for monitoring the untrammeled quality because these actions are manipulations of the biophysical environment. If the number of authorized and unauthorized activities increases beyond the established thresholds, management actions may be required. If the increase was related to authorized actions, park managers would likely first review and evaluate the reason for the increase, then consider strategies such as adjusting the timing and location of projects to reduce impacts. If there was an increase in unauthorized actions, park managers may examine trends in resource damage to identify patterns and then discuss strategies such as increasing educational activities to prevent such actions, instituting temporary closures of affected areas, or requiring permits.

Park managers also felt it was important to track the number of suppression responses to natural fire starts because suppression is considered manipulation of the biophysical environment. A standard was set to limit natural fire suppressions to no more than 10% of all natural fire starts per decade. If that standard were to be exceeded, management strategies may include evaluating the effects of suppression on caribou habitat and/or mitigating the risk to structures in the park to prevent the need for suppression.

Natural Quality

Measures of natural wilderness quality are related to plant and animal species and communities, physical resources, and biophysical processes.

The protection of plant and animal species and communities is critical to preserving the natural quality of wilderness within the park. Park staff and the NPS Arctic Inventory and Monitoring Network are monitoring a variety of physical processes, ecosystems, and species to help establish baseline measures. Some baseline inventories include terrestrial landscape patterns, lake and stream communities, moose and brown bear populations, and fire extent and severity.

Monitoring the sheep population and the incidence of new nonnative and new native species is important and would provide good measures for wilderness character. The National Park Service has implemented long-term monitoring studies of the abundance, sex, and age composition of the sheep population. If adverse trends are identified (i.e., a decline in the number of full-curl rams), changes in management actions affecting sheep may be implemented such as recommending adjustments to the seasons and bag limits for sport hunting.

Nonnative species can degrade the natural quality of the park by impacting native species. Therefore, if new

nonnative species are detected, managers may work with visitors and surrounding agencies to prevent the spread of nonnative species from occurring, through efforts such as visitor education and increased monitoring of common access points. Removal of the species would be considered among the suite of potential management strategies, but would only be undertaken after thorough site evaluation.

Gates of the Arctic National Park and Preserve is an extraordinary example of wilderness and as such, water and air quality are expected to be exceptional. Although many outside influences affect air and water quality in the park, monitoring these two physical resources can ensure the preservation of these natural qualities. Park staff already employ an air and water quality monitoring program. This monitoring program tracks trends in air quality in relation to deposition and concentrations of different compounds and elements. The monitoring will also track changes in temperature, salinity, pH levels, and clarity of the waters within the park. If there are increasing trends in the physical nature of air or water quality, such as the sum of fine nitrate and sulfate or the amount of mercury in fish in Matchurak, Chandler, and Walker lakes, park managers may need to increase monitoring efforts to understand the changes and potential causes. Visitors and subsistence users may also be informed of increased contamination levels. For a more detailed description of resources that would be monitored, see table 3.

Subsistence is a federally protected use and many subsistence activities have been occurring within the park for centuries, long before federal designation of wilderness. To protect subsistence as part of the natural quality of wilderness character, park managers continue to monitor the loss of opportunities as tracked by the number of closures due to wildlife population manipulations that result in potential for unnatural conditions (visitor activities, sport hunting, etc.). If an increasing trend in the number of such closures becomes apparent, park managers may consider increasing efforts to educate visitors on subsistence activities to modify visitor behavior in a way that would decrease impacts, or change the methods and means for sport hunting and sportfishing. Managers may also consider requiring permits for recreational visitors to enter certain areas of the park or restricting certain areas to subsistence use only (no recreational visitors). Consultation and collaboration with the resident zone communities and the Subsistence Resource Commission would also need to occur to ensure that the number of closures is kept to a minimum.

Undeveloped Quality

Measures of the undeveloped wilderness quality are varied, and include nonrecreational structures, installations, and developments that are either authorized or unauthorized; inholdings; use of aircraft, motorboats, snowmachines, and motorized equipment; and loss of statutorily protected cultural resources.

Few cabins exist within the park, and those that do are not generally open to visitors (except in emergency situations). Also, although the park does not have any permanent facilities within the park, there are a few removable scientific facilities that can impact the undeveloped quality of the park. An increase in either the number of cabins, facilities, and signs or in the footprint and/or visual impact of the developments over a five-year period would trigger management evaluation and response to how the structures degrade the undeveloped quality of the wilderness.

Unauthorized physical developments, such as visitor-created shelters and trails, have the potential to negatively influence the undeveloped quality. Unauthorized developments are not permissible in the park. In cases where unauthorized developments are discovered, potential management actions include removal of the development and/or citation of the responsible party. In special circumstances, authorization of the structure/installation could be warranted if it is determined to be an appropriate or allowable use. Other management strategies include education of visitors about the importance of the undeveloped quality and increased patrols to search for such developments.

Development impacts related to inholdings and adjacent lands outside the park are also of concern. Although park managers have limited ability to influence what happens in these situations, they can be proactive in developing good relationships with inholders and adjacent landowners to minimize impacts. To maintain the undeveloped quality of the park, managers may also be willing to acquire inholdings that become available for sale.

The use of motorized vehicles, motorized equipment, or mechanical transport diminishes the undeveloped quality of the park. The administrative use of motorized and mechanized equipment would continue to be monitored. For example, if there is an increase in the number of aircraft landings for nonemergency reasons, park staff may need to plan a year in advance for activities that would need aircraft. To lessen impacts to undeveloped quality, park managers would continue to emphasize use of nonmechanized tools.

The protection of cultural resources is important in telling the human history of the park. The cultural resources staff tracks the number and condition of the cultural resources of the park. If the percentage of sites that receive a rating of "good" condition relative to 2010 ratings is decreasing, an increase in field studies (potentially with a corresponding increase in staff to conduct the studies) and possibly restrictions to visitor access to certain sites may need to be considered.

Solitude or Primitive and Unconfined Recreation Quality

Measures for the solitude or primitive and unconfined recreation quality are all related to remoteness, either from sights and sounds of people inside the wilderness or from occupied and modified areas outside the wilderness.

The amount of visitor use, which includes evaluating the probability of contacts between recreational users, would be monitored and the standard for contact rates would vary by zone. The standard for the number of contacts between visitor groups is included in the description of each management zone. In zone 1, more contacts are anticipated because this zone is used by a wide range of recreational and subsistence users, so the standard was set at no more than three contacts per trip. In zone 2, less contact between user groups is expected so the standard was set at no more than two contacts per trip. Contacts between user groups would be measured along the river corridors, which receive the most use within the park, but the standards would not be assessed at put-in or take-out locations when visitors are expected to be relatively more concentrated. If the standard(s) for contact rates is exceeded, park managers may work with CUA holders to better distribute use, perhaps through a permitting system. Park managers may also educate visitors on options for the best probability of complete solitude.

Encountering evidence of other visitors in the form of visitor-created trails or campsites can also impact the sense of solitude felt by visitors, even if the other people are no longer in the area. Assessing these conditions is important for ensuring protection of this quality of wilderness character. Park managers would monitor the number, type, and condition of visitor-created campsites and trails. If increasing numbers are noticed over time, management strategies may include increased education of the Leave No Trace principles, redistribution of use to prevent concentration of impacts, or CUA restrictions on where aircraft may land. Increased monitoring staff may also be required.

Intrusions on the natural soundscape also degrade the quality of solitude, and therefore park managers decided to measure the extent and magnitude of such intrusions in the form of aircraft per day, regardless of operator (CUA holders, administrative use, private users), that can be heard by visitors within the park. If the number of aircraft heard per day is found to be increasing, park managers may study the amount and location of over-flights and could use administrative control to reduce park staff contributions to soundscape intrusions.

Areas of wilderness affected by access or travel routes that are adjacent to the wilderness would also be monitored to assess impacts. If a change in number and density of visitor-created trails extending from new and existing roads were to be found, management strategies may include a study of the area(s) with visitor-created trails, creation of designated turnoffs to direct visitors to more resilient/hardened areas, and collaboration with surrounding agencies/entities to reduce impacts from existing or potential roads adjacent to park boundaries.

Fifth Quality of Wilderness Character

In addition to the four qualities identified above, wilderness preserves other tangible features that are of scientific, educational, scenic, or historical value such as cultural or paleontological resources. This quality is based on the last clause of section 2(c) of the Wilderness Act, which states that a wilderness "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." This quality is unique to individual wilderness areas and may or may not be present. Unlike the other qualities of wilderness character, the fifth quality focuses on features that typically occur in specific locations. It is also possible that the fifth quality can overlap with the other qualities—it may be difficult to assign a feature to one quality or another.

In the case of Gates of the Arctic National Park and Preserve, there is a continuum of human use that ranges from present subsistence users back 10,000 years of human use, as reflected in the archeological sites in the park. Cultural elements are fully integrated into the wilderness character of Gates of the Arctic National Park and Preserve. Consequently, table 3 includes indicators and measures that cover the cultural and subsistence elements that contribute to the park's overall wilderness character. First, for the natural wilderness character quality, one measure is loss of opportunities for subsistence activities. This measure evaluates the overall opportunities for subsistence use to maintain subsistence lifestyles and would allow park staff to track unnatural effects on subsistence uses. Another measure for the natural wilderness character quality is the number and severity of disturbance to cultural sites. This measure evaluates the condition of cultural resource sites and the number of sites in "good" condition relative to 2010. Lastly, there is an

indicator and measure under the undeveloped quality that tracks the number of authorized physical developments and measures the impacts of cabins and other facilities. Many of the cabins in the park are historic structures.

Thus, for Gates of the Arctic National Park the fifth quality of wilderness character is fully integrated and combined with the other wilderness character qualities.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Wilderness Character Quality: Untrammeled					
Actions authorized by the federal land manager that manipulate the biophysical environment.	Number of management actions related to permits, overflights, collaring wildlife, invasive species removal, NPS compendia or closures.	Number of compliance team approvals related to manipulation of the biophysical environment.	Parkwide	Increase in compliance team approvals related to manipulation of the biophysical environment per year.	Review and evaluate the reasons for increase. Adjust timing and location of projects. Modify the proposal and methods of project. Review/adjust internal compliance review process. Review state regulatory process for incompatibility.
Actions authorized by the federal land manager that manipulate the biophysical environment.	Percent of natural fire starts per decade that received a suppression response.	Constraint of natural fire regimes.	Parkwide	No more than 10% of natural fire starts per decade receive a suppression response.	Evaluate each suppression response. Evaluate caribou habitat, such as vegetation community age structure and lichen recovery, to understand impacts of fire suppression. Coordinate with other agencies and landowners. Mitigate risk to structures in the park.
Actions not authorized by the federal land manager that manipulate the biophysical environment.	Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate the environment.	Unauthorized actions related to resource damage, visitor-created fires, and wildlife poaching.	Parkwide	No more than 20 case incidents per year based on a 10-year average baseline.	Examine trends in resource damage to identify patterns. Increase the amount of education. Increase staff. Institute a permit system. Limit use in certain areas. Temporary or permanent closures.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Wilderness Character Quality: Natural					
Plant and animal species and communities.	Abundance, distribution, or number of indigenous (both extant and extirpated) species that are listed as threatened and endangered, sensitive, or of concern.	Species of concern that are listed in the enabling legislation.	Parkwide	No less than 4% of the total sheep population are full-curl rams in a six-year period.	Long-term monitoring of the abundance and distribution of wildlife populations. Public education and outreach regarding population trends, monitoring techniques, and management plans. Interagency collaboration. Regular reporting to the Gates of the Arctic National Park and Preserve Subsistence Resource Commission and federal regional advisory councils about the status of harvested species. Consider changes to hunting regulations (e.g., changes to bag limits, seasons, permits, closures) through superintendent's compendium, Federal Subsistence Board, etc.
Plant and animal species and communities.	Number of novel species within park boundaries.	Incidence of new nonnative and new native (range expansion) species in the park. *(not including scientific discovery of unknown species)*	Parkwide	No more than one novel species compared to baseline number per two-year period. Increase in trends in number of new native species (range expansion) in the park.	Monitoring vegetation communities. Survey common access points and long-term monitoring plots for nonnative species in cooperation with the Alaska Region Exotic Plant Management Team. Education, especially about the difference between human introduction of nonnative species and the various causes of range expansion. Interagency collaboration Conduct site evaluation and consider eradication or removal.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Wilderness Character Quality: Natural					
Physical resources.	Changes in the physical nature of air quality, such as the sum of fine nitrate and sulfate, acid deposition based on concentration of sulphate, nitrate, and ammonium in wet deposition, regional air quality impacts, and impacts related to mercury deposition, water quality, changes compared to natural range of variability.	Changes in air quality.	Parkwide	Increasing trends in wet deposition of ammonium, nitrate, sulfate, and mercury Increasing concentrations of heavy metals. Increasing trends of mercury in fish in Matchurak, Chandler, and Walker lakes.	Maintain air quality site in Bettles. Monitor dry deposition of contaminants by using moss as a passive sampler. Monitor mercury in fish in select lakes in the park. Inform zone community residents of contaminant monitoring results.
Physical resources.	Extent and magnitude of change in water quality.	Changes in temperature, salinity, pH, and clarity.	Parkwide	Increasing trends in temperature, salinity, pH, and clarity.	Education. Continue monitoring.
Biophysical processes.	Departure from natural fire regimes, average over the wilderness.	Degradation of natural ecosystem by accident or by arson.	Parkwide	Increasing trends in the number of acres burned by human starts on a 10-year average. Changes in trends in annual and seasonal temperature and precipitation. Increasing trend in the number of thermokarst features on the landscape. Warming trend in temperature of permafrost (measured at weather stations).	Tell story of climate change in the park. Continue to share information with agencies and the public. Monitor sensitive and vulnerable cultural resources. Monitor tree line and shrub encroachment using remote sensing and aerial photography. Monitor timing of "green-up" with remote sensing. Monitor timing of ice on and off on large lakes in the park. Monitor presence/absence of shallow lakes in western area of park.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Biophysical processes.[2]	Loss of opportunities for subsistence activities.	Overall opportunities for subsistence use to maintain lifestyle (unnatural effects on subsistence).	Parkwide	Increase in number of closures due to population manipulations that result in potential for unnatural conditions (visitor activities, sport hunting, etc.).	Review reasons for closures affecting subsistence use. Collaborate with resident zone communities to evaluate their perceived loss of opportunities. Consult the subsistence management plan and/or the Subsistence Resource Commission. Increase efforts to educate visitors on subsistence activities to modify behavior. Change methods and means for sport hunting/fishing, possibly through the compendium. Require permits for recreational visitors in certain areas. Close certain areas to visitors When regulations are incompatible with park purposes, the park may pursue regulatory changes.
Wilderness Character Quality: Undeveloped					
Nonrecreational structures, installations, and developments.[2]	Number of authorized physical developments.	Impacts of cabins and scientific facilities.	Parkwide	Increase in number of cabins, facilities, signs over a five-year period. Increase in footprint and/or visual impact of developments.	Measure and periodically evaluate the trend that occurs and decide on a response. Analyze each new physical development on a case-by-case basis. Consider removal of the development.
Nonrecreational structures, installations, and developments.	Number of unauthorized (user-created) physical developments.	Development of shelters, trails, and cabins.	Parkwide	Any unauthorized development.	Education, perhaps through adjustments in backcountry orientation. Consider authorization of the structure/installation. Citation of responsible party.

[2]This indicator and measure relates to cultural resources in Gates of the Arctic National Park and Preserve and allows park staff to track impacts on the fifth character of wilderness character.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
					Remove the development.
Inholdings and adjacent lands outside the park.	Area and existing or potential impact of activities based from inholdings and adjacent lands outside the park.	Number of new developments within 0.5 mile of the park boundary and activities that intrude upon park land.	Parkwide	Increase in number of developments and proximity to park boundaries. Change in footprint and visual impact of the developments.	Work with partner organizations, stakeholders, and public interest groups to build relationships. Be proactive: provide representation and input to minimize impacts of development. Work with private landowners to mitigate impacts. Acquire inholdings when possible.
Use of aircraft, motorboats, snowmachines, and motorized equipment.	Type and amount of administrative nonemergency use of motor vehicles, motorized equipment, or mechanical transport.	The amount of mechanized use (i.e., motorized vehicles).	Parkwide	Increase in number of administrative aircraft landings per year (separated by airplane and helicopter). Increase in mechanized equipment use through the minimum requirement analysis.	Place emphasis on nonmechanized tools as initial option; then proceed with minimum tool necessary. Conduct annual review to determine what would and would not occur for the year. Consider and train for use of nonmechanized equipment to keep traditional use active.
Use of aircraft, motorboats, snowmachines, and motorized equipment.	Type and amount of motor vehicle, motorized equipment, or mechanical transport use not authorized by the federal land manager.	Unauthorized use of snowmachines.	Parkwide	Any unauthorized use.	Participate and be proactive with other land management agencies to keep current policies in place (corridor). Education. Clarify the policy, craft a regulation to enforce recreational use of snowmachines.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Loss of statutorily protected cultural resources.[3]	Number and severity of the disturbances to cultural sites.	The condition of cultural resource sites and the proportion of sites in "good" condition.	Parkwide	Decreasing trend in the percentage of "good" condition relative to 2010.	Field studies to document new sites. Record number of new sites entered into the inventory and evaluate number, kind, and distribution of new resource. Work with divisions and visitors to account for observations being made in the park. Conduct condition assessments and have current information. Mitigate impacts through visitor education, law enforcement. Build in stipulations and education into commercial use authorizations. Collect or excavate sites to salvage information. Site stabilization, revegetate eroding slopes. Restrict visitor access to areas.
Wilderness Value: Solitude or Primitive and Unconfined Recreation					
Remoteness from sights and sounds of people inside the wilderness.	Amount of visitor use.	The probability of contact with other recreational users outside the group, dispersal and/or distribution of use and group size.	Zones 1 and 2	No more than three contacts with other recreational groups per trip in zone 1 along the river corridor.* No more than two contacts with other recreational groups per trip in zone 2 along the river corridor.* *while on trip, not at put-in or take-out locations.	Educate visitors on options for solitude. Work with CUA holders to disperse use. Consider a permit system.

[3] This indicator and measure relates to cultural resources in Gates of the Arctic National Park and Preserve and allows park staff to track impacts on the fifth character of wilderness character.

TABLE 3. MEASURES, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Indicator	Measure	What Does it Evaluate?	Assigned Zone	Recommended Standard(s)	Potential Management Strategies
Remoteness from sights and sounds of people in wilderness areas.	Number, type, and condition of visitor-created sites.	The increase in visitor-created trails and evidence of campsites (fire rings, sites, etc.).	Parkwide	Increase in number of campsite evidence (fire rings, disturbed areas, litter, etc.). Increase in number and/or density of social trails.	Evaluate the value of recommitting to the Backcountry Resource Information Management (BRIM) program. Increased education such as Leave No Trace principles. Mitigate impacts. Redistribute use. CUA restrictions (e.g., planes land in wheeled areas, etc.). Increase monitoring staff.
Remoteness from sights and sounds of people in wilderness areas.	Extent and magnitude of intrusions on the natural soundscape.	Use related to commercial use authorizations; the administrative use of motorized transport (planes, motorboats, etc.); and private plane use.	Zone 3	Increase in number of aircraft (sight or sound) per day.	Develop social science to understand the amount and location of overflights. Use administrative control to reduce NPS impacts.
Remoteness from occupied and modified areas outside the wilderness.	Areas of wilderness affected by access or travel routes that are adjacent to the wilderness.	Impacts from existing and proposed roads adjacent to the park and the potential for more and easier access to the park from new and existing roads.	Parkwide	Change in number and density of visitor-created trails extending from new and existing roads.	Understand current condition of visitor-created trails extending from roadways into the park. Collaborate with surrounding agencies/entities to reduce impacts from existing or potential roads adjacent to the boundaries. Create designated turnoffs to direct visitors to more resilient/hardened areas.

ACTIONS COMMON TO ALL ALTERNATIVES

The following actions would be common to all action alternatives:

- Subsistence use in the park would continue to be recognized and supported in accordance with ANILCA.
- The wild and undeveloped character of the park would be maintained. The visitor would have opportunities to experience solitude and other qualities of wilderness character.
- ANILCA included a provision for access for surface transportation across the Western Unit (Kobuk River) of Gates of the Arctic National Preserve from the Ambler Mining District to the Dalton Highway pipeline corridor. The zoning for the Kobuk Preserve may be modified at a later date when a right-of-way is issued for the Ambler Mining District Access Project. If that occurs, the lands within the right-of-way may be rezoned as a special-use zone. This new zone might have desired conditions, management goals and use conditions that would differ from both the zone regime it once had, as well as the zones found in the rest of the park. These new management prescriptions could be decided as part of the permitting process for the issuance of the right-of-way and in follow-on management planning processes for the lands within the transportation corridor. At that time, impacts to the transportation corridor would be reevaluated to determine the appropriate level of compliance. Leave No Trace ethics would be promoted to all visitors and partners.
- To increase energy conservation and reduce the carbon footprint of the park and its visitors, solar panels may be installed where appropriate.
- The National Park Service would partner with Anaktuvuk Pass to help minimize trash debris flow into the John River and other parts of the park.
- The park staff would develop a more active trail monitoring system and management on park lands to mitigate resource impacts in Anaktuvuk Pass.
- The park would partner with aircraft operators to better distribute aircraft traffic along the John River.
- Nonnative plants in the Walker Lake area would be controlled through manual extraction of plants.
- The Isiak Cabin complex would be removed and the site rehabilitated.
- Sustainability of park operations and facilities would be a high priority in management decisions and facility development.
- Collaboration with partners (i.e., commercial operators, Alaska Natives, private landowners and inholders, education/research groups, and other governmental organizations) would be a high priority, although emphasis may differ among the alternatives.
- Interagency planning efforts would be pursued in all action

alternatives due to the unique landscape of the park and the collaborative opportunities it presents.

- The park staff would explore the possibility of a voluntary online orientation program for visitors.

COMMERCIAL SERVICES

Commercial service operations within national park system units are consistent to the highest practicable degree with preservation and conservation of the fundamental resources and values of the park and preserve. By welcoming the private sector as a partner in park operations, the National Park Service broadens the economic base of the region and encourages resource stewardship in communities surrounding parks (NPS 2012c). Commercial service providers and the National Park Service work as partners to practice sound environmental management and stewardship. All commercial services are administered in accordance with ANILCA, the National Park Service Concessions Management and Improvement Act of 1998 (Public Law 105-391), 36 CFR 51, NPS *Management Policies 2006*, and other applicable laws and regulations.

The following commercial activities were determined to be appropriate in Gates of the Arctic National Park and Preserve, given circumstances in the park at this time:

- backpacking tours
- recreational boating (including rafting and kayak tours)
- air taxi operations
- big game and incidental hunter transport
- mountaineering
- winter nonmotorized recreational uses (i.e., skiing, dog sledding, snowshoeing)
- big game sport hunting
- sportfishing

All of these activities are also consistent with the purpose of Gates of the Arctic and if properly administered would have minimal impact on park resources and values. Thus, the National Park Service could issue commercial use authorizations for these activities under NPS *Management Policies 2006*.

Sport hunting is an authorized activity in national preserves in Alaska in accordance with applicable federal and nonconflicting state law and regulations (36 CFR section 13.40[d]), e.g., a nonresident who hunts brown bear, Dall sheep, or mountain goats must be accompanied by an Alaska-licensed guide or an Alaska resident). Big game hunting guide services are a necessary commercial visitor service within national preserves in Alaska.

Thus, being necessary and appropriate, and economically feasible, the National Park Service may authorize big game sport hunting guides through a concession contract. In the case of Gates of the Arctic National Preserve, two big game sport hunting concessions, one in the Kobuk Unit and one in the Itkillik Unit, are necessary and appropriate.

Before a potential commercial service is approved and/or an existing service continued, the National Park Service would evaluate the service to determine it is appropriate and meets all of the following criteria:

- The service contributes to visitor understanding and appreciation of park purpose and significance.

- The service enhances visitor experience consistent with park area philosophies.
- The service assists park staff in managing visitor use and educating park visitors.
- The service furthers protection, conservation, and preservation when:
  - it reaches and follows Leave No Trace principles for the arctic wilderness environment
  - it provides education relevant to preservation of wilderness resources and values
  - it offers benefits to the protection of the wilderness resources and values of the area
  - group size, number of groups, and travel modes are consistent with management zone designations and avoid impacts on vegetation, wildlife usage, and cultural resources of the area
  - the activities are consistent with management zone standards for solitude, natural sounds, and other wilderness characteristics for each management zone
- The service provides the expertise to allow people who do not have the skills to have a safe experience in the park.
- The National Park Service would evaluate the service to determine it is necessary and accomplishes one or more of the following:
  - it provides access to areas of the park and preserve where the time or equipment necessary for the independent traveler to reach those areas would otherwise be prohibitively lengthy or expensive
  - it provides education and inspiration related to wilderness resources and values
  - it assists visitors in exploring the backcountry in areas or by means that require specialized knowledge (e.g., mountaineering, dog mushing)

Commercial Services in Wilderness

Section 4(d)(6) of the Wilderness Act states, "Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing *the recreational or other wilderness purposes of the areas*" (emphasis added). Section 4(b) of the act further provides that ". . . wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use." The Gates of the Arctic Wilderness was established in 1980 for recreational and other purposes, which include traditional subsistence uses, and protection of habitat for fish and wildlife populations.

Because Gates of the Arctic Wilderness area receives low use levels, the section 4(b) recreational and educational purposes are not being fully realized by noncommercial use, and therefore, some commercial use may be authorized by the National Park Service to realize that purpose.

The level of commercial use that occurs in the wilderness area in the reasonably foreseeable future is expected to continue to be low in most areas. Thus, the National Park Service is not proposing a limit to or an allocation of commercial

use in the Gates of the Arctic Wilderness Area in this plan. In the future, if and when monitoring shows physical or social conditions are approaching unacceptable levels due to visitor use, the National Park Service would reconsider the determination of the level of commercial services necessary in wilderness. (See the user capacity measures and standards in table 3, which identify conditions that would warrant additional management of visitor use, including commercial services.)

ALTERNATIVE A (NO-ACTION ALTERNATIVE)

CONCEPT DESCRIPTION

This concept reflects current management conditions at Gates of the Arctic, which would continue for the life of the GMP Amendment, and provides a baseline against which to compare the other management concepts. Under this concept, the National Park Service would continue the present management direction for Gates of the Arctic, guided by the 1986 general management plan. The National Park Service would continue to protect and maintain the existing qualities of wilderness character of the area, provide continued opportunities for wilderness recreational activities, protect park resources and values, and provide continued opportunities for subsistence uses by federally qualified local and rural residents. As a result, outstanding opportunities for solitude or primitive and unconfined recreation would still occur.

The management zones, and directions on user capacity and wilderness character monitoring discussed earlier in this chapter do not apply to alternative A.

Visitor services and park management and operations would occur at similar levels as today, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs. To fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation, visitor services and park operations and management would be conducted in a focused manner that would minimize the imprint of contemporary humans.

As part of this alternative, the National Park Service would not plan to build new infrastructure and facilities within the park and preserve.

Section 201 (4)(b)-(e) of ANILCA provides for surface transportation access across the Kobuk River Preserve. When a proposal for a right-of-way is made, an environmental and economic analysis will be prepared by the Secretary of the Interior and secretary of transportation, which, as mandated by the statute, will focus solely on determining the most desirable route for the right-of-way and terms and conditions that may be required for the issuance of that right-of-way. This analysis will be prepared in lieu of an environmental impact statement. The surface transportation corridor is an obligation that the National Park Service will fulfill in accordance with ANILCA. The right-of-way will be implemented regardless of the alternatives identified in this plan.

VISITOR USE MANAGEMENT, COMMERCIAL SERVICES, AND SPECIAL USES

Overview

The National Park Service manages visitor use at Gates of the Arctic to provide for park purposes and wilderness recreational activities by maximizing a visitor's opportunity to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement throughout the park without intrusive regulations. Leave No Trace ethics would be promoted to all visitors

and partners, and compatible visitor behavior would be encouraged. Consumptive subsistence uses would continue to be viewed as part of the naturally functioning ecosystem and not considered a visitor use.

Although current use patterns do not warrant use limitations, a conditions-based and adaptive strategy would continue to be used to ensure that park wilderness recreational opportunities and natural systems are protected into the future. The National Park Service would respond, as necessary, to protect park resources and values on a case-by-case basis.

Visitor Permits/Registration

No formal permit or reservation system would exist under alternative A, except in situations where visitors are seeking to use domestic dogs, horses, and other pack or saddle animals. The permit for pack animals would provide information on when and where they are being used so the areas can be monitored for potential impacts. In addition, there would be a limit of three pack animals per individual or recreational group.

The National Park Service would continue to encourage all visitors (guided or unguided) to provide voluntary registration forms for the purpose of giving and receiving information on visitor uses. For those visitors that choose to register at one of the ranger stations, information would be provided on Leave No Trace ethics, safety considerations, group size limits, private property considerations, and subsistence uses. Information provided voluntarily by visitors (e.g., planned travel routes, length of stay, method of access/travel, and planned activities) would be collected to provide insight into visitor use levels and trends, and for use in case of potential emergencies. In addition, CUA holders would be required to submit reports that provide similar information for the same purposes.

The park staff would continue to offer assistance in meeting food storage requirements for visitors to the park, e.g., the current opportunity to check out bear barrels (bear-proof containers that store food and gear in the backcountry) at no cost.

Commercial Services

All existing commercial services that receive commercial use authorizations in Gates of the Arctic would continue to be managed under commercial use authorizations, and no limits would imposed on the number of operators. All guides would continue to be required to bring visitors to one of the ranger stations to receive an orientation session from park staff, while air taxi operators would encourage visitors to get the same orientation.

Fixed facilities in support of these operations are not consistent with the purpose of maintaining the wild and undeveloped character of the area, and thus would continue to not be permitted. The few remaining cabins still standing may only be used by commercial guides on an emergency basis.

In addition to the necessary legal qualifications for operating a business in a national park (i.e., business license, Federal Aviation Administration [FAA] certification, insurance), guides and air taxi operators would continue to be required to submit advertising literature for review, and collect statistical information (e.g., size of groups, destinations in the park, length of stay).

Commercial Aircraft Operations (including transporters)

Air taxi operators would continue to provide most access for recreational visitors to Gates of the Arctic. In addition, the National Park Service would continue to work with air taxi operators to develop and implement guidelines to avoid visitor or subsistence conflicts and concentrations of use. Should the need arise to allocate or distribute use, the guidelines would be developed in coordination with air taxis and pilots.

The National Park Service would continue to work with the Federal Aviation Administration (per a 1984 interagency agreement) to mitigate adverse effects of overflights. Advisories for pilots to stay 2,000 feet above ground level to avoid impacts to wildlife and subsistence and recreational users would continue, as would recommendations that aircraft not be flown directly over major river drainages, whenever possible, especially during periods of high recreational use, subsistence use, and caribou migrations, nor over occupied dwellings and structures. These flight advisories would continue to be provided to all commercial operators.

Guided Recreational Activities

Recreational Trips (float trips, backpacking). Currently, most recreational trips in Gates of the Arctic involve floating one of the rivers in the park, or backpacking. The National Park Service would continue to discourage highly structured, repetitive trip packages, and would encourage guides to provide a truly unique experience that fits their clients' choice of what they want to see and do. Guides would be provided with information and resources for successful trip planning, but specific route planning would not be addressed (see discussion of education and interpretation).

Requirements for guided group sizes for recreational backpacking and river trips would continue as follows:

- maximum of 10 people (including the guide[s]) for backpacking (the superintendent can be petitioned for an increase to 10
- maximum of 10 people (including the guide[s]) for river trips

Other miscellaneous commercial services and uses that have been permitted in the past include: guided climbing, guided fishing, and guided hiking. As requests for new types of commercial activities are submitted, the park staff would review them on a case-by-case basis to determine if they are wilderness activities consistent with law, regulation, and NPS policy, and how the activity would benefit the public and help protect resources. (See also the discussion of "Commercial Services" in the prior section.)

Big Game Sport Hunting. Although there is only one guided hunting area currently in use in the Itkillik Unit, (the Kobuk Unit has not had a guide request in recent years), the National Park Service would continue to recognize the two guided sport hunting areas in the preserve, and would continue to provide two concession operations to provide guide services, with a preference for incumbent concessioners who have provided satisfactory service during their contract term.

User Capacity and Wilderness Character Monitoring

A conditions-based and adaptive strategy would continue to be used to ensure that wilderness opportunities and natural systems in the park remain undiminished into the future. Information on visitor conflicts and/or resource impacts would be collected during routine operations

such as ranger patrols and resource management activities.

Based on collected information, the National Park Service would respond, as necessary, to protect wilderness character and park resources and values on a case-by-case basis.

Although current use patterns do not warrant use limitations, should the need arise to allocate or distribute use, the guidelines would be developed in coordination with air taxis, pilots, and other stakeholders. The levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and that both opportunities continue to be available.

Other Miscellaneous Services and Uses

There are some activities, such as commercial filming, which would be guided by policies at the regional level, and would not be addressed further at the park level.

VISITOR FACILITIES

Overview

To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads or trails, but would honor the existing transportation right-of-way allowed by ANILCA section 201(4)(d). Facilities (permanent or temporary) for recreational visitor use would not be planned, but the National Park Service may reconsider for the safety, well-being, and health of visitors.

As allowed by ANILCA section 1306, facilities needed to support visitor services and park operations could be developed outside the park and preserve.

Access Points

There would be no formal or designated access points (e.g., trailheads, entrance stations, etc.) in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along the Dalton Highway and along the Ambler Mining District Right-of-Way. General direction would be provided to visitors concerning access, but it would be the choice of the visitor to determine their point of entry.

Trails

The National Park Service would encourage visitors to find their own routes to promote a sense of freedom and self-discovery. Although there are numerous natural (from wildlife migration) and informal paths visitors can follow, there would be no constructed or maintained trails for recreational use under this alternative.

Campsites

There would continue to be no designated, maintained campsites in the park under this alternative. The National Park Service would continue to discourage development of informal campsites, although the use of impacted areas in the vicinity of Arrigetch Peaks would be encouraged to minimize damage to undisturbed sites.

Recommendations that visitors disperse campsites away from access points and other campers, and to move to new areas after three nights would continue to promote Leave No Trace practices. There would be recommendations for no

more than three camping groups around Arrigetch Peaks at any one time.

Collection of wood and campfires would be allowed, although visitors would be encouraged to carry stoves and adequate fuel for their stay. The National Park Service would continue to encourage using dead or downed wood and driftwood found on gravel bars and beaches.

Cabins

Those cabins that remain standing in the park would be managed in accordance with a cabin management plan that is currently being developed. Ultimately, structures would be evaluated and future uses would be determined through this separate planning process. Until such a plan is developed:

- Those cabins that do not have potential historical significance would not be maintained by the National Park Service, and unclaimed cabins that have adverse effects on park resources or other valid uses may be evaluated for removal.
- Unclaimed cabins left standing for emergency situations or intermittent authorized winter activities (subsistence or village-to-village travel) would remain.
- Maintenance by others for cabins that are necessary for emergency use or authorized activities may be permitted by the park superintendent, but no possessory interest or exclusive-use rights would be acquired.
- To appropriately preserve and protect national register-listed or eligible cabins, all stabilization and preservation efforts would be undertaken in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995).

Information Facilities

No backcountry or in-park visitor facilities would be provided under this alternative. Visitor information facilities would continue to be operated in Fairbanks (includes park headquarters and Morris Thompson Cultural and Visitors Center, both of which are operated year-round), Bettles (includes visitor contact station, which is open year-round), Coldfoot (includes the Arctic Interagency Visitor Center, which is open seasonally), and Anaktuvuk Pass (includes NPS ranger station, which is open seasonally). For more information on the facilities and services at these locations, please see the discussion of administrative facilities and access, and education and interpretation.

Caches and Camps

No permanent caches would be allowed in the park or preserve, except under extraordinary circumstances and with the written permission of the park superintendent. Although generally discouraged, commercial operators and visitors may be allowed to establish temporary caches of food and fuel with the written permission of the park superintendent. Permanent camps would not be permitted in the park and preserve.

Temporary Facilities

The park allows the use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment on preserve lands that are directly and necessarily related to the taking of fish and wildlife, provided these facilities are not detrimental to park purposes (ANILCA 1316). Special use permits may be issued for tent frames, caches, and

other facilities. Appropriate stipulations will be included in the special use permits to ensure protection of resources on preserve lands (36 CFR 13.182). Visitors may not construct new temporary facilities (including tent platforms) in the park. See NPS 2013 for more details on allowed temporary facilities.

ADMINISTRATIVE ACCESS AND FACILITIES

Overview

NPS staff would continue to access the park for all activities identified in ANILCA, including (but not limited to) management of subsistence, inventory and monitoring natural and cultural resources, scientific research, management of recreational use (including sport hunting), and reclamation of disturbed areas. Park management activities would not unnecessarily interfere with valid recreation, subsistence, and private property uses. NPS staff would strive to maintain a low profile in the park to minimize intrusions on visitors' wilderness experience. The focus of backcountry operations would be on monitoring and protecting resources, monitoring use, and responding to emergencies.

Operations would continue to be evaluated using a stringent inter-disciplinary review, including completion of a wilderness minimum requirements decision guide, which takes into account existing laws, regulations, and policies, and methods that best balance the need to effectively accomplish administrative activities and minimize disruptions to resources and visitors.

Although none are anticipated, any new structures and facilities to support park operations would generally be built outside the park and preserve. However, the National Park Service may reconsider if a state surface transportation route is developed (as authorized under ANILCA section 201[4][d]).

Existing facilities outside park boundaries would be maintained to support operational and administrative park needs. Sustainability of park operations and facilities would be a high priority in management decisions, with an emphasis on causing the least impact on wilderness, and natural and cultural resources. If the National Park Service identifies the need to develop new facilities to meet operational requirements, the National Park Service would strive to develop "green" facilities with the least infrastructure possible.

Transportation and Access

NPS staff would strive to walk, snowshoe, ski, float, or boat within the park and preserve, but all modes of access and transportation within the park would be determined through an interdisciplinary review and the results of a wilderness minimum requirements analysis.

When determined to be the minimum tools for accessing and getting around the park, other methods could include the use of dog teams, snowmachines (generally used only for village and homesite travel or as otherwise allowed under section 1110(a) of ANILCA), fixed-wing aircraft (generally used to place NPS staff in the field to conduct research and law enforcement, and flown on routes and altitudes that minimize disruption to visitors and wildlife). Lower level flights and helicopters would be used in emergencies or when they are the minimum tool necessary to accomplish management activities.

Facilities Inside the Park

Seasonal or base camps would not be used as a standard practice. Park staff would continue to use a rigorous compliance process to evaluate building proposals for structures or facilities in the park.

If a surface transportation route is developed as allowed by ANILCA section 201(4)(d), the National Park Service could consider a new administrative facility (i.e., ranger station) along the route.

Facilities Outside the Park

Current facilities outside the park and preserve that would continue to be used under the no-action alternative, include the following:

Anaktuvuk Pass. There would be no changes to the number and types of facilities at Anaktuvuk Pass, which includes one residence that doubles as office space, a bunkhouse that sleeps four, a storage shed, and a wind turbine generator.

Dahl Creek. There would be no changes to the number and types of facilities at Dahl Creek, which includes two bunkhouses (leased) (both sleep eight), one of which is being used as a storage shed, a fuel shed, and a fuel storage and distribution system.

Coldfoot. Facilities currently at Coldfoot include the Arctic Interagency Visitor Center, which is managed by the Bureau of Land Management and operationally supported by the National Park Service, an old ranger station (now being used as offices and storage facility—the parking lot doubles as a location for temporary, seasonal housing), and associated pit privy. The National Park Service also owns a 9-acre parcel of land that includes a building used for storage. The U.S. Fish and Wildlife Service has an office there. Other structures in the area, owned by partner agencies, share the space with the National Park Service. There are two single-family homes at Marion Creek, as well as a power generation shed, a water and wastewater system, and a weather port used for storage. These homes would continue to be managed per the status quo under this alternative.

Bettles. Facilities include four sheds and support structures for outside storage, and a garage and visitor center shared with the U.S. Fish and Wildlife Service; six housing units for permanent and seasonal housing; three well and four septic system sheds, a pit privy; tool shed; a bunkhouse jointly operated with the U.S. Fish and Wildlife Service; a mess hall used for storage; a recreation hall for staff; a fire cache; and a backcountry cache. The National Park Service uses space at a USFWS hangar and rents space at the float pond in Bettles, where there is an emergency cache. All facility needs would be coordinated with the U.S. Fish and Wildlife Service.

Fairbanks. Facilities include one office building (leased) and two sheds. The Fairbanks Administrative Center has evolved to include staff from Denali, Yukon-Charley, Wrangell's, the Alaska Region, the two inventory and monitoring networks (Central Alaska and Arctic networks) and Gates of the Arctic staff. The facilities include a museum collection and archival repository. Hanger space is leased at the airport. The National Park Service leases part of the Morris Thompson Cultural and Visitors Center where the Alaska Public Lands Information Center (APLIC) is located. The APLIC staff would be managed as part of the National Park Service.

SCIENTIFIC ACTIVITIES AND RESOURCE MANAGEMENT

Overview

The park staff would continue research and management programs in an ecosystem context to understand the long-term human use of the area. Current programs related to natural resources, cultural resources, subsistence, and fire management would continue. These programs would be based on existing planning documents (e.g., general management plan, Arctic Inventory and Monitoring Network ecological monitoring plan, resource management plans). Adaptive research and resource management programs would continue to be developed by experienced NPS staff, and would be supplemented by outside experts when needed.

Research or resource management activities would be subject to review by an integrated compliance review team that evaluates all activities for compatibility with ANILCA section 810 for subsistence activities; the National Historic Preservation Act, section 106, and the Wilderness Act section 4(c). The integrated compliance review would ensure that the goals of the research and resource management activities are consistent with park goals.

The National Park Service would continue to pursue opportunities for climate change research within the park. Studies would be conducted in ways that minimize effects on wilderness character, resources, and visitors, and would occur in areas that receive less use by recreational and subsistence users to minimize human effects on the research, and to minimize effects on the users.

Research and Resource Management

NPS research would continue to be conducted for the purposes of advancing natural, cultural, and subsistence resource management objectives at Gates of the Arctic. Although baseline data continues to be collected in some areas, research and resource management efforts would continue to provide data on status, trends, processes, and mechanisms in an ecosystem management context. In addition to research conducted on vital signs identified in conjunction with the NPS Arctic Inventory and Monitoring Network, the park staff would continue to identify pressing research needs in the western Brooks Range.

The National Park Service would strive to conduct all priority research using in-house staff and expertise. If NPS staff or their partners (e.g., contractors) cannot conduct the research, park staff would seek agreements with or assistance from other federal agencies, state agencies, universities, and other organizations (e.g., CESUs, research study units) to conduct or cooperatively supplement research efforts. The National Park Service would continue to consult with appropriate state and federal agencies on research that is conducted.

Outside research requests (i.e., research not directed by the National Park Service) would be evaluated on a case-by-case basis. This includes not only the compliance review noted previously, but an assessment of whether the research fits and complements the mission, purposes, and policies of the National Park Service at Gates of the Arctic, including wilderness character of the park and preserve.

Research at the park would feed adaptive resource management programs that respond to changes in resource conditions and recreational use. The

National Park Service would strive to maintain the natural abundance, behavior, diversity, and ecological integrity of native species as part of their ecosystems. Management would focus on human uses and activities that affect populations and their habitats rather than direct management of resources. The only direct management of resources would be to restore natural conditions to damaged areas in response to issues that arise on a case-by-case basis (e.g., cleanup activities, removal of invasive plants). For example, nonnative plants in the Walker Lake area would continue to be controlled via manual extraction. The park staff would continue to respond aggressively using the minimum tools necessary to restore, rehabilitate, and mitigate impacts. Although the National Park Service would consult with the State of Alaska on the management of hunting, fishing, and trapping in the park and preserve, the goal would continue to be the support of natural ecosystem functions, not the improvement or enhancement of resources for ongoing consumptive uses.

In regard to fire management specifically, the National Park Service would continue to work with the Alaska Fire Service / Bureau of Land Management and Alaska Department of Forestry through the Interagency Fire Management Plan and USDI policies. Fuels management, aviation management, and protection of values at risk would continue to be a priority. The National Park Service would continue to partner with local communities for fire education, and would continue to seek information from internal research and experts on fire management practices and resource protection.

INTERPRETATION AND EDUCATION

Overview

The growing interpretation and education program at Gates of the Arctic strives to facilitate connections between the public and park resources and to foster understanding and stewardship of the park and the wilderness character it embodies. Many people value the park even though they may never visit. The park staff would strive to reach out to this larger audience and beyond, and would continue to work collaboratively with staff from Yukon-Charley Rivers National Preserve and Fairbanks Alaska Public Lands Information Center, as part of a larger team.

Outreach to Visitors at Park Facilities

The National Park Service would continue to offer formal and informal interpretive programs at both Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. In addition, visitors would have access to exhibits, movies, printed materials, and other educational opportunities. Visitors would be provided with information and resources for successful trip planning. However, specific route planning would not be addressed because self-discovery is a large part of the park experience, and because the repeated use of an area can have a negative impact on fragile arctic groundcover. The National Park Service would continue to partner with the Fairbanks Alaska Public Lands Information Center to offer backcountry orientations, exhibits, and other formal and informal interpretive opportunities.

Education and Outreach

NPS staff would continue to perform education programs and outreach in the

resident zone communities of Gates of the Arctic, in Fairbanks schools, and in schools throughout the country through the park website and by providing information to student inquiries. Curriculum-based kits would be available for check-out by teachers and others. Education and interpretation staff would partner with the resource division to involve students in research in the park and with the Fairbanks Alaska Public Lands Information Center to provide education programs and field trip opportunities.

Website and Multimedia

Since the park is remote, the website would continue to play a vital role in reaching out to the populations that will never have the opportunity to visit Gates of the Arctic. The park staff would continue to make use of Web-based and other multimedia products. In addition, an award-winning movie about the park and a Leave No Trace movie would continue to provide information to the public.

Miscellaneous

The park staff would continue to seek opportunities and provide programs, such as the Artist-in-Residence program and the Far North Conservation Film Festival, that give visibility to the park, foster greater understanding of park resources, and build a conservation ethic and connection to wilderness.

RESOURCE AND VISITOR PROTECTION

Overview

Ranger activities include visitor orientations and patrols to educate visitors about resource protection and ways to prevent the impairment of park resources. In addition to resource protection (fire, natural and cultural), law enforcement functions (compliance using applicable rules and regulations), and protection of visitor experience (tangible protection of the wilderness experience), ranger activities protect the subsistence priority in Gates of the Arctic.

Resource Protection

Ranger staff at Gates of the Arctic would continue activities aimed at wilderness preservation, as well as natural, cultural, and historic resource protection. Staff would monitor visitor use impacts so as to prevent resource impairment, and would identify, document, and mitigate threats to park resources. In addition, ranger activities would protect the subsistence priority at the park.

Visitor Protection

Search and rescue and emergency medical service programs would continue to provide protection of visitor health and safety. Backcountry orientations would be geared toward enhanced safety and reducing accidents. Rangers would provide initial emergency and incident response regarding the health and safety of visitors. Work would continue to develop emergency management services agreements with Bettles/Evansville and Coldfoot. A strong emphasis would be placed on being proactive with visitors with extensive pre-trip planning and orientations. Boating safety and environmental travel considerations would continue to be a focus.

Visitor Experience

Ranger operations would be conducted to maintain wilderness character at a high level. Ranger patrols would strive to maintain a high degree of wilderness character in park areas that receive

increased use. Rangers would attempt to mitigate crowding, conflicting uses, and coordinate administrative functions so that visitors would have the greatest opportunity for a high-quality wilderness experience.

Visitor and Resource Protection

Within Gates of the Arctic National Park and Preserve all visitor and resource protection activities comply with applicable federal, and nonconflicting state regulations to ensure visitor safety and cultural and natural resources. Applicable state hunting regulations would be enforced on preserve lands. Park-specific regulations would be enforced on all park lands, and limited state law enforcement would occur by qualified rangers on non-NPS owned lands within and adjacent to the park and preserve. Visitor contacts may be sought at times when consumptive users visit park and preserve lands.

Stewardship

Park rangers are often the NPS representative that engages visitors before, during, and after their park experience and are often the only point of contact for an array of user groups that interact with park resources. Park visitors would continue to receive a stalwart message of the important and special contributions parks make to current and future generations. As such, ranger activities would continue to foster environmental stewardship, Leave No Trace ethics, and wilderness appreciation among park visitors and stakeholders.

OTHER MANAGEMENT ACTIVITIES

Overview

In addition to the management activities described previously, the GMP Amendment would provide guidance on other management activities, such as those related to land protection priorities, the Dalton Highway corridor (although the National Park Service does not manage lands within the Dalton Highway corridor, it does provide access to the eastern part of the park), and other partnerships.

Land Protection Priorities

The updated land protection plan (NPS 2014a) identifies priorities for determining what lands or interests in land need to be in public ownership and what means of protection will be used to achieve the purposes for which Gates of the Arctic National Park and Preserve was created.

As willing sellers are identified, large and small tracts and Native allotments within the park may be acquired, or where appropriate, exchanged, in the interest of protecting park purposes. No changes to the legislated boundary of the park and preserve would be pursued.

The National Park Service would participate in any planning effort for the region. In particular, cooperative planning would be sought on lands along Dalton Highway, including the Ambler Mining District Access Project.

Visitor services along the Dalton Highway corridor would continue to be managed as they are today, with a focus on information and education as a key tool for management. The Arctic Interagency Visitor Center would be integral to this. The National Park Service would work with sister agencies that have direct management responsibility for lands within the corridor, and would stay informed regarding any changes in management, working cooperatively on common issues.

Dalton Highway Corridor

Under alternative A, no new efforts would be undertaken to coordinate with tour providers and transporters on Dalton Highway.

Partnerships

Prescriptive park management would require a variety of in-state and out-of-state partners that value the mission and purposes for which the park was established. As a result, the National Park Service would continue to seek and nurture mutually benefitting partnerships with villages, the state, tribes, federal agencies, Native corporations, the North Slope Borough, educational institutions, and other stakeholders to help fulfill its mission at Gates of the Arctic. In addition, the park staff would pursue partnerships with stakeholders that extend beyond the border of the park. As part of this, the National Park Service would continue to support the collection of park and environs documentary and oral history in cooperation with governmental, Native, and private organizations. In addition, the National Park Service would continue to consult with the State of Alaska on the management of hunting, fishing, and trapping in the park and preserve.

Staffing and Estimated Costs

Currently, Gates of the Arctic National Park and Preserve and Yukon-Charley Rivers National Preserve are jointly operated and have approximately 36 full-time equivalent (FTE) staff between the two parks. The ONPS (operating budget) for Gates of the Arctic is approximately $2,881,000.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

CONCEPT DESCRIPTION

This concept generally reflects current management conditions at Gates of the Arctic as described in alternative A, but brought up to current NPS planning standards through use of zoning and indicators and standards for wilderness character to guide management.

As with all alternatives, opportunities for subsistence uses by federally qualified local and rural residents would continue.

Visitor services and park management and operations would occur at similar levels as today, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs.

Alternative B would focus on protecting wilderness character as much as possible in the park and preserve.

To fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation, visitor services and park operations and management would be conducted in a focused manner that minimizes the imprint of contemporary humans.

As part of this alternative, the National Park Service would not plan to build any new infrastructure and facilities within the park and preserve.

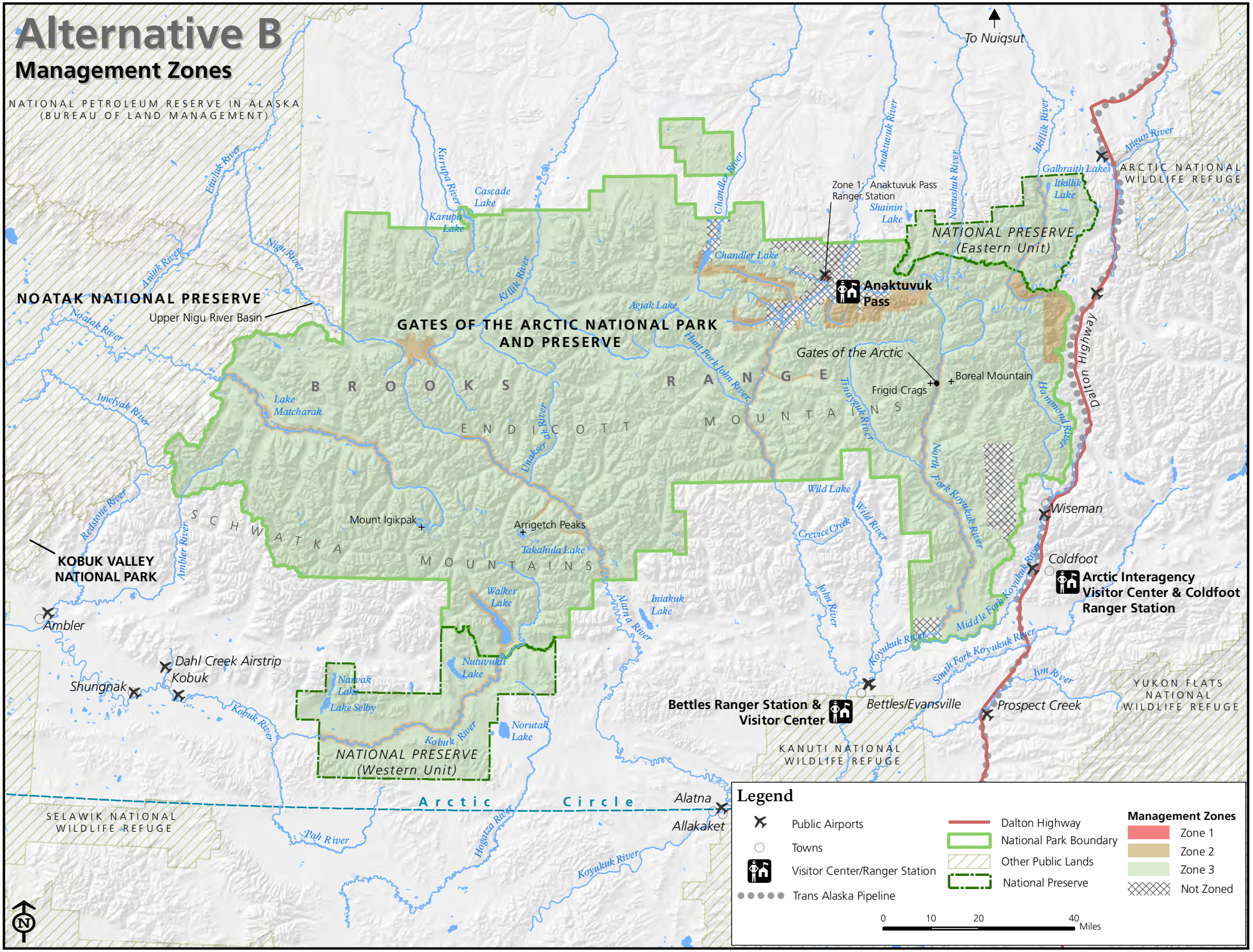
Section 201 (4)(b)-(e) of ANILCA provides for surface transportation access across the Kobuk River Preserve. When a proposal for a right-of-way is made, an environmental and economic analysis will be prepared by the Secretary of the Interior and secretary of transportation, which, as mandated by the statute, will focus solely on determining the most desirable route for the right-of-way and terms and conditions that may be required for the issuance of that right-of-way. This analysis will be prepared in lieu of an environmental impact statement. The surface transportation corridor is an obligation that the National Park Service will fulfill in accordance with ANILCA. The right-of-way will be implemented regardless of the alternatives identified in this plan.

Highlights of Alternative B

- *Continuation of current management approach.*
- *Strong focus on wilderness character and opportunities for solitude and self-reliance.*
- *No new infrastructure or visitor facilities.*
- *Continue current resource management approach.*
- *Establish wilderness character monitoring program.*

MANAGEMENT ZONING

Under alternative B the management zones described in table 2 would be applied to Gates of the Arctic as presented in the map of alternative B. Nonfederal lands within the park boundary, including Native regional and village corporation lands, Native allotments, State of Alaska lands, and other private lands, would not be zoned. Based on GIS calculations, most of the Gates of the Arctic (~7,770,906 acres or


Alternative B
Management Zones
NATIONAL PETROLEUM RESERVE IN ALASKA (BUREAU OF LAND MANAGEMENT)
To Nuiqsut
NOATAK NATIONAL PRESERVE
Upper Nigu River Basin
GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE
BROOKS RANGE MOUNTAINS
ENDICOTT
SCHWATKA MOUNTAINS
NATIONAL PRESERVE (Eastern Unit)
NATIONAL PRESERVE (Western Unit)
ARCTIC NATIONAL WILDLIFE REFUGE
YUKON FLATS NATIONAL WILDLIFE REFUGE
KANUTI NATIONAL WILDLIFE REFUGE
SELAWIK NATIONAL WILDLIFE REFUGE
KOBUK VALLEY NATIONAL PARK
Zone 1: Anaktuvuk Pass Ranger Station
Anaktuvuk Pass
Gates of the Arctic
Boreal Mountain
Frigid Crags
Mount Igikpak
Arrigetch Peaks
Dalton Highway
Wiseman
Coldfoot
Arctic Interagency Visitor Center & Coldfoot Ranger Station
Bettles Ranger Station & Visitor Center
Bettles/Evansville
Prospect Creek
Ambler
Dahl Creek Airstrip
Kobuk
Shungnak
Alatna
Allakaket
Arctic Circle
Legend
Public Airports
Towns
Visitor Center/Ranger Station
Trans Alaska Pipeline
Dalton Highway
National Park Boundary
Other Public Lands
National Preserve
Management Zones
Zone 1
Zone 2
Zone 3
Not Zoned
0 10 20 40 Miles

95% of the NPS lands in the park) would be included under zone 3. Almost all of the remainder of the park (~451,113 acres or 5% of the NPS lands in the park) would be included under zone 2. This includes lands near Anaktuvuk Pass, an area close to the Dalton Highway, most of the Kobuk, Noatak, Alatna, Anaktuvuk, North Fork of the Koyukuk, and Itkillik rivers, Arrigetch Peaks, Lake Matchurak, Walker Lake, and Nutuvukti and Narvak lakes. The land around the Anaktuvuk Pass ranger station, covering less than an acre, would be in zone 1. (Note: the above acreages do not include lands within the boundary that are not under NPS ownership.)

VISITOR USE MANAGEMENT, COMMERCIAL SERVICES, AND SPECIAL USES

Overview

The National Park Service would continue to manage visitor use at Gates of the Arctic to provide for park purposes and wilderness recreational activities by maximizing a visitor's opportunity to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement through the use of the park without intrusive regulation. Leave No Trace ethics would be promoted to all visitors and partners and compatible visitor behavior would be encouraged. Consumptive subsistence uses would continue to be viewed as part of the naturally functioning ecosystem and not considered a visitor use.

Although current use patterns do not warrant use limitations, a formal system of indicators and standards for wilderness character would be used to ensure that park wilderness opportunities and natural systems remain undiminished into the future.

Visitor Permits/Registration

No formal permit or reservation system would exist under alternative B.

No formal permit or reservation system would exist under alternative B, except in situations where visitors are seeking to use domestic dogs, horses, and other pack or saddle animals. The permit for pack animals would provide information on when and where they are being used so the areas can be monitored for potential impacts. In addition, there would be a limit of three pack animals per individual or recreational group.

The National Park Service would continue to encourage all visitors (guided or unguided) to complete voluntary registration forms for the purpose of giving and receiving information on visitor uses. For those visitors that choose to register at one of the ranger stations, information would be provided on Leave No Trace ethics, safety considerations, group-size limits, private property considerations, and subsistence uses. Information provided voluntarily by visitors (e.g., planned travel routes, length of stay, method of access/travel, and planned activities) would be collected to provide insight into visitor use levels and trends, and for use in case of potential emergencies. In addition, CUA holders would be required to submit reports that provide similar information for the same purposes.

The park staff would continue to offer assistance in meeting food storage requirements for visitors to the park, e.g., the current opportunity to check out bear barrels at no cost.

Commercial Services

With the exception of indicators and standards noted below, there would be no change in the management of commercial guided operations under

alternative B— all management directions included under alternative A would also apply to alternative B. These management directions include the requirement to bring visitors to ranger stations, the continuation of providing commercial use authorizations and the big game sport hunting concession contracts, the ban on fixed facilities, informational requirements, and requirements for guided group sizes for recreational backpacking and river trips.

User Capacity and Wilderness Character Monitoring

A formal system of indicators and standards for wilderness character would be monitored to ensure that wilderness opportunities and natural systems in the park remain undiminished into the future. Monitoring would be conducted as part of this program, described earlier in this chapter. Based on information collected, the National Park Service would have a variety of tools that could be used to protect wilderness character and park resources and values.

Although current use patterns do not warrant use limitations, the indicators and standards developed as part of this formal program would be used to help determine if there is a need to allocate or distribute use to protect park resources and values. If this becomes the case, the approach taken would be developed in coordination with air taxis, pilots, and other stakeholders. The levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and that both opportunities continue to be available.

Other Miscellaneous Services and Uses

There are also some activities, such as commercial filming, which would be guided by policies at the regional level, and would not be addressed further at the park level.

VISITOR FACILITIES

Overview

To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads or trails. The one exception would be to permit access to the Ambler Mining District under the provisions ANILCA section 201(4)(b-e) if an application is made for a right-of-way. y allowed by ANILCA section 201(4)(d). Facilities (permanent or temporary) for recreational visitor use would not be developed. However, the National Park Service may provide public-use cabins in wilderness for the safety, well-being, and health of visitors, per section 1315(d) of ANILCA.

As allowed by ANILCA section 1306, facilities needed to support visitor services and park operations could be developed outside the park and preserve.

Access Points

There would be no formal or designated access points (e.g., trailheads, entrance stations, etc.) in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along the Dalton Highway. General directions would be provided to visitors concerning access, but it would be the choice of the visitor to determine their point of entry.

Trails

The National Park Service would encourage visitors to find their own routes to promote a sense of freedom and self-discovery. Although there are numerous natural (from wildlife migration) and informal paths visitors can follow, there would be no constructed or maintained trails for recreational use under this alternative.

Campsites

There would continue to be no designated, maintained campsites in the park under this alternative. The National Park Service would continue to discourage development of informal campsites, although the use of impacted areas in the vicinity of Arrigetch Peaks would be encouraged to minimize damage to undisturbed sites.

To promote Leave No Trace practices and opportunities to recommendations that visitors disperse campsites away from access points and other campers, as well as recommendations to move to new areas after three nights, would continue. There would also be recommendations for no more than three camping groups around Arrigetch Peaks at any one time.

Collection of wood and campfires would be allowed, although visitors would be encouraged to carry stoves and adequate fuel for their stay. The National Park Service would continue to encourage using dead or downed wood and driftwood found on gravel bars and beaches.

Cabins

Those cabins that remain standing in the park would be managed in accordance with a cabin management plan that is currently being developed by the park. Ultimately, structures would be evaluated and future uses would be determined through this separate planning process. Until such a plan is developed:

- Those cabins that do not have potential historical significance would not be maintained by the National Park Service, and unclaimed cabins that have adverse effects on park resources or other valid uses may be evaluated for removal.
- Unclaimed cabins left standing for emergency situations or intermittent authorized winter activities (subsistence or village-to-village travel) would remain.
- Maintenance by others for cabins that are necessary for emergency use or intermittent authorized winter activities may be permitted by the park superintendent, but no possessory interest or exclusive use rights would be acquired.
- To appropriately preserve and protect national register-listed or eligible cabins, all stabilization and preservation efforts would be undertaken in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995).

Information Facilities

No backcountry or in-park visitor facilities would be provided under this alternative. Visitor information facilities would continue to be operated in Fairbanks (includes park headquarters and Morris Thompson Cultural and Visitors Center, both of which are operated year-round), Bettles (includes visitor contact station, which is open year-round), Coldfoot (includes the Arctic Interagency Visitor Center, which is open seasonally), and Anaktuvuk Pass (includes NPS ranger station which is

open seasonally). For more information on the facilities and services at these locations, please see the discussion of administrative facilities and access, as well as education and interpretation.

Caches and Camps

No permanent caches would be allowed in the park or preserve, except under extraordinary circumstances and with the written permission of the park superintendent. Although generally discouraged, commercial operators and visitors may be allowed to establish temporary caches of food and fuel with the written permission of the park superintendent. Permanent camps would not be permitted in the park and preserve.

Temporary Facilities

The park allows the use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment on preserve lands that are directly and necessarily related to the taking of fish and wildlife, provided these facilities are not detrimental to park purposes (ANILCA 1316). Special use permits may be issued for tent frames, caches, and other facilities. Appropriate stipulations would be included in the special use permits to ensure protection of resources on preserve lands (36 CFR 13.182). Visitors may not construct new temporary facilities (including tent platforms) in the park. See NPS 2013 for more details on allowed temporary facilities. in support of subsistence use.

ADMINISTRATIVE ACCESS AND FACILITIES

Overview

As described in alternative A, NPS staff would continue to access the park for all activities identified in ANILCA and avoid unnecessarily interfering with valid recreation, subsistence, and private property uses. In addition, the focus of backcountry operations would continue to be on monitoring and protecting resources, monitoring use, and responding to emergencies.

However, in this alternative the National Park Service would further attempt to limit its interaction with and impact on visitors during patrols, research, overflights, etc., and would exercise restraint in NPS administrative activities to further support the emphasis on wilderness character and the visitors' wilderness experience.

Operations would continue to be evaluated using a stringent interdisciplinary review, including completion of a minimum requirements decision guide, that takes into account existing laws, regulations, and policies, and methods that best balance the need to effectively accomplish administrative activities and minimize disruptions to resources and visitors.

Although none are anticipated, any new structures and facilities to support park operations would be built outside the park and preserve.

Existing facilities outside park boundaries would be maintained to support operational and administrative park needs. Sustainability of park operations and facilities would be a high priority in management decisions, with an emphasis on causing the least impact on wilderness, and natural and cultural resources. If the National Park Service identifies the need to develop new facilities to meet operational requirements, the National Park Service would strive to develop "green" facilities with the least infrastructure possible.

Transportation and Access

NPS staff would strive to walk, snowshoe, ski, float, or boat within the park and preserve, but all modes of access and transportation within the park would be determined through an interdisciplinary review and the results of a wilderness minimum requirements analysis.

When determined to be the minimum tools for accessing and getting around the park other methods could include the use of dog teams, snowmachines, fixed-wing aircraft (generally used to place NPS staff in the field to conduct research and law enforcement, and flown on routes and altitudes that minimize disruption to visitors and wildlife). Lower level flights and helicopters would be used in emergencies or when they are the minimum tool necessary to accomplish management activities.

Facilities Inside the Park

Seasonal or base camps would not be used as a standard practice. Park staff would continue to use a rigorous compliance process to evaluate building proposals for structures or facilities in the park.

If a surface transportation route is developed as allowed by ANILCA section 201(4)(d), the National Park Service may consider whether a new administrative facility (i.e., ranger station) along the route is warranted.

Facilities Outside the Park

The intention of the National Park Service would be to not change existing NPS administrative facilities outside the park, including at Anaktuvuk Pass, Dahl Creek, Bettles, and Fairbanks.

Anaktuvuk Pass. There would be no changes to the number and types of facilities at Anaktuvuk Pass, which includes one residence that doubles as office space, a bunkhouse that sleeps four, a storage shed, and a wind turbine generator.

Dahl Creek. There would be no changes to the number and types of facilities at Dahl Creek, which includes two bunkhouses (leased) (both sleep eight), one of which is being used as a storage shed a fuel shed, and a fuel storage and distribution system.

Coldfoot. Facilities currently in Coldfoot include the Arctic Interagency Visitor Center, which is managed by the Bureau of Land Management and operationally supported by the National Park Service, an old ranger station (now being used as offices and storage facility—the parking lot doubles as a location for temporary, seasonal housing), and associated pit privy. The National Park Service also owns a 9-acre parcel of land that includes a building used for storage. The U.S. Fish and Wildlife Service has an office there. Other structures in the area, owned by partner agencies, share the space with the National Park Service. In addition, there are two single-family homes at Marion Creek that have been evaluated for relocation to Coldfoot (a power generation shed, a water and wastewater system, and a weather port used for storage are also located at Marion Creek).

Bettles. Facilities include four sheds and support structures for outside storage, and a garage and visitor center shared with the U.S. Fish and Wildlife Service; six housing units for permanent and seasonal housing; three well and four septic system sheds, a pit privy; tool shed; a bunkhouse jointly operated with the U.S. Fish and Wildlife Service; a mess hall used for storage; a recreation hall for staff; a fire cache; and a backcountry cache. The National Park Service uses space at a USFWS hangar and rents space at the float pond in Bettles, where there is

an emergency cache. All facility needs would be coordinated with the U.S. Fish and Wildlife Service.

Fairbanks. Facilities include one office building (leased) and two sheds. The Fairbanks Administrative Center has evolved to include staff from Denali, Yukon-Charley, Wrangell-St. Elias, the Alaska Region, the two inventory and monitoring networks (Central Alaska and Arctic networks) and Gates of the Arctic staff. The facilities also include a museum collection and archival repository. Hanger space is leased at the airport. The National Park Service leases a part of the Morris Thompson Cultural and Visitors Center where the Alaska Public Lands Information Center is located. The APLIC staff would be managed as a part of the National Park Service.

SCIENTIFIC ACTIVITIES AND RESOURCE MANAGEMENT

Overview

The park staff would continue research and management programs in an ecosystem context to understand the long-term human use of the area. Current programs related to natural resources, cultural resources, subsistence, and fire would continue. These programs would be based on existing planning documents (e.g., general management plan, Arctic Inventory and Monitoring Network ecological monitoring plan, resource management plans). Adaptive research and resource management programs would continue to be developed by experienced NPS staff, and would be supplemented by outside experts when needed.

Research or resource management activities would be subject to review by an integrated compliance review team that evaluates all activities for compatibility with ANILCA section 810 for subsistence activities; the National Historic Preservation Act section 106, and the Wilderness Act section 4(c). The integrated compliance review would ensure that the goals of the research and resource management activities are consistent with the park goals.

The National Park Service would continue to pursue opportunities for climate change research within the park. Studies would be conducted in ways that minimize effects on wilderness character, resources, and visitors, and would occur in areas that receive less use by recreational and subsistence users to minimize human effects on the research, and to minimize effects on the users.

Research and Resource Management

NPS research would continue to be conducted for the purposes of advancing natural, cultural, and subsistence resource management objectives at Gates of the Arctic. Although baseline data continues to be collected in some areas, research and resource management efforts would continue to provide data on status, trends, processes, and mechanisms in an ecosystem management context. In addition to research conducted on vital signs identified in conjunction with the NPS Arctic Inventory and Monitoring Network, the park staff would continue to identify pressing research needs in the western Brooks Range.

The National Park Service would strive to conduct all priority research using in-house staff and expertise. If NPS staff or their partners (e.g., contractors) cannot conduct the research, the park staff would seek agreements with or assistance from other federal agencies, state agencies, universities, and other organizations (e.g., CESUs, research study units) to conduct or cooperatively supplement research efforts. The

National Park Service would also continue to consult with appropriate state and federal agencies on research that is conducted.

Outside research requests (i.e., research not directed by the National Park Service) would be evaluated on a case-by-case basis. This includes not only the compliance review noted previously, but an assessment of whether the research fits and complements the mission, purposes, and policies of the National Park Service at Gates of the Arctic, including wilderness character of the park and preserve.

Research at the park would feed adaptive resource management programs that respond to changes in resource conditions and recreational use. The National Park Service would strive to maintain the natural abundance, behavior, diversity, and ecological integrity of native species as part of their ecosystems. Management would focus on human uses and activities that affect populations and their habitats rather than direct management of resources. The only direct management of resources would be to restore natural conditions to damaged areas in response to issues that arise on a case-by-case basis (e.g., cleanup activities, removal of invasive plants). The park staff would continue to respond aggressively using the minimum tools necessary to restore, rehabilitate, and mitigate impacts. Although the National Park Service would consult with the State of Alaska on the management of hunting, fishing and trapping in the park and preserve, the goal would continue to be the support of natural ecosystem functions, not the improvement or enhancement of resources for ongoing consumptive uses.

In regard to fire management specifically, the National Park Service would continue to work with AFS/Bureau of Land Management and Alaska Department of Forestry through the Interagency Fire Management Plan and USDI policies. Fuels management, aviation management and protection of values at risk would continue to be a priority. The National Park Service would continue to partner with local communities for fire education, and would continue to seek information from internal research and experts on fire management practices and resource protection.

INTERPRETATION AND EDUCATION

Overview

The growing interpretation and education program at Gates of the Arctic strives to facilitate connections between the public and park resources and to foster understanding and stewardship of the park and the wilderness character it embodies. Many people value the park even though they may never visit. The park staff would strive to reach out to this larger audience and beyond, and would continue to work collaboratively with staff from Yukon-Charley Rivers National Preserve and Fairbanks Alaska Public Lands Information Center, as part of a larger team.

Outreach to Visitors at Park Facilities

The National Park Service would continue to offer formal and informal interpretive programs at both Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. In addition, visitors would have access to exhibits, movies, printed materials, and other educational opportunities. Visitors would be provided with information and resources for successful trip planning. However, specific route planning would not be addressed because self-discovery is a large part of the park experience, and

because the repeated use of an area can have a negative impact on fragile arctic groundcover. The National Park Service would continue to partner with the Fairbanks Alaska Public Lands Information Center to offer backcountry orientations, exhibits, and other formal and informal interpretive opportunities.

Education and Outreach

NPS staff would continue to perform education programs and outreach in the resident zone communities of Gates of the Arctic, in Fairbanks schools, and in schools throughout the country through the park website and by providing information to student inquiries. Curriculum-based kits would be available for check-out by teachers and others. Education and interpretation staff would partner with the resource division to involve students in research in the park and with the Fairbanks Alaska Public Lands Information Center to provide education programs and field trip opportunities.

Website and Multimedia

Since the park is remote, the website would continue to play a vital role in reaching out to the populations that will never have the opportunity to visit Gates of the Arctic. The park staff would continue to make use of Web-based and other multimedia products. In addition, an award-winning movie about the park and a *Leave No Trace* movie would continue to provide information to the public.

Miscellaneous

The park staff would continue to seek opportunities and provides programs, such as the Artist-in-Residence program and the Far North Conservation Film Festival, that give visibility to the park, foster greater understanding of park resources, and build a conservation ethic and connection to wilderness.

RESOURCE AND VISITOR PROTECTION

Overview

Ranger activities include visitor orientations and patrols to educate visitors about resource protection and ways to prevent the impairment of park resources. In addition to resource protection (fire, natural and cultural), law enforcement functions (compliance using applicable rules and regulations), and protection of visitor experience (tangible protection of the wilderness experience), ranger activities protect the subsistence priority in Gates of the Arctic.

Resource Protection

Ranger staff at Gates of the Arctic would continue activities aimed at wilderness preservation, as well as natural, cultural and historic resource protection. Staff would monitor visitor use impacts so as to prevent resource impairment, and would identify, document, and mitigate threats to park resources. In addition, ranger activities would protect the subsistence priority at the park.

Visitor Protection

Search and rescue and emergency medical service programs would continue to provide protection of visitor health and safety. Backcountry orientations would be geared toward enhanced safety and reducing accidents. Rangers would provide initial emergency and incident response regarding the health and safety of visitors. A strong emphasis would be placed on being proactive with visitors with extensive pre-trip planning and orientations. Boating safety and

environmental travel considerations would continue to be a focus.

Visitor Experience

Ranger operations would be conducted to maintain wilderness character at a high level. Ranger patrols would strive to maintain a high degree of wilderness character in park areas that receive increased use. Rangers would attempt to mitigate crowding, conflicting uses and coordinate administrative functions so that visitors would have the greatest opportunity for a high-quality wilderness experience.

Visitor and Resource Protection

Within Gates of the Arctic National Park and Preserve all visitor and resource protection activities comply with applicable federal, and non-conflicting State regulations to ensure visitor safety and cultural and natural resources.

Applicable state hunting regulations would be enforced on preserve lands. Park-specific regulations would be enforced on all park lands, and limited state law enforcement would occur by qualified rangers on non-NPS owned lands within and adjacent to the park and preserve. Visitor contacts may be sought at times when consumptive users visit park and preserve lands.

Stewardship

Park rangers are often the NPS representative that engages visitors before, during, and after their park experience and are often the only point of contact for an array of user groups that interact with park resources. Park users would continue to receive a stalwart message of the important and special contributions parks make to current and future generations. As such, ranger activities would continue to foster environmental stewardship, Leave No Trace ethics, and wilderness appreciation among park visitors and stakeholders.

OTHER MANAGEMENT ACTIVITIES

Overview

In addition to the management activities described previously, the GMP Amendment would provide guidance on other management activities, such as those related to land protection priorities, the Dalton Highway corridor (although the National Park Service does not manage lands within the Dalton Highway corridor, it does provide access to the eastern part of the park), and other partnerships.

Land Protection Priorities

The park's updated land protection plan (NPS 2014a) identifies priorities for determining what lands or interests in land need to be in public ownership and what means of protection will be used to achieve the purposes for which Gates of the Arctic National Park and Preserve was created.

As willing sellers are identified, large and small tracts and Native allotments within the park may be acquired, or where appropriate exchanged, in the interest of protecting park purposes. No changes to the legislated boundary of the park and preserve would be pursued.

The National Park Service would participate in any planning effort for the region. In particular, cooperative planning would be sought on lands along the Dalton Highway, as well as for the Ambler Mining District Right-of-Way.

Visitor services along the Dalton Highway corridor would continue to be managed as they are today, with a focus

on information and education as a key tool for management. The Arctic Interagency Visitor Center would be integral to this effort. The National Park Service would work with sister agencies that have direct management responsibility for lands within the corridor, and would stay informed regarding any changes in management, working cooperatively on common issues.

Dalton Highway Corridor

Under alternative B no new efforts would be undertaken to coordinate with tour providers and transporters on the Dalton Highway.

Partnerships

Prescriptive park management would require a variety of in-state and out-of-state partners that value the mission and purposes for which the park was established. As a result, the National Park Service would continue to seek and nurture mutually benefitting partnerships with villages, the state, tribes, federal agencies, Native corporations, the North Slope Borough, educational institutions, and other stakeholders to help fulfill its mission at Gates of the Arctic. In addition, the park would pursue partnerships with stakeholders that extend beyond the border of the park. As part of this, the National Park Service would continue to support the collection of park and environs documentary and oral history in cooperation with governmental, Native, and private organizations. In addition, the National Park Service would continue to consult with the State of Alaska on the management of hunting, fishing, and trapping in the park and preserve.

Staffing and Estimated Costs

There would be no facility development, and therefore no costs for facility development, under alternative B. Under this alternative, two new FTE staff would optimally fulfill the program and activities described in this alternative. One new staff member would be a law enforcement ranger stationed at Coldfoot, and the other would be a new maintenance division staff member. The cost for these two new employees would be approximately $130,000 per year. (See also the "Cost Summary of Alternatives" later in this chapter.) The two new employees would bring the total FTE employees to 38. However, implementation of this plan is not dependent on additional staffing or funding.

ALTERNATIVE C

CONCEPT DESCRIPTION

In addition to maintaining the wild character of the area, providing continued opportunities for wilderness recreational activities, protecting park resources and values, and providing outstanding opportunities for solitude or primitive and unconfined recreation, this concept would also seek to better foster visitor understanding of and appreciation for the variety of park resources; the role Gates of the Arctic played in the development of wilderness in the United States; and climate change. In addition, this alternative would bring the general management plan for the park up to current NPS planning standards through the use of zoning and indicators and standards for wilderness character to guide management. As with all alternatives, opportunities for subsistence uses by federally qualified local and rural residents would continue.

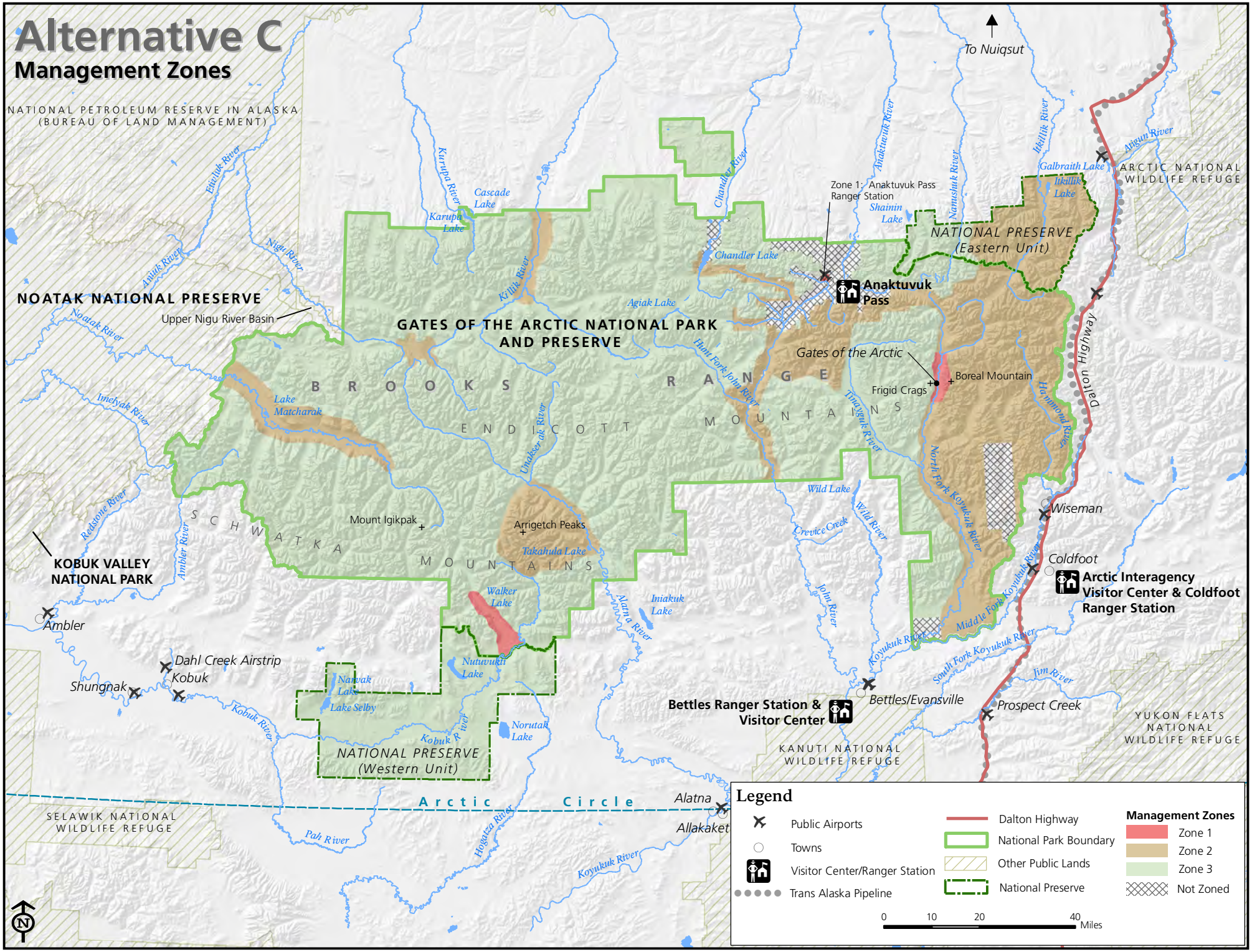
Visitor services and park management and operations, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs, would occur at increased levels compared to today to further the intent of this alternative. However, as with all alternatives, visitor services and park operations and management would be conducted in a focused manner that minimizes the imprint of contemporary humans, so as to fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation.

To further the intent of this alternative, the National Park Service would identify areas with intrinsic qualities that make them well-suited for education outreach and stewardship building, and could involve the public in some field activities. Where appropriate, limited new infrastructure and facilities could be developed to enhance these opportunities or protect resources and visitor experience.

Section 201 (4)(b)-(e) of ANILCA provides for surface transportation access across the Kobuk River Preserve. When a proposal for a right-of-way is made, an environmental and economic analysis will be prepared by the Secretary of the Interior and secretary of transportation, which, as mandated by the statute, will focus solely on determining the most desirable route for the right-of-way and terms and conditions that may be required for the issuance of that right-of-way. This analysis will be prepared in lieu of an environmental impact statement. The surface transportation corridor is an obligation that the National Park Service will fulfill in accordance with ANILCA. The right-of-way will be implemented regardless of the alternatives identified in this plan.

Highlights of Alternative C

- *Strong focus on wilderness recreation opportunities.*
- *Slight increase in visitor services, education, and outreach.*
- *Limited new infrastructure and visitor facilities.*
- *Seek opportunities to serve as an outdoor laboratory.*
- *Establish wilderness character monitoring program.*


Alternative C
Management Zones
NATIONAL PETROLEUM RESERVE IN ALASKA
(BUREAU OF LAND MANAGEMENT)
To Nuiqsut
ARCTIC NATIONAL WILDLIFE REFUGE
Zone 1: Anaktuvuk Pass Ranger Station
Anaktuvuk Pass
NATIONAL PRESERVE (Eastern Unit)
NOATAK NATIONAL PRESERVE
Upper Nigu River Basin
GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE
Gates of the Arctic
Boreal Mountain
Frigid Crags
Dalton Highway
B R O O K S R A N G E
E N D I C O T T M O U N T A I N S
Lake Matcharak
S C H W A T K A M O U N T A I N S
Mount Igikpak
Arrigetch Peaks
Takahula Lake
KOBUK VALLEY NATIONAL PARK
Ambler
Wiseman
Coldfoot
Arctic Interagency Visitor Center & Coldfoot Ranger Station
Dahl Creek Airstrip
Kobuk
Shungnak
Walker Lake
Nutuvukti Lake
Iniakuk Lake
Wild Lake
Bettles Ranger Station & Visitor Center
Bettles/Evansville
Prospect Creek
KANUTI NATIONAL WILDLIFE REFUGE
YUKON FLATS NATIONAL WILDLIFE REFUGE
NATIONAL PRESERVE (Western Unit)
Arctic Circle
Alatna
Allakaket
SELAWIK NATIONAL WILDLIFE REFUGE
Legend
Public Airports
Towns
Visitor Center/Ranger Station
Trans Alaska Pipeline
Dalton Highway
National Park Boundary
Other Public Lands
National Preserve
Management Zones
Zone 1
Zone 2
Zone 3
Not Zoned
0 10 20 40 Miles

MANAGEMENT ZONING

Under alternative C the management zones described in table 2 would be applied to Gates of the Arctic as presented in the map of alternative C. Nonfederal lands within the park boundary, including Native regional and village corporation lands, Native allotments, State of Alaska lands, and other private lands, would not be zoned. Zone 3 would cover the largest portion of Gates of the Arctic (~6,250,068 acres or 76% of NPS lands in the park based on GIS calculations). Zone 2 would cover ~1,920,947 acres or 23% of NPS lands in the park. This includes land near Anaktuvuk Pass, an area close to the Dalton Highway, most of the Kobuk, Noatak, Alatna, Anaktuvuk, North Fork of the Koyukuk, and Itkillik rivers, Arrigetch Peaks, Lake Matchurak, Walker Lake, and Nutuvukti and Narvak lakes. Zone 1 would cover about 1% of the park (~51,003 acres), and would include areas around Walker Lake, the Gates of the Arctic on the North Fork of the Koyukuk River, and an area by Anaktuvuk Pass. (Note: the above acreages do not include lands within the boundary that are not under NPS ownership.)

VISITOR USE MANAGEMENT, COMMERCIAL SERVICES, AND SPECIAL USES

Overview

The National Park Service would continue to manage visitor use at Gates of the Arctic to provide for park purposes and wilderness recreational activities by maximizing a visitor's opportunity to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement through use of the park without intrusive regulation. Leave No Trace ethics would be promoted to all visitors and partners and compatible visitor behavior would be encouraged. Consumptive subsistence uses would continue to be viewed as part of the naturally functioning ecosystem and not considered a visitor use. To help build wilderness stewards, a range of commercial providers would support visitor experience, including elder hostels, CUA holders, and other groups.

Although current use patterns do not warrant use limitations, a formal system of indicators and standards for wilderness character would be used to ensure that park wilderness opportunities and natural systems remain undiminished into the future.

Visitor Permits/Registrations

No formal permit or reservation system would exist under alternative C, except in situations where visitors are seeking to use domestic dogs, horses, and other pack or saddle animals. The permit for pack animals would provide information on when and where they are being used so the areas can be monitored for potential impacts. In addition, there would be a limit of three pack animals per individual or recreational group.

The National Park Service would continue to encourage all visitors (guided or unguided) to provide voluntary registration forms for the purpose of giving and receiving information on visitor uses. For those visitors that choose to register at one of the ranger stations, information would be provided on Leave No Trace ethics, safety considerations, group-size limits, private property considerations, and subsistence uses. Information provided voluntarily by visitors (e.g., planned travel routes, length of stay, method of access/ travel, and planned activities) would be collected to provide insight into visitor use levels and trends, and for use in case of potential emergencies. In addition, commercial service providers would be required to

submit reports that provide similar information for the same purposes.

The park staff would continue to offer assistance in meeting food storage requirements for visitors to the park, e.g., the current opportunity to check out bear barrels at no cost.

In addition, to help foster visitor appreciation of park resources and values, this alternative would require that all unguided visitors and guided visitors not associated with the Guardian of the Gates program stop at a ranger station or other information facility for an orientation on Leave No Trace ethics, safety considerations, group-size limits, private property considerations, and subsistence uses.

Commercial Services

With the exceptions noted below, there would be no change in the management of commercial guided operations under alternative C—all of the management directions included under alternative A would also apply to alternative C. These management directions include the continuation of providing commercial use authorizations and the big game sport hunting concession contracts, the ban on fixed facilities, informational requirements, and requirements for guided group sizes for recreational backpacking and river trips.

To help support wilderness stewardship, in alternative C, a Guardian of the Gates program would be established. The program would provide incentives for all CUA holders that regularly operate in the park and communicate actively with the National Park Service, including guides and air taxi operators. Such incentives would include CUA holders conducting their own orientations, Leave No Trace programs, and providing their own bear barrels. This would allow CUA holders to provide services in lieu of stopping at a ranger station or other information facility.

All guides not certified under the Guardian of the Gates program would be required to bring visitors to one of the ranger stations or other information facility to receive an orientation session from park staff, while air taxi operators would encourage visitors to get the same orientation.

User Capacity and Wilderness Character Monitoring

A formal system of indicators and standards for wilderness character would be monitored to ensure that wilderness opportunities and natural systems in the park remain undiminished into the future. Monitoring would be conducted as part of this formal program, described earlier in this chapter. Based on information collected, the National Park Service would have a variety of tools that could be used to protect wilderness character and park resources and values.

Although current use patterns do not warrant limitations, the indicators and standards developed as part of this formal program would be used to help determine if there is a need to allocate or distribute use to protect park resources and values. If this becomes the case, the approach taken would be developed in coordination with air taxis, pilots, and other stakeholders. The levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and that both opportunities continue to be available.

Other Miscellaneous Services and Uses

There are also some activities, such as commercial filming, which would be guided by policies at the regional level,

and would not be addressed further at the park level.

VISITOR FACILITIES

Overview

To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads, but would honor existing transportation rights-of-way allowed by ANILCA, section 201(4)(d). No trails or permanent facilities would be planned, but the National Park Service may reconsider for resource protection needs, as well as the safety, well-being, health, and enjoyment of visitors. In addition, temporary campsites could be considered in some locations to enhance visitor education and interpretation and protect resources.

As allowed by ANILCA, section 1306, facilities needed to support visitor services and park operations could be developed outside the park and preserve.

Access Points

No formal or designated access points (e.g., trailheads, entrance stations, etc.) are anticipated in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along Dalton Highway and the Ambler Mining District Right-of-Way. General direction would be provided to visitors concerning access, but it would be the choice of the visitor to determine their point of entry.

However, regularly used informal access points, such as user-created or wildlife trails, could be formalized in the future if needed to protect resources or visitor experience. Under this alternative, steps could be taken to mitigate impacts to existing access points, and monitoring these sites may be needed to quickly identify invasive species.

Trails

The National Park Service would encourage visitors to find their own routes to promote a sense of freedom and self-discovery. There are numerous natural (from wildlife migration) and informal paths visitors can follow. The National Park Service would not plan on constructing trails for recreational use under this alternative.

However, existing informal paths could be designated or even maintained in the future if needed to protect resources or visitor experience.

Campsites

No designated, maintained campsites would be planned under this alternative; however, some temporary campsites may be used in support of educational programs, and some user-created campsites could be hardened to concentrate use at those areas and protect surrounding resources.

To promote Leave No Trace practices and opportunities to recommendations that visitors disperse campsites away from access points and other campers, as well as recommendations to move to new areas after three nights, would continue. There would also be recommendations for no more than three camping groups around Arrigetch Peaks at any one time.

Collection of wood and campfires would be allowed, although visitors would be encouraged to carry stoves and adequate fuel for their stay. The National Park Service would continue to encourage using dead or downed wood and

driftwood found on gravel bars and beaches.

Cabins

Those cabins that remain standing in the park would be managed in accordance with a cabin management plan that is currently being developed by the park. Ultimately, structures would be evaluated and future uses would be determined through this separate planning process. Until such a plan is developed:

- Those cabins that do not have potential historical significance would not be maintained by the National Park Service, and unclaimed cabins that have adverse effects on park resources or other valid uses may be evaluated for removal.
- Unclaimed cabins left standing for emergency situations or intermittent authorized winter activities (subsistence or village-to-village travel) would remain.
- Maintenance by others for cabins that are necessary for emergency use or intermittent authorized winter activities may be permitted by the park superintendent, but no possessory interest or exclusive-use rights would be acquired.
- To appropriately preserve and protect national register-listed or eligible cabins, all stabilization and preservation efforts would be undertaken in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995).

As part of the cabin management planning process, the National Park Service would consider the potential use of cabins in the vicinity of regularly used access points to enhance educational outreach.

Information Facilities

No backcountry or in-park visitor facilities are anticipated under this alternative. Visitor information facilities would continue to be operated in Fairbanks (includes park headquarters and Morris Thompson Cultural and Visitors Center, both of which are operated year-round), Bettles (includes visitor contact station, which is open year-round), Coldfoot (includes the Arctic Interagency Visitor Center, which is open seasonally), and Anaktuvuk Pass (includes NPS ranger station that is open seasonally). For more information on facilities and services at these locations, please see the discussion of administrative facilities and access, as well as education and interpretation.

If a surface transportation route is developed as allowed under ANILCA, section 201(4)(d), the National Park Service could further the intent of this alternative by evaluating a new facility (e.g., ranger station or an informational kiosk) along the route that would provide new educational and interpretive opportunities.

Caches and Camps

Commercial operators would not be allowed to establish permanent caches in the park or preserve, except under extraordinary circumstances and with the written permission of the park superintendent. Although generally discouraged, commercial operators and visitors may be allowed to establish temporary caches of food and fuel with the written permission of the park superintendent. Permanent camps would not be permitted in the park and preserve.

Temporary Facilities

The park allows the use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment on preserve lands that are directly and necessarily related to the taking of fish and wildlife, provided these facilities are not detrimental to park purposes (ANILCA 1316). Special use permits may be issued for tent frames, caches, and other facilities. Appropriate stipulations would be included in the special use permits to ensure protection of resources on preserve lands (36 CFR 13.182). Visitors may not construct new temporary facilities (including tent platforms) in the park. See NPS 2013 for more details on allowed temporary facilities in support of subsistence use.

ADMINISTRATIVE ACCESS AND FACILITIES

Overview

As described in alternative A, NPS staff would continue to access the park for all activities identified in ANILCA and avoid unnecessary interference with valid recreation, subsistence, and private property uses. However, while the focus of backcountry operations would be monitoring and protecting resources, monitoring use, and responding to emergencies, this alternative would expand backcountry operations to include educational activities.

Operations would continue to be evaluated using a stringent interdisciplinary review, including completion of a wilderness minimum requirements decision guide that takes into account existing laws, regulations, and policies, and methods that best balance the need to effectively accomplish administrative activities and minimize disruptions to resources and visitors.

Although none are planned at this time, new structures and facilities to support operations would generally be built outside the park. However, the National Park Service may reconsider if a state surface transportation route is developed as authorized under ANILCA, section 201(4)(d).

Existing facilities outside park boundaries would be maintained to support operational and administrative park needs. Sustainability of park operations and facilities would be a high priority in management decisions, with an emphasis on causing the least impact on wilderness and natural and cultural resources. If the National Park Service identifies the need to develop new facilities to meet operational requirements, the National Park Service would strive to develop "green" facilities with the least infrastructure possible.

Transportation and Access

NPS staff would strive to walk, snowshoe, ski, float, or boat within the park and preserve, but all modes of access and transportation within the park would be determined through an interdisciplinary review and the results of a wilderness minimum requirements analysis. When determined to be the minimum tools for accessing and getting around the park, other methods could include the use of dog teams, snowmachines, fixed-wing aircraft (generally used to place NPS staff in the field to conduct research and law enforcement, and flown on routes and altitudes that minimize disruption to visitors and wildlife). Lower level flights and helicopters would be used in emergencies or when they are the minimum tool necessary to accomplish management activities.

Facilities Inside the Park

Seasonal or base camps would not be used as a standard practice. Park staff would continue to use a rigorous compliance process to evaluate building proposals for structures or facilities in the park.

If a state surface transportation route is developed as authorized under ANILCA, section 201(4)(d), the National Park Service could consider a new facility (e.g., ranger station) along the transportation route.

Facilities Outside the Park

The intention of the National Park Service would be to not change existing NPS administrative facilities outside the park, including at Anaktuvuk Pass, Dahl Creel, Bettles, and Fairbanks.

Anaktuvuk Pass. There would be no changes to the number and types of facilities at Anaktuvuk Pass, which includes one residence that doubles as office space, a bunkhouse that sleeps four, a storage shed, and a wind turbine generator.

Dahl Creek. There would be no changes to the number and types of facilities at Dahl Creek, which includes two bunkhouses (leased) (both sleep eight), one of which is being used as a storage shed, a fuel shed, and a fuel storage and distribution system.

Coldfoot. Facilities currently in Coldfoot include the Arctic Interagency Visitor Center, which is managed by the Bureau of Land Management and operationally supported by the National Park Service, an old ranger station (now being used as offices and storage facility—the parking lot doubles as a location for temporary, seasonal housing), and associated pit privy. The National Park Service also owns a 9-acre parcel of land that includes a building used for storage. The U.S. Fish and Wildlife Service has an office there. Other structures in the area, owned by partner agencies, share the space with the National Park Service. In addition, there are two single-family homes at Marion Creek that have been evaluated for relocation to Coldfoot (a power generation shed, a water and wastewater system, and a weather port used for storage are also at Marion Creek).

Bettles. Facilities include four sheds and support structures for outside storage, and a garage and visitor center shared with the U.S. Fish and Wildlife Service; six housing units for permanent and seasonal housing; three well and four septic system sheds, a pit privy; tool shed; a bunkhouse jointly operated with the U.S. Fish and Wildlife Service; a mess hall used for storage; a recreation hall for staff; a fire cache; and a backcountry cache. The National Park Service uses space at a USFWS hangar and rents space at the float pond in Bettles where there is an emergency cache. All facility needs would be coordinated with the U.S. Fish and Wildlife Service.

Fairbanks. Facilities include one office building (leased) and two sheds. The Fairbanks Administrative Center has evolved to include staff from Denali, Yukon-Charley, Wrangell-St. Elias, the Alaska Region, the two inventory and monitoring networks (Central Alaska and Arctic networks) and Gates of the Arctic staff. The facilities also include a museum collection and archival repository. Hanger space is leased at the airport. The National Park Service also leases part of the Morris Thompson Cultural and Visitors Center where the Alaska Public Lands Information Center is located. The APLIC staff would be managed as part of the National Park Service.

SCIENTIFIC ACTIVITIES AND RESOURCE MANAGEMENT

Overview

Park staff would continue research and management programs as described for alternative A. Current programs related to natural resources, cultural resources, subsistence, and fire would continue. These programs would be based on this alternative and other existing planning documents (e.g., resource management plans). Adaptive research and resource management programs would continue to be developed by experienced NPS staff and would be supplemented by outside experts when needed.

However, under this alternative, the park would seek opportunities to serve as an outdoor laboratory, involve the public in field activities, and make a strong connection between these programs and the education focus of this alternative.

Research or resource management activities would be subject to review by an integrated compliance review team that evaluates all activities for compatibility with ANILCA, section 810, for subsistence activities; the National Historic Preservation Act, section 106; and the Wilderness Act, section 4(c). The integrated compliance review would ensure that the goals of the research and resource management activities are consistent with park goals.

The National Park Service would continue to pursue opportunities for climate change research within the park. Studies would be conducted in ways that minimize effects on wilderness character, resources, and visitors, and would occur in areas that receive less use by recreational and subsistence users to minimize human effects on the research, and to minimize effects on the users.

Research and Resource Management

NPS research would continue to be conducted for the purposes of advancing natural, cultural, and subsistence resource management objectives at Gates of the Arctic. Although baseline data continues to be collected in some areas, research and resource management efforts would continue to provide data on status, trends, processes, and mechanisms in an ecosystem management context. In addition to research conducted on vital signs identified in conjunction with the National Park Service Arctic Inventory and Monitoring Network, the park staff would continue to identify pressing research needs in the western Brooks Range.

Under this alternative, the National Park Service would actively pursue research opportunities for studying the effects of climate change on park resources and park visitors. This would include identifying areas within the park that would be suitable for studying the effects. NPS staff would work with researchers and other partners to further these efforts. All such research in designated wilderness would be determined to be necessary and appropriate for preserving wilderness character.

The National Park Service would strive to conduct all priority research using in-house staff and expertise. If NPS staff or their partners (e.g., contractors) cannot conduct the research, the park staff would seek agreements with or assistance from other federal agencies, state agencies, universities, and other organizations (e.g., CESUs, research study units) to conduct or cooperatively supplement research efforts. The National Park Service would also continue to consult with appropriate state and federal agencies on research that is conducted.

Outside research requests (i.e., research not directed by the National Park Service) would be evaluated on a case-by-case basis. This includes not only the compliance review noted previously, but an assessment of whether the research fits and complements the mission, purposes, and policies of the National Park Service at Gates of the Arctic, including wilderness character of the park and preserve.

Research at the park would feed adaptive resource management programs that respond to changes in resource conditions and recreational use. The National Park Service would strive to maintain the natural abundance, behavior, diversity, and ecological integrity of native species as part of their ecosystems. Management would focus on human uses and activities that affect populations and their habitats rather than direct management of resources. The only direct management of resources would be to restore natural conditions to damaged areas in response to issues that arise on a case-by-case basis (e.g., clean-up activities, removal of invasive plants). The park staff would continue to respond aggressively using the minimum tools necessary to restore, rehabilitate, and mitigate impacts. Although the National Park Service would consult with the State of Alaska on the management of hunting, fishing, and trapping in the park and preserve, the goal would continue to be the support of natural ecosystem functions, not the improvement or enhancement of resources for ongoing consumptive uses.

In regard to fire management specifically, the National Park Service would continue to work with AFS/Bureau of Land Management and Alaska Department of Forestry through the Interagency Fire Management Plan and USDI policies. Fuels management, aviation management, and protection of values at risk would continue to be a priority. The National Park Service would continue to partner with local communities for fire education, and would continue to seek information from internal research and experts on fire management practices and resource protection.

Under this alternative, there could be public participation in some field activities with intrinsic qualities that make them well-suited for education outreach and stewardship building. Should visitors encounter researchers or resource management staff in the park, they would be encouraged to share a message about their work with visitors. In addition, researchers and resource management staff would work closely with education and interpretation staff to communicate the purpose and results of their programs to the public.

INTERPRETATION AND EDUCATION

Overview

The growing interpretation and education program at Gates of the Arctic strives to facilitate connections between the public and park resources and to foster understanding and stewardship of the park and the wilderness character it embodies. Many people value the park even though they may never visit. The park staff would strive to reach out to this larger audience and beyond, and would continue to work collaboratively with staff from Yukon-Charley Rivers National Preserve and Fairbanks Alaska Public Lands Information Center, as part of a larger team.

As this alternative would seek to better foster visitor understanding of and appreciation for the variety of park resources and the role Gates of the Arctic played in the development of wilderness in the United States, interpretation and education activities would be expanded.

Outreach to Visitors at Park Facilities

The National Park Service would continue to offer formal and informal interpretive programs at both Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot.

In addition, visitors would have access to exhibits, movies, printed materials, and other educational opportunities. Visitors would be provided with information and resources for successful trip planning. However, specific route planning would not be addressed because self-discovery is a large part of the park experience, and because the repeated use of an area can have a negative impact on fragile arctic groundcover. The National Park Service would continue to partner with the Fairbanks Alaska Public Lands Information Center to offer backcountry orientations, exhibits, and other formal and informal interpretive opportunities.

Under this alternative, the National Park Service would work closely with elders and leaders of Anaktuvuk Pass, including the Anaktuvuk Pass Museum, to provide more education and interpretation to visitors on cultural understanding, appropriate behavior, and camping locations while in the village.

Education and Outreach

NPS staff would continue to perform education programs and outreach in the resident zone communities of Gates of the Arctic, in Fairbanks schools, and in schools throughout the country through the park website and by providing information to student inquiries. Curriculum-based kits would be available for check-out by teachers and others. Education and interpretation staff would partner with the resource division to involve students in research in the park and with the Fairbanks Alaska Public Lands Information Center to provide education programs and field trip opportunities.

In addition, regularly used access points could be places that provide additional opportunities for educational outreach within the park.

In the future, depending on the development of a transportation corridor allowed by ANILCA, section 201(4)(d), additional educational and outreach opportunities may be pursued in conjunction with any new facilities (e.g., a new ranger station) or through other means (e.g., limited roadside informational panels).

Website and Multimedia

Since the park is remote, the website would continue to play a vital role in reaching out to the populations that will never have the opportunity to visit Gates of the Arctic. The park staff would continue to make use of Web-based and other multimedia products. In addition, an award-winning movie about the park and a Leave No Trace movie would continue to provide information to the public.

Under this alternative, reports from research and resource management activities could also be made available through the website.

Miscellaneous

The park staff would continue to seek opportunities and provides programs, such as the Artist-in-Residence program and the Far North Conservation Film Festival, that give visibility to the park, foster greater understanding of park resources, and build a conservation ethic and connection to wilderness.

RESOURCE AND VISITOR PROTECTION

Overview

Ranger activities include visitor orientations and patrols to educate visitors about resource protection and ways to prevent the impairment of park resources. In addition to resource protection (fire, natural, and cultural), law enforcement functions (compliance using applicable rules and regulations), and protection of visitor experience (tangible protection of the wilderness experience), ranger activities protect the subsistence priority in Gates of the Arctic.

However, there would be more emphasis on education and interpretation during ranger activities under this alternative.

Resource Protection

Ranger staff at Gates of the Arctic would continue activities aimed at wilderness preservation, as well as natural, cultural, and historic resource protection. Staff would monitor visitor use impacts so as to prevent resource impairment, and would identify, document, and mitigate threats to park resources. In addition, ranger activities would protect the subsistence priority at the park.

Visitor Protection

Search and rescue and emergency medical service programs would continue to provide protection of visitor health and safety. Backcountry orientations would be geared towards enhanced safety and reducing accidents. Rangers would provide initial emergency and incident response regarding the health and safety of visitors. A strong emphasis would be placed on being proactive with visitors with extensive pre-trip planning and orientations. Boating safety and environmental travel considerations would continue to be a focus.

Visitor Experience

Ranger operations would be conducted to maintain wilderness character at a high level and to provide visitors the opportunity for a high-quality experience. Ranger patrols would strive to maintain a high degree of wilderness character in park areas that receive increased use. Rangers would attempt to mitigate crowding, conflicting uses, and coordinate administrative functions.

Visitor and Resource Protection

Law enforcement activities are focused on compliance with and enforcement of applicable NPS, federal, state, and local regulations for the protection of resources on park lands. Applicable state hunting regulations would be enforced on preserve lands. Park-specific regulations would be enforced on all park lands, and limited state law enforcement would occur by qualified rangers on non-NPS owned lands within and adjacent to the park and preserve. Visitor contacts may be sought at times when consumptive users visit park and preserve lands.

Stewardship

Park rangers are often the NPS representatives that engage visitors before, during, and after their park experience and are often the only point of contact for an array of user groups that interact with park resources. Park users would continue to receive a stalwart message of the important and special contributions parks make to current and future generations. As such, ranger activities would continue to foster environmental stewardship, Leave No Trace ethics, and wilderness appreciation among park visitors and stakeholders.

Additionally, interpretive rangers would visit regular access points to further park goals related to education and interpretation under this alternative. Law enforcement rangers would also be encouraged to take interpretive training and share information with visitors they encounter on routine patrols.

OTHER MANAGEMENT ACTIVITIES

Overview

In addition to the management activities described previously, the GMP amendment would provide guidance on other management activities, such as those related to land protection priorities, the Dalton Highway corridor (although the National Park Service does not manage lands within the Dalton Highway corridor, it does provide access to the eastern part of the park), and other partnerships.

Land Protection

The updated land protection plan for the park (NPS 2014a) identifies priorities for determining what lands or interests in land need to be in public ownership and what means of protection will be used to achieve the purposes for which Gates of the Arctic National Park and Preserve was created.

As willing sellers are identified, large and small tracts and Native allotments within the park may be acquired, or where appropriate exchanged, in the interest of protecting park purposes. No changes to the legislated boundary of the park and preserve would be pursued.

The National Park Service would participate in any planning effort for the region. In particular, cooperative planning would be sought on lands along Dalton Highway, as well as for the Ambler Mining District Access Corridor.

Visitor services along the Dalton Highway corridor would continue to be managed as they are today, with a focus on information and education as a key tool for management. The Arctic Interagency Visitor Center would be integral to this. The National Park Service would work with sister agencies that have direct management responsibility for lands within the corridor, and would stay informed regarding any changes in management, working cooperatively on common issues.

Dalton Highway Corridor

Under this alternative, the park staff would seek to coordinate with tour providers and transporters on Dalton Highway to increase educational opportunities and help emphasize wilderness stewardship (e.g., provide materials and/or interpretative guidance to the operators).

Partnerships

Prescriptive park management would require a variety of in-state and out-of-state partners that value the mission and purposes for which the park was established. As a result, the National Park Service would continue to seek and nurture mutually benefitting partnerships with villages, the state, tribes, federal agencies, Native corporations, the North Slope Borough, educational institutions, and other stakeholders to help fulfill its mission at Gates of the Arctic. In addition, the park would pursue partnerships with stakeholders that extend beyond the border of the park. As part of this, the National Park Service would continue to support the collection of park and environs documentary and oral history in cooperation with governmental, Native, and private organizations. In addition, the National Park Service would continue to consult with the State of Alaska on management of hunting,

fishing, and trapping in the park and preserve.

Staffing and Estimated Costs

There would be no facility development, and therefore no costs for facility development, under alternative C. Under this alternative, six new seasonal park rangers or guides (comprising approximately two new FTE staff total) would optimally fulfill the goals of this alternative. Additionally, this alternative calls for one new law enforcement ranger at Coldfoot, one climate change / research specialist, one education specialist, and partial positions for Internet/social media and two and a half for maintenance. The cost of these eight new FTE employees would be approximately $528,000 per year. (See also the "Cost Summary of Alternatives" following this section.) The eight new employees would bring the park's total FTE staff to 44. However, implementation of this plan is not dependent on additional staffing or funding.

COST SUMMARY OF ALTERNATIVES

The presentation of costs in a general management plan is based on the types and general intensities of development in a comparative format. The National Park Service believes the costs presented are justified due to the sheer size and identified needs of the park. Currently, Gates of the Arctic and Yukon-Charley have approximately 36 FTE staff between the two parks. Additional staff would be required to support the new actions outlined in each action alternative.

The table below summarizes the cost estimates for each alternative, including the no-action alternative. The following applies to costs presented in this GMP Amendment:

- The costs are presented as estimates and are not appropriate for budgeting purposes.
- The cost estimates are general in nature and intended for alternative comparison purposes only.
- Actual costs would be determined at a later date and would take into consideration the identification of detailed resource protection needs and changing visitor expectations.
- Approval of the GMP Amendment does not guarantee funding or staffing for proposed actions. Project funding would not come all at once; it would likely take many years to secure and may be provided by partners, donations, or other nonfederal sources. Some proposals may not be funded within the life of this plan and full implementation may occur many years into the future. Park operations would continue as normal with no loss of services or resource protection during the period of implementation of the proposals detailed in this GMP Amendment.
- Gates of the Arctic National Park and Preserve is in northern Alaska—an area that is being impacted by climate change at a more rapid pace than other parts of the world. While the action alternatives propose a range of activities and adaptations to address visitor experience concerns and visitor services, the National Park Service will evaluate proposed facility investments prior to project approvals using a variety of climate change mitigation strategies to ensure the long-term sustainability of these investments. Due to the park's location and potential vulnerabilities, it is feasible that the National Park Service may conclude, following analysis of the best scientific information available, that such financial investments would be unwise and that other options would be considered or the project would not be pursued. Additional adaptation strategies will be developed relevant to climate change projections and scenarios as part of GMP implementation.

TABLE 4: COST ESTIMATES FOR THE ALTERNATIVES

	Alternative A	Alternative B	Alternative C
Annual Operating Costs (ONPS) [1]	$2,881,000	$3,011,000	$3,409,000
Facility Development Costs	$0	$0	$0
Staffing (FTE) [2]	36	38	44

[1] Annual operating costs (ONPS) are the total costs per year for maintenance and operations associated with each alternative including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative in chapter two.

[2] The total number of FTE employees is the number of person-years of staff required to maintain the assets of the park at an adequate level, provide acceptable visitor services, and support the park's general operations. The FTE number indicates ONPS-funded NPS staff only, not volunteer positions or positions funded by partners. FTE salaries and benefits are included in the annual operating costs.

MITIGATION PROCEDURES COMMON TO ALL ACTION ALTERNATIVES

Congress charged the National Park Service with managing the lands under its stewardship "in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations" (NPS Organic Act, 16 USC 1). As a result, NPS staff routinely evaluates and implement mitigation measures whenever conditions occur that could adversely affect the sustainability of NPS resources.

Mitigation measures are the practicable and appropriate methods that would be used under the action alternatives to avoid and/or minimize harm to park natural and cultural resources, wilderness, visitors, and the visitor experience.

The general management plan provides a management frame work for Gates of the Arctic National Park and Preserve. Within this broad context, the following mitigation measures would be used to avoid or minimize potential impacts from the implementation of the action alternatives. These measures would be applied to all of the action alternatives, subject to funding and staffing constraints. Additional mitigation would be identified as part of implementation planning and for individual projects to further minimize resource impacts.

The following mitigation measures and best management practices would be applied to avoid or minimize potential impacts from implementation of the action alternatives. Because there is no facility development or construction planned in either of the action alternatives, and due to the wild nature and light footprint of NPS management of the park, most of the mitigation procedures apply to ongoing operations and management rather than effects from new proposals in the action alternatives. For example, because there are no facilities proposed in the action alternatives, mitigation measures for protecting resources during facility construction are not applicable for this plan. Therefore, the following procedures are not traditional mitigation measures. Rather, they are efforts to support the relationships between the National Park Service and its partners, thereby increasing understanding and protection of the unique resources of Gates of the Arctic National Park and Preserve. The "Desired Conditions" section in appendix C provides details on strategies that would be continued or developed as part of this plan, especially for natural and cultural resource protection and visitor safety and experience.

The following procedures that would result in mitigation are also common to all the action alternatives in this plan.

- A Minimum Requirements Decision Guide), would be carried out for projects in designated wilderness to determine if, and how, actions or research would be carried out in accordance with the Wilderness Act section 4 (c). (See appendix B.)

- All projects with the potential to affect cultural or natural resources would be carried out in compliance with state and federal laws, such as section 106 of the National Historic Preservation Act, and ANILCA section 810, to ensure that any possible effects

would be adequately addressed. All reasonable measures would be taken to avoid, minimize, or mitigate adverse effects in consultation with the appropriate state and federal offices, Alaska Native tribal groups, traditional councils and Federal Subsistence Regional Advisory Councils, as well as Alaska Native Regional and Village corporations, as necessary.

- An emphasis would be placed on improving relations with State of Alaska and Alaska Native tribal offices, local community groups and community development efforts, including but not limited to
  - continued participation in the Subsistence Resource Commission and Indian Reorganization Act meetings, other tribal government concerns, and local subsistence advisory groups
  - continued participation and emphasis on developing strong partnerships with local communities including but not limited to all the Gates of the Arctic resident zone communities
  - continued emphasis on building tribal relationships and participating in formal government-to-government consultation
- An emphasis would be placed on educating Gates of the Arctic and other National Park Service staff, visiting researchers, and other partners on
  - the Alaska Native Claims Settlement Act, the Alaska National Interest Lands Conservation Act, and other important laws in Alaska that relate to land management and land use
  - unique aspects of Alaska history and culture, especially those that relate to the resident zone communities that live nearby and use areas within Gates of the Arctic for traditional and customary activities
  - areas or topics of special concern, such as archeology in the park, subsistence use, and wilderness management
  - the distinctive and special aspects of the remote and wild character of Gates of the Arctic National Park and Preserve

FUTURE STUDIES AND IMPLEMENTATION PLANS

INTRODUCTION

After completion and approval of this GMP Amendment, other more detailed studies and plans would be needed before certain actions can be implemented. Some of these actions would require additional environmental compliance, public involvement, and consultation. Appropriate permits may also be needed for certain actions.

Implementation of these studies and plans would also depend on future funding and staffing levels. The approval of this GMP Amendment does not guarantee that the funding needed for implementation would be forthcoming.

The following list includes future studies and plans that would likely be needed to implement the action alternatives.

Natural and Cultural Resources

- Develop a resource stewardship strategy that provides comprehensive, long-range direction for natural and cultural resource management. This strategy would establish a multiyear, ecosystem-based planning process for the natural resource program to implement inventories, condition assessments, monitoring, and restoration projects natural and cultural resources. A resource condition assessment may be included in this process.

- Develop comprehensive river management plans for the six designated wild and scenic rivers, as required under section 3(d)(1) of the Wild and Scenic Rivers Act.

- Complete a predator/prey relationship study in cooperation with the State of Alaska and subsistence users that employs structured decision models. The study would consider the relationship between the park and adjacent lands and include adjacent land holders in the study process to ensure that any regulations promulgated based on this study would include the input of all stakeholders.

- Continue participation in the development of a Dalton Highway weed management area plan, with partners including the State of Alaska, the U.S. Forest Service, and the Bureau of Land Management.

- Cultural resources (such as archeological sites, historic structures, cultural landscapes, and ethnographic resources) would continue to be inventoried and assessed parkwide.

- Complete cultural landscape inventories for the park. As appropriate, the inventories would identify inholdings and ensure they are maintained in good condition.

Subsistence Opportunities

- Finalize a subsistence management plan (hunting plan) in cooperation with the Subsistence Resource Commission, Native corporations, the State of Alaska, and other partners that complies

with ANILCA. To meet its obligations to subsistence users and communities. The subsistence management plan would be updated as needed.

Climate Change

- Develop a climate change scenario plan that builds on the park's approach to addressing climate change outlined in this GMP Amendment, including strategies to reduce the carbon footprint of the park and an analysis to determine the effects of climate change on park resources, values, facilities, and visitor services.

Structures, Development, and Maintenance

- Develop a cabin management plan that focuses on historic and nonhistoric cabins. This plan is currently being drafted; it would establish criteria for determining eligibility for continued use or eventual disposition. For those eligible for continued use, it would outline maintenance and continued use requirements.
- Complete an employee housing needs assessment for the park. This assessment would be completed prior to the initiation of the development concept plan at Marion Creek/Coldfoot.
- Complete a development concept plan for the Marion Creek/ Coldfoot area that considers the possibility of new shared facilities and new locations in cooperation with the U.S. Fish and Wildlife Service and Bureau of Land Management.
- Work in cooperation with the community of Bettles to develop a master or site plan to ensure the provision of services such as fuel, electricity and power generation, and other utilities.
- Work in cooperation with the Department of Transportation to evaluate any potential right-of-way to the Ambler Mining District (ANILCA section 201(b-e). This planning effort would include the requisite Kobuk Western Unit Study with multiple elements, including a right-of-way determination, identification of a surface transportation route, and environmental and economic analysis.
- Include sustainability elements in the above plans, to ensure sustainability fuel sources for NPS facilities and management activities.

Wilderness

- A wilderness study / environmental impact statement would be completed on the eligible wilderness in the Eastern (Itkillik River) and Western (Kobuk) units of the preserve.
- Develop a more dynamic wilderness character monitoring program that continues to comply with the Wilderness Act, fulfill agency policy, improve wilderness stewardship, and protect unique properties of Gates of the Arctic National Park and Preserve.

Interpretation

- Develop a long-range interpretive plan that defines the overall vision and long-term interpretive

and educational goals of the park. This plan would include foundation information such as significance of resources, park purpose, theme statements, desired visitor experiences, and analysis of that information. This information would be used to build the interpretive program frame work for the park, which would set priorities, encourage the development of targeted, realistic strategies to achieve interpretive goals, and identify indicators and standards for monitoring interpretation outcomes.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

After reviewing public comments on the preliminary range of alternative management concepts, the planning team proceeded to refine the alternatives by reducing the number of management zones, reducing the number of management alternatives, and updating specific components of the alternatives. Once this was complete, the planning team analyzed the anticipated environmental consequences and estimated the costs associated with each of the action alternatives.

To identify the NPS preferred alternative, the planning team applied an objective evaluation processed called "value analysis." In using this process, the planning team asks, "What and how large are the advantages of each alternative,"? "How important are these advantages,"? and finally, "Are these advantages worth their associated costs"? The process focuses on the differences (advantages) between the action alternatives and how important those differences are. It also directs attention to the positive aspects of each alternative. Using this method, seven factors were developed to distinguish and describe the advantages of the two action alternatives. These factors reflect characteristics of Gates of the Arctic that are important to the public and to the National Park Service.

- Factor 1: protection of natural resources
- Factor 2: protection of cultural resources
- Factor 3: wilderness size (acreage)
- Factor 4: protection of wilderness character
- Factor 5: recreation opportunities
- Factor 6: scientific opportunities
- Factor 7: education opportunities

Overall, alternative C received 5 points during analysis and scoring of the factors, while alternative B received 4 points. However, the associated projected costs for alternative C were higher, at approximately $600,000, while the associated projected costs for alternative B were lower, at approximately $130,000. The difference of one point during scoring was not justified given the additional cost of $470,000 associated with alternative C. Also, protection of wilderness character and opportunities for the wildest experience in Gates of the Arctic was judged to be the most important criterion in selecting a preferred alternative.

Therefore, alternative B was identified as the NPS preferred alternative.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The National Park Service is required to identify an environmentally preferable alternative in its NEPA documents for public review and comment. Guidance from the Council on Environmental Quality states that the environmentally preferable alternative is the alternative that "causes the least damage to the biological and physical environment"; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 1981). Multiple alternatives may be selected as the environmentally preferable alternative.

As described in chapter four, all of the alternatives would have minimal impact on biological or physical resources such as vegetation and wildlife, and these impacts would be slight and localized in most cases. There is no facility development in the park or preserve in either action alternative. Although both action alternatives would have different impacts on the environment due to their slightly different emphases on visitor use, education, research, and management activities, the impacts from both alternatives would be small.

Under alternative B, there would be a lesser amount of active resource management in accordance with the wilderness concept of that alternative. This would have possible negative and positive effects on the environment, as described in chapter four. In some ways, this alternative would limit damage and increase preservation of the environment with fewer management actions on the ground.

Under alternative C, there could be slightly more active management in certain management zones, where human use may be slightly higher in the future. There would also be different opportunities for park visitors to become educated on historic, cultural, and natural resources, leading to long-term awareness and protection by park visitors and other users. Also, because of the greater focus on research under this alternative, there may be slightly higher protection and enhancement of resources through the application of the knowledge gained through such research.

Both action alternatives provide environmental benefits over the no-action alternative through the use of management zoning, wilderness character monitoring, and progress toward desired conditions. There is little difference between the two alternatives because both action alternatives are strongly grounded in the provisions of the Wilderness Act, ANILCA, and NPS policies for protection of resources from damage. There is little difference between the two action alternatives in the ways they would protect, preserve, and enhance historic, cultural, and natural resources. Therefore, both action alternatives have been identified as environmentally preferable.

ALTERNATIVES AND MANAGEMENT ACTIONS CONSIDERED BUT DISMISSED

During the planning process, one additional alternative and several management zones were considered and shared with the public. However, they were later eliminated from further study. The alternative and zones are briefly described below, along with the reasons for dismissing them. The National Environmental Policy Act and the NPS general management planning process allows this refinement/modification of alternatives as public comments and other issues are considered during development of the plan.

MANAGEMENT ZONES

Early in the planning process, five draft management zones were developed for Gates of the Arctic, as described in the September 2010 alternatives newsletter 2. These zones were intended to provide direction on the management of visitors, administrative infrastructure, facilities, and access. One zone (labeled zone 1 in newsletter 2) would be applied to nonwilderness areas and was intended to serve as a portal or gateway between the technological developed world and park backcountry. In this zone there would be increased numbers of visitors compared to the other zones, and new permanent and temporary structures could be allowed. Administrative activities would occur on a regular basis.

This zone was dropped from consideration because it was determined to not be appropriate for this park. Placing this zone in most of the park, which is designated wilderness, would be inconsistent with park mandates. All of the facilities and activities considered in this zone would occur outside the park, such as at the existing ranger stations at Bettles and Coldfoot. In addition, there were no nonwilderness areas that would be adjacent to roads or trailheads where this zone might be applicable.

A second zone (labeled zone 5 in newsletter 2) was intended to provide the highest level of protection of wilderness character, and would be applied in the most remote, inaccessible areas within the central Brooks Range. People would rarely be encountered, and administrative activities would be limited. New permanent or temporary structures would only be permitted if they met the wilderness minimum requirement (minimum tool test).

This zone was dropped from consideration because it was similar to zone 3 as described in this plan—there were few differences between the two zones. It also would be difficult for NPS staff to manage these areas, and to ensure that the conditions described in the zone would be met. This would be inconsistent with park mandates.

Both of these zones were also dropped from consideration because five zones would be too difficult for park staff to feasibly manage. The public also was confused and unclear on the need for all of these zones as noted in the comments on the preliminary draft alternatives. Therefore, the five original zones were recombined into the three zones described in this draft GMP Amendment.

ALTERNATIVES

Four preliminary alternatives for management of Gates of the Arctic were

considered by the planning team as documented in the September 2010 alternatives newsletter. One alternative concept (labeled concept 2 in newsletter 2) was intended to maximize outstanding opportunities for solitude or primitive and unconfined recreation. Under that alternative, visitor services and park operations and management would have been conducted in a focused manner that minimized the impact of people. Although the National Park Service would have continued to provide opportunities for people to experience the park, the emphasis would be on self-reliance. There would have been no or very limited new infrastructure and facilities. The alternative would decrease or slow administrative access to the park, including scientific research, monitoring, and ranger operations. This alternative was dropped because it was similar to the other alternatives being considered—there were not enough substantial differences that distinguished this alternative from the other alternatives. Additionally, many of the actions in this alternative were common to all of the action alternatives being considered. Questions also were raised about whether NPS managers could meet their mandates for managing the park under this alternative, including protecting fish and wildlife populations and habitats and providing opportunities for wilderness recreation. Therefore, this alternative was dismissed from later analysis due to concerns raised by both the public and NPS staff.

WILDERNESS STUDY

One of the key areas of focus for the GMP Amendment originally was a Wilderness Study for lands in the preserve that are presently listed as eligible but that have not been proposed for wilderness designation.

Under the enabling legislation, Congress provided for a right-of-way across the Kobuk Unit of the preserve for an access corridor to an adjacent mining district (ANILCA section 201(4)(b)-(e)). In 2011, the State of Alaska, at the request of a project proponent, began preliminary field studies in preparation for the application for a right-of-way. If a complete application is received, the Secretary of the Interior and secretary of transportation must jointly agree on the route for issuance of a right-of-way, after completion of a NEPA-exempt environmental and economic analysis.

Funding by the Alaska Industrial Development and Export Authority to study the feasibility of a road has accelerated the schedule for potentially considering a right-of-way application. Due to the pending right-of-way application, the National Park Service decided to defer the Wilderness Study and complete the GMP Amendment with an environmental assessment. The GMP Amendment will fulfill the requirements of the wilderness stewardship plan for existing designated wilderness in the national park.

SUMMARY TABLES

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
OVERVIEW			
Concept Description	This concept reflects current management conditions at Gates of the Arctic, which would continue for the life of the GMP Amendment, and provides a baseline against which to compare the other management concepts. Under this concept, the National Park Service would continue the present management direction for Gates of the Arctic, guided by the 1986 general management plan, which calls for the National Park Service to maintain the wild and undeveloped character of the area, provide continued opportunities for wilderness recreational activities, protect park resources and values, and provide continued opportunities for subsistence uses by federally qualified local and rural residents. As a result, outstanding opportunities for solitude or primitive and unconfined recreation would still occur for self-reliant visitors.	This concept generally reflects current management conditions at Gates of the Arctic as described in alternative A, but brought up to current NPS planning standards through the use of zoning and indicators and standards for wilderness character to guide management. As with all alternatives, opportunities for subsistence uses by federally qualified local and rural residents would continue.	In addition to maintaining the wild character of the area, providing continued opportunities for wilderness recreational activities, protecting park resources and values, and providing outstanding opportunities for solitude or primitive and unconfined recreation, this concept would also seek to better foster visitor understanding of and appreciation for the variety of park resources; the role Gates of the Arctic played in the development of wilderness in the United States; and climate change. In addition, this alternative would bring the general management plan for the park up to current NPS planning standards through the use of zoning and indicators and standards for wilderness character to guide management. As with all alternatives, opportunities for subsistence uses by federally qualified local and rural residents would continue.
	Visitor services and park management and operations would occur at similar levels as today, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs. To fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation, visitor services and park operations and management would be conducted in a focused manner that minimizes the imprint of contemporary humans.	Visitor services and park management and operations would occur at similar levels as today, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs. To fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation, visitor services and park operations and management would be conducted in a focused manner that minimizes the imprint of contemporary humans.	Visitor services and park management and operations, including field activities (e.g., scientific research, monitoring, and ranger operations), education, and interpretive programs, would occur at increased levels compared to today to further the intent of this alternative. However, as with all alternatives, visitor services and park operations and management would be conducted in a focused manner that minimizes the imprint of contemporary humans, so as to fulfill the intent of providing outstanding opportunities for solitude or primitive and unconfined recreation.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Concept Description	As part of this alternative, the National Park Service would not plan to build any new infrastructure and facilities within the park and preserve.	As part of this alternative, the National Park Service would not plan to build any new infrastructure and facilities within the park and preserve.	To further the intent of this alternative, the National Park Service would identify areas with intrinsic qualities that make them well-suited for education outreach and stewardship building, and could involve the public in some field activities. Where appropriate, limited new infrastructure and facilities could be developed to enhance these opportunities or protect resources and visitor experience.
VISITOR USE MANAGEMENT, COMMERCIAL SERVICES, AND SPECIAL USES			
Overview	The National Park Service manages visitor use at Gates of the Arctic to provide for park purposes and wilderness recreational activities by maximizing a visitor's opportunity to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement through the use of the park, without intrusive regulation. Leave No Trace ethics would be promoted to all visitors and partners and compatible visitor behavior would be encouraged. Consumptive subsistence uses would continue to be viewed as part of the naturally functioning ecosystem and not considered a visitor use. Wilderness guides and air taxi operators would be considered commercial services necessary and appropriate for public use and enjoyment of Gates of the Arctic. This determination is made consistent with the requirements of both the Concessions Act and the Wilderness Act (section 4[d][6]).	Same as alternative A.	Same as alternative A, plus, to help build wilderness stewards, a range of commercial providers would support visitor experiences, including elder hostels, CUA holders, and other groups.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Overview	A conditions-based and adaptive strategy would continue to be used to ensure park wilderness opportunities and natural systems remain undiminished into the future. Based on information collected, the National Park Service would respond as necessary to protect park resources and values on a case-by-case basis.	A formal system of indicators and standards for wilderness character would be used to ensure park wilderness opportunities and natural systems remain undiminished into the future.	A formal system of indicators and standards for wilderness character would be used to ensure park wilderness opportunities and natural systems remain undiminished into the future.
Visitor Permits/ Registrations	No formal permit or reservation system would exist under alternative A, except in situations where visitors are seeking to use domestic dogs, horses, and other pack or saddle animals. The permit for pack animals would provide information on when and where they are being used so the areas can be monitored for potential impacts. In addition, there would be a limit of three pack animals per individual or recreational group.		
	The National Park Service would continue to encourage all visitors (guided or unguided) to complete voluntary registration forms for the purpose of giving and receiving information on visitor uses. For those visitors that choose to register at one of the ranger stations, information would be provided on Leave No Trace ethics, safety considerations, group size limits, private property considerations, and subsistence uses. Information provided voluntarily by visitors (e.g., planned travel routes, length of stay, method of access/travel, and planned activities) would be collected to provide insight into visitor use levels and trends, and for use in case of potential emergencies. In addition, commercial use authorizations would be required to submit reports that provide similar information for the same purposes.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Visitor Permits/ Registrations	The park would also continue to offer assistance in meeting food storage requirements for visitors to the park, e.g., the current opportunity to check out bear barrels at no cost.	Same as alternative A.	Same as alternative A. In addition, to help foster visitor appreciation of park resources and values, this alternative would require that all visitors—guided or unguided—stop at a ranger station or other information facility for an orientation on Leave No Trace ethics, safety considerations, group-size limits, private property considerations, and subsistence uses. A Guardian of the Gates program would be pursued that would provide incentives for commercial use authorizations that regularly operate in the park and communicate actively with the National Park Service. Such incentives would include conducting their own orientations, Leave No Trace programs, and providing their own bear barrels.
All Commercial and Guided Operations	All guides would be required to bring visitors to one of the ranger stations to receive an orientation from park staff, while air taxi operators would be required to encourage visitors to attend the same orientation.	Same as alternative A.	Same as alternatives except that commercial operators and guides certified under the Guardian of the Gates program would not be required to bring visitors to one of the ranger stations.
	All guides and air taxi operators with valid commercial licenses can apply to operate in the park, with a preference being given to directly affected Native corporations and local residents (pursuant to ANILCA section 1307); however, fixed facilities in support of these operations are not consistent with the purpose of maintaining the wild and undeveloped character of the area, and the few remaining cabins still standing may only be used by commercial guides on an emergency basis). In addition to the necessary legal qualifications for operating a business in a park area (i.e., business license, FAA certification, insurance), guides and air taxi operators would be required to submit advertising literature for review, and collect statistical information (e.g., size of parties, destinations in the park, length of stay).	Same as alternative A.	Same as alternative A, plus to help build wilderness stewards, a range of commercial providers would support visitor experience, including elder hostels, CUA holders, and other groups.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Commercial Aircraft Operations (including transporters)	Air taxi operators would continue to provide most access for recreational visitors to Gates of the Arctic. In addition, the National Park Service would continue to work with air taxi operators to develop and implement guidelines to avoid visitor or subsistence conflicts and concentrations of use. Should the need arise to allocate or distribute use, the approach would be developed in coordination with air taxis and pilots.	Same as alternative A.	Same as alternative A.
	The National Park Service would continue to work with the Federal Aviation Administration (with respect to a 1984 interagency agreement) to mitigate adverse effects of overflights. Advisories for pilots to stay 2,000 feet above ground level to avoid impacts to wildlife and subsistence and recreational users would continue, as would recommendations that aircraft not be flown directly over major river drainages, whenever possible, especially during periods of high recreational use, subsistence use, and caribou migrations, nor over occupied dwellings and structures. These flight advisories would continue to be stipulations for all commercial use authorizations and concession permits.	Same as alternative A.	Same as alternative A.
Guided Recreational Activities	**Recreational Trips (float trips, backpacking)** Currently, most recreational trips in Gates of the Arctic involve floating one of the rivers in the park, or backpacking. The National Park Service would continue to discourage highly structured, repetitive trip packages, and would encourage guides to provide a truly unique experience that fits their clients' choice of what they want to see and do. Guides would be provided with information and resources for successful trip planning, but specific route planning would not be addressed (see discussion of education and interpretation).	**Recreational Trips (float trips, backpacking)** Same as alternative A.	**Recreational Trips (float trips, backpacking)** Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Guided Recreational Activities	Requirements for group sizes for recreational backpacking and river trips would continue as follows: ▪ maximum of 10 people (including the guide(s)) for backpacking (the superintendent can be petitioned for an increase to 10) ▪ maximum of 10 people (including the guide(s)) for river trips	Same as alternative A.	Same as alternative A.
	Other miscellaneous commercial services and uses that may not occur today could be of interest in the future, such as guided climbing, guided fishing, and guided hiking. As requests for new types of commercial activities are submitted, the park would review them on a case-by-case basis to determine if they are necessary and appropriate wilderness recreational activities, and how the activity would benefit the public and help protect resources.	Same as alternative A.	Same as alternative A.
Guided Recreational Activities	**Sport Hunting** Although there is only one guided hunting area currently in use in the Itkillik Preserve (the Kobuk Preserve has not had a guide request in recent years), the National Park Service would continue to recognize the two state-assigned guided sport hunting areas in the preserve, and would continue to allow two concession operations to provide guide services. No other assignments of lands or exclusive use of structures on lands administered by the National Park Service for the purposes of sport hunting are deemed appropriate.	**Sport Hunting** Same as alternative A.	**Sport Hunting** Same as alternative A.
Indicators and Standards / User Capacity	A conditions-based and adaptive strategy would continue to be used to ensure the park's wilderness opportunities and natural systems remain undiminished into the future. Information on visitor conflicts and/or resource impacts would be collected during routine operations such as ranger patrols and resource management activities.	A formal system of indicators and standards for wilderness character would be monitored to ensure the park's wilderness opportunities and natural systems remain undiminished into the future. Monitoring would be conducted as part of this formal program.	A formal system of indicators and standards for wilderness character would be monitored to ensure the park's wilderness opportunities and natural systems remain undiminished into the future. Monitoring would be conducted as part of this formal program.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Indicators and Standards / User Capacity	Based on information collected, the National Park Service would respond as necessary to protect park resources and values on a case-by-case basis.	Based on information collected, the National Park Service would have a variety of tools that could be used to protect park resources and values, including	Based on information collected, the National Park Service would have a variety of tools that could be used to protect park resources and values, including
	Although current use patterns do not warrant use limitations, should the need arise to allocate or distribute use, the approach would be developed in coordination with air taxis, pilots, and other stakeholders; ultimately, the levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and both opportunities continue to be readily available.	Although current use patterns do not warrant limitations, the indicators and standards developed as part of this formal program would be used to help determine if there is a need to allocate or distribute use to protect park resources and values. If this becomes the case, the approach taken would be developed in coordination with air taxis, pilots, and other stakeholders; ultimately, the levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and both opportunities continue to be readily available.	Although current use patterns do not warrant limitations, the indicators and standards developed as part of this formal program would be used to help determine if there is a need to allocate or distribute use to protect park resources and values. If this becomes the case, the approach taken would be developed in coordination with air taxis, pilots, and other stakeholders; ultimately, the levels of guided versus unguided use would be monitored to assure that a reasonable balance is maintained, and both opportunities continue to be readily available.
Other Misc. Services/Uses	There are some activities, such as commercial filming, which would be guided by policies at the regional level, and would not be addressed further at the park level.	Same as alternative A.	Same as alternative A.
VISITOR FACILITIES			
Overview	To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads or trails, but would honor the transportation right-of-way allowed by ANILCA section 201(4)(d). Facilities (permanent or temporary) for recreational visitor use would not be planned, but the National Park Service may reconsider for the safety, well-being, and health of visitors.	To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads or trails, but would honor the transportation right-of-way allowed by ANILCA section 201(4)(d). Facilities (permanent or temporary) for recreational visitor use would not be planned, but the National Park Service may reconsider for the safety, well-being, and health of visitors.	To promote opportunities to experience solitude, self-reliance, challenge, wilderness discovery, and freedom of movement in the park, the National Park Service would not plan to build new roads, but would honor the transportation right-of-way allowed by ANILCA section 201(4)(d). No trails or permanent facilities would be planned, but the National Park Service may reconsider for resource protection needs, as well as the safety, well-being, health, and enjoyment of visitors. In addition, temporary campsites could be considered in some locations to enhance visitor education and interpretation.
	As allowed by ANILCA section 1306, facilities needed to support visitor services and park operations could be developed outside the park and preserve.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Access Points	There would be no formal or designated access points (e.g., trailheads, entrance stations, etc.) in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along the Dalton Highway. General direction would be provided to visitors about access, but they would determine their point of entry.	There would be no formal or designated access points (e.g., trailheads, entrance stations, etc.) in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along the Dalton Highway. General direction would be provided to visitors about access, but they would determine their point of entry.	No formal or designated access points (e.g., trailheads, entrance stations, etc.) are anticipated in Gates of the Arctic under this alternative, and new access points would not be encouraged. Visitors would continue to access the park via gravel bars, lakes, rivers, and ponds, as well as limited points along the Dalton Highway. General direction would be provided to visitors about access but they would determine their point of entry. However, regularly used informal access points could be formalized in the future if needed to protect resources or visitor experience. Under this alternative, steps could be taken to mitigate impacts to existing access points, and monitoring these sites may be needed to quickly identify invasive species.
Trails	The National Park Service would encourage visitors to find their own routes to promote a sense of freedom and self-discovery.	Same as alternative A.	Same as alternative A.
	Although there are numerous natural (from wildlife migration) and informal paths visitors can follow, there would be no constructed or maintained trails for recreational use under this alternative.	Same as alternative A.	There are numerous natural (from wildlife migration) and informal paths visitors can follow, and the National Park Service would not plan on constructing trails for recreational use under this alternative. However, existing informal paths could be designated or even maintained in the future if needed to protect resources or visitor experience.
Campsites	There would continue to be no designated, maintained campsites in the park under this alternative. The National Park Service would continue to discourage the development of informal campsites, although the use of impacted areas in the vicinity of Arrigetch Peaks would be encouraged to minimize damage to undisturbed sites.	Same as alternative A.	No designated, maintained campsites would be planned under this alternatives; however, some temporary campsites may be used in support of educational programs, and some user-created campsites could be hardened to concentrate use at those areas and protect surrounding resources.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Campsites	To promote Leave No Trace practices and opportunities, recommendations that visitors disperse campsites away from access points and other campers, and recommendations to move to new areas after three nights, would continue. There would also be recommendations for no more than three camping groups around Arrigetch Peaks at any one time.	Same as alternative A.	Same as alternative A.
	Campfires and wood collection would be allowed, although visitors would be encouraged to carry stoves and adequate fuel for their stay. The National Park Service would continue to encourage using dead or downed wood and driftwood on gravel bars and beaches.	Same as alternative A.	Same as alternative A.
Cabins	Those cabins that remain standing in the park would be managed in accordance with a cabin management plan to be developed by the park. Ultimately, structures would be evaluated and future uses would be determined through this separate planning process. Until such a plan is developed: ▪ Those cabins that do not have potential historical significance would not be maintained by the National Park Service, and unclaimed cabins that have adverse effects on park resources or other valid uses may be evaluated for removal. ▪ Unclaimed cabins left standing for emergency situations or intermittent authorized winter activities (subsistence or village-to-village travel) would remain. ▪ Maintenance by others for cabins that are necessary for emergency use or intermitted authorized winter activities may be permitted by the park superintendent, but no possessory interest or exclusive use rights would be acquired.	Same as alternative A.	Same as alternative A, plus as part of the cabin management planning process, the National Park Service would consider the potential use of cabins in the vicinity of regularly used access points to enhance educational outreach.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Information Facilities	No backcountry or in-park visitor facilities would be provided under this alternative; however, visitor information facilities would continue to be operated in Fairbanks (includes park headquarters and Morris Thompson Cultural and Visitors Center, both of which are operated year-round), Bettles (includes visitor contact station, which is open year-round), Coldfoot (includes the Arctic Interagency Visitor Center which is open seasonally), and Anaktuvuk Pass (includes NPS ranger station which is open seasonally). For more information on the facilities and services at these locations, please see the discussion of administrative facilities and access, as well as education and interpretation.	Same as alternative A.	No backcountry or in-park visitor facilities are anticipated under this alternative, and visitor information facilities would continue to be operated in Fairbanks (includes park headquarters and Morris Thompson Cultural and Visitors Center, both of which are operated year-round), Bettles (includes visitor contact station, which is open year-round), Coldfoot (includes the Arctic Interagency Visitor Center, which is open seasonally), and Anaktuvuk Pass (includes NPS ranger station, which is open seasonally). For more information on the facilities and services at these locations, please see the discussion of administrative facilities and access, as well as education and interpretation. If a surface transportation route is developed as allowed by ANILCA section 201(4)(d), the National Park Service could further the intent of this alternative by evaluating a new facility (i.e., ranger station) along the route that would provide a new educational and interpretive opportunity.
Caches and Camps	Commercial operators would not be allowed to establish permanent caches in the park or preserve, except under extraordinary circumstances and with the written permission of the park superintendent. Although generally discouraged, commercial operators and visitors may be allowed to establish temporary caches of food and fuel with the written permission of the park superintendent. Permanent camps would not be permitted in the park and preserve.	Same as alternative A.	Same as alternative A.
Temporary Facilities (Preserve)	Visitors may not construct new temporary facilities (including tent platforms) in the park. Such facilities would only be considered in the preserve, as allowed by ANILCA (i.e., in support of sportfishing and hunting). These stipulations would not apply to temporary facilities in support of subsistence use.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
ADMINISTRATIVE ACCESS AND FACILITIES			
Overview	NPS staff would continue to access the park for all activities identified in ANILCA, including (but not limited to) management of subsistence, inventory and monitoring of natural and cultural resources, scientific research, management of recreational use (including sport hunting), and reclamation of disturbed areas. Park management activities would be kept from unnecessarily interfering with valid recreation, subsistence, and private property uses. NPS staff would strive to maintain a low profile in the park to minimize intrusions on people's wilderness experience. The focus of backcountry operations would be on monitoring and protecting resources, monitoring use, and responding to emergencies. Operations would continue to be evaluated using an interdisciplinary review, including completion of a minimum requirements decision guide, that takes into account existing laws, regulations, and policies, and methods that best balance the need to effectively accomplish administrative activities and minimize disruptions to resources and visitors.	As described in alternative A, NPS staff would continue to access the park for all activities identified in ANILCA and avoid unnecessarily interfering with valid recreation, subsistence, and private property uses. In addition, the focus of backcountry operations would continue to be on monitoring and protecting resources, monitoring use, and responding to emergencies.	As described in alternative A, NPS staff would continue to access the park for all activities identified in ANILCA and avoid unnecessarily interfering with valid recreation, subsistence, and private property uses. However, while the focus of backcountry operations would be monitoring and protecting resources, monitoring use, and responding to emergencies, this alternatives would expand backcountry operations to include educational activities.
	Although none are anticipated, any new structures and facilities to support park operations would generally be built outside of the park and preserve. However, the National Park Service may reconsider if a surface transportation route is developed as allowed by ANILCA section 201(4)(d).	Same as in alternative A. In addition, in this alternative National Park Service would further attempt to limit its interaction with and impact on visitors during patrols, research, overflights, etc., and would exercise restraint in NPS administrative activities to further support the emphasis on wilderness character and visitor wilderness experience.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Overview	Existing facilities outside park boundaries would be maintained to support operational and administrative park needs. Sustainability of park operations and facilities would be a high priority in management decisions, with an emphasis on causing the least impact on wilderness, natural and cultural resources as possible. If the National Park Service identifies the need to develop new facilities to meet operational requirements, then it would strive to develop "green" facilities and the least infrastructure necessary.	Although none are anticipated, any new structures and facilities to support park operations would be built outside the park and preserve. Same as alternative A.	Although none are planned at this time, new structures and facilities to support operations would generally be built outside the park. However, the National Park Service may reconsider If a state surface transportation route is developed as allowed by ANILCA section 201(4)(d). Same as alternative A.
Transportation and Access	NPS staff would strive to walk, snowshoe, ski, float, or boat within the park and preserve, but all modes of access and transportation within the park would be determined through a stringent interdisciplinary review and results of a wilderness minimum requirements analysis.	Same as alternative A.	Same as alternative A.
	When determined to be the minimum tools for accessing and getting around the park other methods could include the use of dog teams, snowmachines (generally used only for village and homesite travel, or as otherwise allowed by ANILCA), fixed-wing aircraft (generally used to place staff in the field, to conduct research and law enforcement, and flown on routes and altitudes that minimize disruption to visitors and wildlife). Lower level flights and helicopters would be used in emergencies or when they are the minimum tool necessary to accomplish management activities.	Same as alternative A.	Same as alternative A.
Facilities—Inside the Park	Seasonal or base camps would not be used as a standard practice, and park staff would continue to use a stringent compliance process to evaluate proposals to build structures or facilities in the park.	Same as alternative A.	Same as alternative A.
	If a surface transportation route is developed as allowed by ANILCA section 201(4)(d), the National Park Service could consider a new administrative facility (i.e., ranger station) along the route.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Facilities—Outside the Park	The intention of the National Park Service would be to not change existing NPS administrative facilities outside the park, including at Anaktuvuk Pass, Dahl Creek, Bettles, and Fairbanks.	Same as alternative A.	Same as alternative A.
	Anaktuvuk Pass There would be no changes to the number and types of facilities at Anaktuvuk Pass, which includes one residence that doubles as office space, a bunkhouse that sleeps four, a storage shed, and a wind turbine generator.	Same as alternative A.	Same as alternative A.
	Dahl Creek There would be no changes to the number and types of facilities at Dahl Creek, which includes two bunkhouses (leased) (both sleep eight), one of which is being used as a storage shed, a fuel shed, and a fuel storage and distribution system.	Same as alternative A.	Same as alternative A.
	Coldfoot Facilities currently in Coldfoot include the Arctic Interagency Visitor Center, which is managed by the Bureau of Land Management and operationally supported by the National Park Service. There is also an old ranger station (now being used as offices and storage facility and the parking lot doubles as a location for temporary, seasonal housing) and associated pit privy. The National Park Service owns a 9-acre parcel of land that includes a building used for storage and the U.S. Fish and Wildlife Service has an office there. There are other structures in the area owned by partner agencies who share the space with the National Park Service. In addition, there are two single-family homes at Marion Creek that will be studied for relocation to Coldfoot (a power generation shed, a water and wastewater system, and a weather port used for storage are also located at Marion Creek).	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Facilities—Outside the Park	**Bettles** Facilities include four sheds and support structures for outside storage, and a garage and visitor center shared with the U.S. Fish and Wildlife Service; six housing units for permanent and seasonal housing; three well and four septic system sheds, a pit privy; tool shed; a bunkhouse jointly operated with U.S. Fish and Wildlife Service; a mess hall used for storage; a recreation hall for staff; a fire cache; and a backcountry cache. The National Park Service uses space at a USFWS hangar and rents space at the float pond in Bettles, where there is an emergency cache. All facility needs would be coordinated with U.S. Fish and Wildlife Service.	Same as alternative A.	Same as alternative A.
	Fairbanks Facilities include one office building (leased) and two sheds. The Fairbanks Administrative Center has evolved to include staff from Denali, Yukon-Charley, Wrangell's, the Alaska Region, the two Inventory and Monitoring Networks (Central Alaska and Arctic Networks) and Gates of the Arctic staff. It also includes a museum collection and archival repository. Hanger space is leased at the airport. The National Park Service also leases a part of the Morris Thompson Cultural and Visitors Center where the Alaska Public Lands Information Center (APLIC) is located. The APLIC staff would be managed as a part of the National Park Service.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
SCIENTIFIC ACTIVITIES AND RESOURCE MANAGEMENT			
Overview	The park would continue robust research and management programs in an ecosystem context and to understand the long-term human use of the area. Current programs related to natural resources, cultural resources, subsistence, and fire would continue. As one of the appropriate and necessary activities for making sound management decisions for the park and preserve to maintain the wild character of the area, and protect park resources and values, these programs would be based on direction in existing planning documents (e.g., GMP, resource management plans, etc.). Adaptive research and resource management programs would continue to be developed by a wide breadth and depth of in-house staff and expertise, and would be supplemented by outside entities when needed.	Same as alternative A.	Same as alternative A; however, under this alternative, the park would seek opportunities to serve as an outdoor laboratory, involve the public in field activities, make a strong connection between these programs and the education focus of this alternative.
	Research or resource management activities would be subject to review by an integrated compliance review team that looks at all for compatibility with ANILCA section 810 for subsistence activities, NHPA section 106, and the Wilderness Act section 4(c). The integrated compliance review would ensure that the goals of these activities are consistent with park goals.	Same as alternative A.	Same as alternative A.
	The National Park Service would continue to pursue opportunities for climate change research within the park. Studies would be conducted in ways that minimize effects on wilderness character, resources, and visitors, and would occur in areas that receive less use by recreational and subsistence users to minimize human effects on the research, and to minimize effects on the users.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Research and Resource Management	NPS research would continue to be conducted for the purposes of advancing natural, cultural, and subsistence resource management objectives at Gates of the Arctic. Although baseline data continues to be collected in some areas, research and resource management efforts would continue to provide data on status, trends, processes, and mechanisms in an ecosystem management context. In addition to research conducted on vital signs identified in conjunction with the NPS Arctic Inventory and Monitoring Network, the park would continue to identify pressing research needs in the western Brooks Range.	Same as alternative A.	Same as alternative A, plus, under this alternative, the National Park Service would also actively pursue research opportunities for studying the effects of climate change on park resources and park visitors. This would include identifying areas within the park that would be suitable for studying the effects, and would work with researchers and other partners to further these efforts. In addition, under this alternative, there could be public participation in some field activities with intrinsic qualities that make them well-suited for education outreach and stewardship building. Should visitors encounter researchers or resource management staff in the park, they would be encouraged to share a message about their work with visitors. In addition, researchers and resource management staff would work closely with education and interpretation staff to communicate the purpose and results of their programs to the broader public.
	The National Park Service would strive to conduct all priority research using in-house staff and expertise. If NPS staff or their partners (e.g., contractors) cannot conduct the research, the park would seek agreements with or assistance from other federal agencies, state agencies, universities, and other organizations (e.g., CESUs, research study units) to conduct or cooperatively supplement research efforts. The National Park Service would also continue to consult with appropriate state and federal agencies on research that is conducted.	Same as alternative A.	Same as alternative A.
	Outside research requests (i.e., research not directed by the National Park Service) would be evaluated on a case-by-case basis. This includes not only the compliance review noted previously, but an assessment of whether the research fits and complements the mission, purposes, and policies of the National Park Service, including wilderness character of the park and preserve.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Research and Resource Management (continued)	Research at the park would feed adaptive resource management programs that respond to changes in resource conditions and recreational use. The National Park Service would strive to maintain the natural abundance, behavior, diversity, and ecological integrity of native species as part of their ecosystems. Management would focus on human uses and activities that affect populations and their habitats rather than direct management of resources. The only direct management of resources would be to restore natural conditions to damaged areas in response to issues that arise on a case-by-case basis (e.g., cleanup activities, removal of invasives). The park would continue to respond aggressively using the minimum tools necessary to restore, rehabilitate, and mitigate impacts. Although the National Park Service and State of Alaska cooperatively manage hunting, fishing, and trapping in the park and preserve, the goal would continue to be the support of natural ecosystem functions, not the improvement or enhancement of resources for ongoing consumptive uses.	Same as alternative A.	Same as alternative A.
	With regard to fire management specifically, the National Park Service would continue to work with AFS/BLM and Alaska Department of Forestry through the Interagency Fire Management Plan and USDI policies. Fuels management, aviation management, and protection of values at risk would continue to be a priority. The National Park Service would continue to partner with local communities for fire education, and would continue to seek information from internal research and experts on fire management practices and resource protection.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
INTERPRETATION AND EDUCATION			
Overview	The growing interpretation and education program at Gates of the Arctic strives to facilitate connections between the public and park resources and to foster understanding and stewardship of the park and the wilderness character it embodies. Many people value the park even though they may never visit. The park would strive to reach out to this larger audience and beyond, and would continue to work collaboratively with staff from Yukon-Charley Rivers National Preserve and Fairbanks Alaska Public Lands Information Center, as part of a larger team.	Same as alternative A.	Same as alternative A, plus, as this alternative would seek to better foster visitor understanding of and appreciation for the variety of park resources and the role Gates of the Arctic played in the development of wilderness in the United States, interpretation and education activities would be expanded.
Outreach to Visitors at Park Facilities	The National Park Service would continue to offer formal and informal interpretive programs at both the Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. In addition, visitors would have access to exhibits, movies, printed materials, and other educational opportunities. Visitors would be provided with information and resources for successful trip planning. However, specific route planning would not be addressed because self-discovery is a large part of the park experience, and because the repeated use of an area can have a negative impact on fragile arctic groundcover. The National Park Service would continue to partner with the Fairbanks Alaska Public Lands Information Center to offer backcountry orientations, exhibits, and other formal and informal interpretive opportunities.	Same as alternative A.	Same as alternative A, plus, under this alternative, the National Park Service would also work closely with elders and leaders of Anaktuvuk Pass, including the Anaktuvuk Pass Museum, and Simon Paneak Memorial Museum to provide more education and interpretation to visitors on cultural understanding, appropriate behavior, and camping locations while in the village.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Education Outreach	NPS staff would continue to perform education programs and outreach in the resident zone communities of Gates, in Fairbanks schools, and in schools throughout the country through the website and by providing information to student inquiries. Curriculum based kits would be available for check-out by teachers and others. Education and interpretation staff would partner with the resource division to involve students in research in the park and with the Fairbanks Alaska Public Lands Information Center to provide education programs and field trip opportunities.	Same as alternative A.	Same as alternative A. In addition, regularly used access points could be places that provide additional opportunities for educational outreach within the park. In the future, depending on the development of a surface access corridor allowed by ANILCA section 201(4)(d), additional educational and outreach opportunities may be pursued in conjunction with any new facilities (e.g., a new ranger station) or through other means (e.g., limited roadside informational panels).
Website and Multimedia	Since the park is remote, the website would continue to play a vital role in reaching out to the vast majority of the population that will never have the opportunity to visit the park. The park would continue to make use of Twitter and develop podcasts. In addition, an award-winning movie about the park and a LNT movie would continue to provide information to the public.	Same as alternative A.	Same as alternative A, plus, under this alternative, reports from research and resource management activities could also be made available through the website.
Miscellaneous	The park staff would continue to seek opportunities and provides programs, such as the Artist in Residence program and the Far North Conservation Film Festival, that give visibility to the park, foster greater understanding of park resources, and build a conservation ethic and connection to wilderness.	Same as alternative A.	Same as alternative A.
RANGER LAW ENFORCEMENT / RESOURCE AND VISITOR PROTECTION			
Overview	The park staff would continue to seek opportunities and provide programs, such as the Artist in Residence program and the Far North Conservation Film Festival, that give visibility to the park, foster greater understanding of park resources, and build a conservation ethic and connection to wilderness.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Resource Protection	Ranger staff at Gates of the Arctic would continue activities aimed at wilderness preservation, as well as natural, cultural, and historic resource protection. Staff would monitor visitor use impacts so as to prevent resource impairment, and would identify, document, and mitigate threats to park resources. In addition, ranger activities would protect the subsistence priority at the park.	Same as alternative A.	Same as alternative A.
Visitor Protection	Search and rescue and emergency medical service programs would continue to provide for protection of visitor health and safety. Backcountry orientations would be geared toward enhanced safety and reducing accidents. Rangers would provide initial emergency and incident response regarding the health and safety of visitors. A strong emphasis would be placed on being proactive with visitors with extensive pre-trip planning and orientations. Boating safety and environmental travel considerations would continue to be a focus.	Same as alternative A.	Same as alternative A.
Visitor Experience	Ranger operations would be conducted to maintain wilderness character at a high-quality level and to provide visitors the opportunity for a world class experience. Ranger patrols would strive to maintain a high degree of wilderness character in park areas that receive increased levels of use. Rangers would attempt to mitigate crowding, conflicting uses, and coordinate administrative functions so that visitors have the greatest opportunity for a world class wilderness experience.	Same as alternative A.	Same as alternative A.
Law Enforcement	Law enforcement activities are focused on compliance with and enforcement of applicable NPS, federal, state, and local regulations for the protection of resources on park lands. Applicable state hunting regulations would be enforced on preserve lands. Park specific regulations would be enforced on all park lands, and limited state law enforcement would occur by qualified rangers on non-NPS owned lands within and adjacent to the park and preserve.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Stewardship	Park rangers are often the NPS representatives that engage visitors before, during, and after their park experience and are often the only point of contact for an array of user groups that interact with park resources. Park users would continue to receive a stalwart message of the important and special contributions parks make to current and future generations. As such, ranger activities would continue to foster environmental stewardship, Leave No Trace ethics, and wilderness appreciation among park visitors and stakeholders.	Same as alternative A.	Same as alternative A. Additionally, interpretive rangers would visit regular access points to further park goals related to education and interpretation under this alternative. Law enforcement rangers would also be encouraged to take interpretive training and share information with visitors they encounter on routine patrols.
OTHER MANAGEMENT ACTIVITIES			
Overview	In addition to the management activities described previously, the GMP Amendment would provide guidance on other management activities, such as those related to wilderness proposals, land protection priorities, the Dalton Highway corridor (although the National Park Service does not manage lands within the Dalton Highway corridor, it does provide access to the eastern part of the park), and other partnerships.		
Land Protection Priorities	As willing sellers are identified, large and small tracts and Native allotments within the park may be acquired, or where appropriate, exchanged, in the interest of protecting park purposes. No changes to the legislated boundary of the park and preserve would be pursued.	Same as alternative A.	Same as alternative A.
	The National Park Service will participate in any planning effort for the region. In particular, cooperative planning will be sought on lands along the Dalton Highway, including the Ambler Mining District Access Project.	Same as alternative A.	Same as alternative A.
Dalton Highway Corridor	Visitor services along the Dalton Highway corridor would continue to be managed as it is today, with a focus on information and education as a key tool for management. The Arctic Interagency Visitor Center would be integral to this. The National Park Service would work with sister agencies including the BLM that have direct management responsibility for lands within the corridor, and would stay informed regarding any changes in management, working cooperatively on common issues.	Same as alternative A.	Same as alternative A.

TABLE 5. ALTERNATIVES SUMMARY

	Alternative A	Alternative B	Alternative C
Dalton Highway Corridor cont'd	Under the no-action alternative, the eastern part of the park and preserve would continue to be managed like the rest of the unit to ensure that outstanding wilderness opportunities and natural systems remain undiminished. In addition, the National Park Service would continue to opportunistically monitor access along the Dalton, and enforce existing regulations.	Under alternative B, the eastern part of the park and preserve would be managed in accordance with the desired conditions of the management zones applied under this alternative. In addition, the National Park Service would actively monitor access along the Dalton Highway, and enforce existing regulations when appropriate, to ensure this area meets desired conditions and that wilderness character, and visitor wilderness experiences, are protected.	Under alternative C, the eastern part of the park and preserve would be managed in accordance with the desired conditions of the management zones applied under this alternative. In addition, the National Park Service would actively monitor access along the Dalton Highway, and enforce existing regulations when appropriate, to ensure this area meets desired conditions and wilderness character, and visitors' wilderness experiences, are protected. Additionally, under this alternative, the park would seek to coordinate with tour providers and transporters on the Dalton Highway to increase educational opportunities and help build wilderness stewards (i.e., provide materials and/or interpretative guidance to the operators).
Partnerships	Prescriptive park management would require a variety of in-state and out-of-state partners that value the mission and purposes for which the park was established. As a result, the National Park Service would continue to seek and nurture mutually benefitting partnerships with villages, the state, tribes, federal agencies, Native corporations, the North Slope Borough, educational institutions, and other stakeholders to help fulfill its mission at Gates of the Arctic. In addition, the park would pursue partnerships with such stakeholders that extend beyond the border of the park. As part of this, the National Park Service would continue to support the collection of park and environs documentary and oral history in cooperation with government, Native, and private organizations. In addition, the National Park Service and State of Alaska would continue to cooperatively manage hunting, fishing, and trapping in the park and preserve.	Same as alternative A.	Same as alternative A.

TABLE 6. IMPACTS SUMMARY TABLE

Impact Topic	Alternative A	Alternative B	Alternative C
Natural Resources (vegetation, wildlife, and water quality)	Alternative A would result in continuing long-term, minor, adverse impacts to vegetation and wildlife, primarily due to noise and the presence of people in a few relatively small localized areas—particularly popular destinations like the Arrigetch Peaks and Walker Lake areas.	Alternative B would result in long-term, minor, adverse impacts to vegetation and wildlife. These impacts would be primarily due to noise from aircraft and the presence of people in a few relatively small localized areas, mainly popular destinations like the Arrigetch Peaks and Walker Lake areas. However, alternative B also would benefit vegetation and wildlife from actions such as the application and monitoring of wilderness character measures and standards.	Alternative C would result in long-term, minor, adverse impacts to vegetation and wildlife. These impacts would be primarily due to noise from aircraft and the presence of people in a few relatively small localized areas, mainly popular destinations like the Arrigetch Peaks and Walker Lake areas. However, alternative C also would benefit vegetation and wildlife from actions such as the application and monitoring of wilderness character measures and standards, and increased education efforts,
Wilderness Character	Alternative A would result in continuing long-term, minor, adverse impacts to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in popular use areas, such as Walker Lake, Arrigetch Peaks, and the park's designated wild and scenic rivers. The solitude and natural, undeveloped qualities would all be slightly degraded in these areas.	Alternative B would result in long-term, minor, adverse impacts to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in a few popular use areas such as Walker Lake, Arrigetch Peaks, and the park's designated wild and scenic rivers. The solitude and natural, undeveloped qualities would all be slightly degraded in these areas. However, the majority of the wilderness character in Gates of the Arctic National Park would not be affected by alternative B. Alternative B would improve wilderness character due to monitoring wilderness character measures and standards.	Alternative C would result in long-term, minor, adverse impacts to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in a few popular use areas such as Walker Lake, Arrigetch Peaks, and the park's designated wild and scenic rivers. The solitude and natural, undeveloped qualities would all be slightly degraded in these areas. However, the majority of wilderness character in Gates of the Arctic National Park would not be affected by alternative C. Alternative C would improve wilderness character (in perpetuity), due to increased education efforts to inform visitors about protecting wilderness character and minimizing their impacts, and the establishment and monitoring of wilderness character measures and standards.
Cultural Resources (archeological resources, historic structures, and ethnographic resources)	Alternative A would result in continuing long-term, minor, beneficial impacts to cultural resources due to the continued inventorying, documentation, monitoring, preservation, and protection efforts of park staff.	Alternative B would result in long-term, minor, beneficial impacts to cultural resources due to the continued inventorying, documentation, monitoring, preservation, and protection efforts of park staff.	Alternative C would result in long-term, minor, beneficial impacts to cultural resources due to the continued inventorying, documentation, monitoring, preservation, and protection efforts of park staff. Additional research efforts to study the effects of climate change on cultural resources would also take place, along with greater public involvement in the preservation of these resources.
Visitor Use and Experience	Alternative A would result in continuing long-term, minor, beneficial impacts to visitor use and experience due to the provision of opportunities for high-quality recreational wilderness experiences.	Alternative B would result in long-term, minor, beneficial impacts to visitor use and experience due to the provision of opportunities for high-quality recreational wilderness experiences.	Alternative C would result in long-term, minor, beneficial impacts to visitor use and experience due to the provision of opportunities for high-quality recreational wilderness experiences. This alternative would also provide visitors with a better opportunity to understand the significance and history of the park through increased educational opportunities and interpretation. Trails and campsites in certain high-use areas may be formalized and/or hardened under alternative C, to preserve the natural resources and visitor experience in the park.
Subsistence Use	Alternative A would result in continuing long-term, minor, beneficial impacts to opportunities for subsistence use in the park. These effects would primarily result from maintaining the wild and undeveloped character of the park, no new development, and research and operations that continue to be conducted to ensure the protection and continuation of subsistence opportunities.	Alternative B would result in long-term, minor, beneficial impacts to subsistence opportunities in the park. These effects would primarily result from instituting zoning, indicators, and standards, and research and operations that continue to be conducted to ensure the continuation of subsistence opportunities. Other benefits include maintaining the wild and undeveloped character of the park through no new development and appropriate resource management to ensure subsistence opportunities.	Alternative C would result in long-term, minor, beneficial impacts to subsistence opportunities in the park. These effects would primarily result from an enhanced focus on education and interpretation that includes information about the importance of subsistence activities to rural residents and ways in which many of Alaska's national parks differ from those in the rest of the United States, as well as instituting zoning and indicators and standards.
Socioeconomics	Alternative A would result in continuing long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.	Alternative B would result in long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.	Alternative C would result in long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.
Park Operations	Alternative A would result in continuing long-term, localized, minor, adverse impacts on park operations due to the redistribution of work among employees when staffing levels do not meet the current needs.	Alternative B would result in long-term, localized, minor, adverse impacts on park operations due to the redistribution of work among employees when staffing levels do not meet the current needs. Alternative B would, however, include a slight increase in staffing by two FTEs.	Alternative C would result in long-term, localized, minor, adverse impacts on park operations due to the redistribution of work among employees when staffing levels do not meet the current needs. Alternative C would, however, include an substantial increase in staffing by six FTEs and six seasonal employees (eight FTE total).

Chapter 3

Affected Environment

INTRODUCTION

The "Affected Environment" chapter describes the existing environment and the current condition of those resources that would be affected by implementing the actions considered in this GMP Amendment. These resources include natural resources, wilderness character, cultural resources, visitor use and experience, subsistence, socioeconomics, and park operations. The rationale for considering or dismissing these and other impact topics is explained in "Chapter One: Introduction."

NATURAL RESOURCES

Despite the harsh Arctic climate and short growing season, Gates of the Arctic National Park and Preserve supports a great variety of habitats in the boreal forest and arctic regions of the central Brooks Range. The healthy, natural ecosystems in Gates of the Arctic have also supported human activities for thousands of years. The interaction between the natural environment and the people is still evident.

VEGETATION

Two major vegetation associations occur in Gates of the Arctic—the taiga (boreal forest), and tundra. Alpine and moist tundra are the most extensive vegetation types. The taiga reaches its northernmost limit within the park along the southern flanks of the Brooks Range. In 2006, a total of approximately 630 vascular plant species were recorded as being present in the park—about 474 lichen species also have been identified.

Alpine tundra communities occur in mountainous areas and along well-drained rocky ridges. The soils tend to be coarse, rocky, and dry. A community of low, mat-forming heather vegetation is characteristic of much of these areas. Exposed outcrops of talus sustain sparse islands of cushion plants, such as moss campion and saxifrage, interspersed with lichens. The low-growth forms of these plants protect them from snow and sand abrasion in the windswept environment. Other important plants include dryas, willows, heather (*Ericaceae*), and reindeer lichens. Grasses, sedges, and herbs are also present. (See appendix D species table for scientific names of species mentioned in this chapter.)

Moist tundra is found in the foothills and in pockets of moderately drained soils on hillsides and along river valleys. Cottongrass tussocks, 6–10 inches high, dominate the landscape. Mosses and lichens grow in the moist channels between the tussocks. Other plants include grasses, small shrubs (dwarf birch, willow, and Labrador tea), and herbs.

The taiga, or boreal forest, reaches its northern limit along the river valleys of the south slope of the Brooks Range. The extensive forest cover found south of the mountains thins into scattered stands of spruce mixed with hardwoods that follow the river valleys north into the mountains to an elevation of about 2,100 feet. White spruce, usually in association with scattered birch or aspen, is commonly found on moderate south-facing slopes. Low shrubs, such as bearberry, Labrador tea, blueberry, and cranberry, are common, as are willows. Lichens and mosses cover the forest floor along with a variety of herbs. Along rivers such as the Kobuk, tree communities range from pure stands of white spruce to mixed stands of white spruce and balsam poplar. On the north-facing slopes and on poorly drained lowlands, black spruce is dominant, scattered across the landscape. These trees grow slowly with stunted growth forms; it is not uncommon to find a 2-inch-diameter tree that is 100 years old. The understory in these areas is dominated by spongy moss and low vegetation. The forests within park boundaries are not considered commercially valuable. Trees are occasionally harvested under permit for house logs, and local residents cut firewood.

Closer to treeline, the forest thins out with spruces scattered among a variety of shrub communities. In one type of shrub

thicket, birch, willows, and alder may be extremely dense or open and interspersed with reindeer lichens, low heath-type shrubs, or patches of alpine tundra. Alder is usually found on moister sites and birch on drier sites. Such shrub thickets typically occur up to 3,000 feet in elevation. A second type of shrub thicket association occurs along the alluvial plain and gravel bars of braided or meandering streams. Willows and alders dominate in this community, and are associated with dwarf fireweed, horsetails, prickly rose, and other herbs and shrubs.

FIRE

An important component of vegetation community processes is the relationship between vegetation and fire. Fires ignited by lightning commonly occur in the park. Wildfire plays an important role in maintaining a variety of habitats within the park. Successional plant communities, which are beneficial for wildlife habitat and diversity, are induced by fire. Fire also plays a role in recycling nutrients. The successional stages that follow a fire vary, depending primarily on topography, seed source, severity of the burn, and moisture. Boreal forest recovery following fire varies with the severity of the burn. Generally, after moderate to high severity fires, forest successional stages follow a pattern of initial dominance by pioneer species (e.g., fireweed, willow, and alder); followed by a deciduous tree community (e.g., quaking aspen, paper birch, and balsam poplar); and eventually white or black spruce dominates the forest overstory. As the spruce overstory canopy develops, feather mosses and lichens re-establish. Climax communities of spruce trees with lichen and feathermoss ground cover may require 100 to 150 years to fully re-establish.

Fire can exert strong landscape-scale effects on vegetation composition and distribution, permafrost dynamics, nutrient cycling, carbon gain or loss, and primary productivity. Wildland fire is one of the largest natural disturbance processes in the boreal and tundra ecosystems. Fire influences not only vegetation succession and distribution, but also wildlife habitat, soil parameters, hydrology, water quality, and air quality. Current and future climatic changes are expected to impact the occurrence, extent, and severity of fires in the park, leading to cascading effects on other ecosystem processes.

NONNATIVE PLANT SPECIES

During the period 2003–2008, a cursory survey of invasive species was conducted by the NPS Alaska Exotic Plant Management Team. The team surveyed 638 acres including higher visitation areas along the Noatak River and near Dalton Highway south of the Itkillik Unit. The team found no invasive species within Gates of the Arctic. Common dandelion was previously found along the south shore of Walker Lake during the 2002 field season (McKee 2002). In general, the harsh climate, roadless and wild character, and low visitation are considered barriers to invasive species becoming established in the park. This lack of invasive species contributes to the high ecological integrity and resilience of the native plant communities. However, possible future increases in visitation and recent warming trends may support introduction and establishment of invasive plant species.

VEGETATION AND AIRBORNE POLLUTANTS

Another potential threat to vegetation in Gates of the Arctic is airborne contaminants, which are deposited in the park in both wet and dry forms. Sources of these pollutants range from regional industrial

and mining activities, including those at Red Dog Mine north of neighboring Noatak National Preserve, to sources across the Pacific Ocean and across the Arctic. Wet and dry deposition is currently being monitored through the NPS inventory and monitoring program, which is sampling vegetation for bioaccumulation of toxic heavy metals and other contaminants. Nitrogen, sulfur, heavy metals, semi-volatile organic pollutants, and persistent organic pollutants are of greatest interest to park managers. Bioaccumulation of heavy metals, including mercury and organic toxins, is another key concern because of the impact on food chain health and subsistence hunting and fishing. Increases in deposition in the park are likely in the future due to industrial practices in Asia and other regional sources; thus, wet and dry deposition and its impact on park vegetation communities will continue to be of great concern to park managers.

FISH AND WILDLIFE

Seventeen species of fish are known to inhabit streams and lakes throughout Gates of the Arctic. The species most often harvested for subsistence use include lake trout, arctic char, and arctic grayling in the areas around Anaktuvuk Pass and sheefish, chum salmon, and whitefish in the Kobuk River drainage. Sport harvest is concentrated on Walker Lake (lake trout) and the Kobuk River (sheefish), although sportfishing takes place in many other areas of the park. Four species of nongame fish are found in park waters: Alaska blackfish, longnose sucker, slimy sculpin, and ninespine stickleback. Chum salmon, Dolly Varden, and sheefish are anadromous species that migrate from saltwater to freshwater to spawn. Resident species, such as arctic grayling, lake trout, Alaska blackfish, sucker, and sculpin, live in freshwater habitats year-round, although some undertake extensive seasonal migrations. Resident species spawn at different times of the year: arctic grayling from mid-May to June; northern pike in spring (coinciding with spring ice break-up); lake trout in September and October; whitefish and cisco in late September and October; and burbot from December through February.

The most widespread species in the park is the arctic grayling, which is found in nearly all permanent watercourses and those lakes that have an outlet stream. The Kobuk and Noatak rivers are the major chum salmon spawning streams. Sheefish also spawn in the Kobuk River.

AMPHIBIANS

One amphibian species, the wood frog, occurs in lower elevations in Gates of the Arctic. The wood frog spends its life in the woodlands and vegetated wetlands. During the warmer summer months, wood frogs feed primarily on insects, and in turn are preyed upon by birds and larger mammals.

BIRDS

All of the major groups of birds (waterfowl, raptors, grouse, shorebirds, and passerines) found in northern Alaska are found in the park. About 120 bird species were documented in Gates of the Arctic in 2006. About 21 of these are estimated to be resident species that spend the entire year in the park. Most birds are migratory and occur in Gates of the Arctic only during the breeding season (May to September). Forty-five bird species are known to breed in the park. A wide variety of habitats, latitude, and elevation supports this diversity of bird species. Although Gates of the Arctic is not one of Alaska's highly significant waterfowl production areas, portions of the park and preserve do host significant numbers of nesting waterfowl. Common

waterfowl include greater scaup, common goldeneye, American wigeon, surf scoter, and red-breasted merganser.

Raptors are well represented in the avifauna bird life of the park, and include bald eagle, golden eagle, gyrfalcon, arctic peregrine falcon, merlin, kestrel, red-tailed hawk, rough-legged hawk, northern goshawk, sharp-shinned hawk, and northern harrier. Several of these species are known to breed in the park. Owl species known to breed in the park include short-eared owl, great horned owl, northern hawk-owl and snowy owl.

Other bird species commonly found in the park include spruce grouse, willow and rock ptarmigan, horned lark, lapland longspur, and American pipit. Shorebirds that nest in the park include whimbrel and wandering tattler.

The Boreal Partners in Flight Working Group (PIF) identified five bird species as "priority species" for Northern Alaska, which includes Gates of the Arctic. The PIF system ranks each species of North American breeding birds based on seven measures of conservation vulnerability. Four of these "priority species" breed in the park: gyrfalcon, gray-cheeked thrush, Smith's longspur, and hoary redpoll (PIF 1999).

MAMMALS

Thirty-six mammal species have been documented in the park including moose, caribou, muskox, black and brown bear, and wolf.

Gates of the Arctic supports low densities of moose. The population appears to be stable at around 0.18 moose per square mile (J. Lawler, pers. comm., 10/21/2011). Moose are most commonly found south of the Brooks Range. According to Native elders, finding moose north of the continental divide is a new development in the last 100 years. Moose concentrations vary seasonally, and during winter, correlate with snow depth and timing. Most calving takes place from late May through June. Post-calving moose generally move to higher elevations, with moose moving down from these areas in winter as snow depths increase. Willow stands along river corridors provide a large part of winter food and upland spruce forests provide protection from the cold and shallower snow depths.

Caribou found in the park primarily consist of animals from three different herds: the Western Arctic caribou herd (~348,000 animals in 2009), the Teshekpuk caribou herd (~64,000 animals in 2008), and the Central Arctic caribou herd (~67,000 animals in 2008) (ADF&G 2009a and 2009b; pers. comm., K. Joyle, wildlife biologist, Gates of the Arctic, 9-2011). All of these herds are at historically high levels, although the Western Arctic caribou herd is down from 2003 estimates (J. Lawler, Arctic Network Coordinator, pers. comm., 10-20-2011). Of the three herds, the Teshekpuk caribou herd uses the park the least—the majority of this herd typically stays north of the park. In general, calving does not occur in the park. Caribou migrate through the park as they move from wintering grounds south and west of the park to calving areas and summer range north of the park. Some of the animals use summer range along the northern reaches of the park. Some bands of caribou spend the winter within the park, especially in the Kobuk River valley, but these locations and numbers of animals involved vary from year to year.

Caribou begin moving to summer range in March, when bands of females travel to calving grounds. Males and some yearlings begin moving somewhat later. The herds move northward, up the Alatna, John, and North Fork of the Koyukuk drainages, and cross the summit of the Brooks Range into the valleys of

such rivers as the Killik, Chandler, and Anaktuvuk. The herds then move north, out of the park to calve in early June.

The caribou return to the park when they begin moving southward in August, toward Anaktuvuk Pass and the Killik River areas. Migration continues through the rut in October, until the wintering grounds are reached largely outside of the park.

Gates of the Arctic's extensive mountainous terrain provides habitat for the most visible large mammal—Dall sheep.

In 2009, aerial surveys estimated there were 8,564 Dall sheep in the park and preserve (NPS 2010d). In 2010, an estimated 10,072 animals were estimated in the park and preserve (NPS 2010d, NPS 2011b). Dall sheep have distinct home ranges, among which they make seasonal migrations. Migrations between summer and winter ranges occur in late August and early September in the Brooks Range, west of the park (Ayers 1986). Rut occurs between late November and early December, and lambing occurs from mid-May to mid-June. Sheep depend on steep, rugged cliffs and rock outcrops that provide escape from predators. They also rely on grass and sedge meadows for feeding, and fare best during winters with low snowfall and strong winds that remove snow and expose forage.

Muskoxen were extirpated from Alaska in the 1890s; with the last known animals taken south of the Brooks Range. Muskoxen were reintroduced into northeastern Alaska in 1969 and 1970, and in western Alaska in 1970 and 1981. They subsequently dispersed into Gates of the Arctic and were first reported in 1989 (NPS 2003). Since 1989, muskoxen have been observed with increasing frequency in the park. Muskoxen in the park have been found in the large river valleys (Noatak and Killik rivers) and near the village of Anaktuvuk Pass. The habitat being used by muskoxen in Gates of the Arctic is unique compared to other herds of muskoxen in Alaska. The alpine habitat of the park provides habitat that is patchy in distribution, and is therefore unlikely to support large numbers of animals. The last survey of muskoxen in the park in 2002 identified a maximum of six animals (NPS 2003c).

Brown bears occur throughout the park, although there is no current data on the size of the population for the entire park. In 2010, 346 adult bears were estimated to be present in the eastern part of the park (east of the Alatna River), with a density of one adult bear per 19 square miles (J. Lawler, pers. comm., 10/21/2011). Brown bears are among the earth's largest predators, but in the Brooks Range they feed mostly as vegetarians, eating berries, sedges, hedysarum, and other plants. They also opportunistically feed on small mammals, moose calves, and caribou calves, and occasionally adults. Although brown bears range throughout all habitat types, they are most commonly found in open alpine or tundra habitats. Bears use progressively lower elevations for foraging as the summer progresses. In summer and fall, brown bears congregate around rivers containing spawning salmon; notable among these locations is the Noatak River. Bears enter their dens between mid-October and late-November.

Although no studies have been conducted on black bears in Gates of the Arctic, they likely occur throughout the park and preserve up to the northern limits of the treeline. No black bears have been reported north of the Brooks Range. In contrast to brown bears, black bears prefer upland forest and floodplain forest communities below 2,000 feet in elevation. Studies from interior Alaska reveal that black bears are active for about five months of the year, emerging from their dens in early May and

returning in late September. After emerging from their dens in the spring, black bears seek new plant growth. Spatial distribution of bears is largely governed by food availability. They are opportunistic feeders and will readily eat whatever food they encounter, including carrion. Berries are an important part of their diet in late summer and early autumn.

Wolves are an important part of the ecosystems of Gates of the Arctic. No current information is available on the wolf population in the park. From 1986 to 1992 wolf packs in the park ranged between 8 and 19. Wolf densities averaged 6.6 wolves per 1,000 square kilometers in the autumn, and 4.5 wolves per 1,000 square kilometers in the spring (Adams et al. 2008). Caribou are a key prey species of wolves in the park (Dale et al. 1995). Other important prey species include moose, sheep, beaver, and snowshoe hare.

Gates of the Arctic supports about 30 species of smaller mammals, including carnivores (coyote, red fox, lynx, river otter, wolverine, American marten, ermine, least weasel, and mink); rodents (Alaska marmot, arctic ground squirrel, red squirrel, beaver, voles, collared lemming, and porcupine); one lagomorph (snowshoe hare); insectivores (shrews). These species inhabit a variety of habitats and are integral links in the food web by serving as prey for many larger omnivores and carnivores.

Many herbivores, including snowshoe hare and arctic ground squirrel, are important forces in browsing and dispersing vegetation across the landscape. Beavers and muskrat live in areas dominated by ponds, lakes, and streams. Voles, shrews, and lemmings occur across the park in a diversity of habitats. Voles and shrews are active year-round, and during winter they live under the snow. Generally, voles are found in upland and grassy areas, while shrews are found in moister habitats.

INSECTS

Although little is known about the numbers, diversity, and distribution of insects in Gates of the Arctic, these species are an important component of Arctic ecosystems. Insects are a main source of food for many fish and birds. Insect harassment can affect habitat use, foraging, and movement of caribou.

WATER QUALITY

Water quality in Gates of the Arctic is exceptionally high. Water quality in the Kobuk and Noatak rivers is considered to be unaffected from their natural state, except for the John River, which may show some small effects from the village of Anaktuvuk Pass wastewater effluent and other sources (Moran and Brabets 2005). Most of the other surface waters in the park remain almost totally unaffected by pollutants. Rivers in the park show no consistent levels of coliform bacteria. Petroleum hydrocarbons, likely from float planes, have been detected at low levels.

NATURAL RESOURCES AND CLIMATE CHANGE

The diverse ecosystems and natural processes of Gates of the Arctic are especially vulnerable to the impacts of climate change. Average arctic temperatures have risen at almost twice the global rate over the last 100 years, resulting in less snow and ice cover and increased absorption of solar radiation (Jezierski et al. 2010). Greater energy absorption initiates a feedback loop that further increases temperatures and melt rates. In Alaska, mean annual temperatures increased 3.1°F (1.7°C) from 1951 to 2001

(Alaska Climate Research Center et al. 2009), and minimum temperatures warmed proportionally more than maximum temperatures (Keyser et al. 2000). Increased temperatures can lead to significant changes in the rest of the water cycle, such as shifts in the extent of permafrost, altered rain and snow patterns, and variations in the energy budget that control evaporation and plant transpiration. For example, annual precipitation in the Arctic declined by 36% between 1949 and 1998, and most of this decrease was observed in winter (Stafford et al. 2000).

As climatic processes change, vegetation responds by deviating from historical ranges and exhibiting seasonal shifts in life-cycle processes such as earlier spring budding and later die off. High latitude species are reacting more strongly to climate changes, although to widely varying degrees. In some locations in Alaska, vegetation has exhibited increased photosynthetic activity and longer growing seasons while species in other locations, like white spruce in Gates of the Arctic, have shown decreased growth due to drought stress (Barber et al. 2000). The anticipated hotter, drier summers that cause drought stress may also increase stress from wildfires and pest outbreaks, impacting air and water quality and altering the extent of some vegetation.

As the range, extent, and composition of vegetation in the Arctic changes, habitat for wildlife also changes. A majority of the birds found in Gates of the Arctic are only present during the breeding season, and many could be at risk if tundra breeding habitats are reduced or eliminated. Waterfowl and other animals may be impacted by chemical changes in wetlands, which in Alaska showed a 31% increase in methane gas emissions from 2003–2007 due to temperature increases (Bloom et al. 2010). Additionally, bird migration and feeding patterns could be disrupted by aquatic food webs that are expected to change due to climate impacts such as ocean acidification.

Herbivorous animals might find fewer opportunities for adequate forage due to drought and changes in the freeze/thaw cycle. Bears and other mammals that hibernate through the winter may have a decreased reliance on the timing or availability of food supplies (such as berries and insects) necessary to begin hibernation. Disruptions to vegetative conditions ascend the food chain and disproportionately impact some top predators. According to one national parks climate change study, current trends could eventually result in a 19% reduction in carnivore species diversity (Burns et al. 2003).

It has been suggested that insect communities in the Arctic could serve as indicators of climate change, especially because warming at higher latitudes is expected to have pronounced effects. Insects have narrow ranges and restricted relationships with other organisms; thus, changes in ranges or these relationships may indicate environmental change (Danks 1992).

Several species of fish in the park may be adversely affected by changes in water quality and the hydrologic cycle. Landslides and smaller-scale erosion events may become more common if permafrost is unable to stabilize the soil. This could lead to soil and sediment entering the rivers and streams in the park, possibly affecting fish spawning habitat. As the permafrost thaws, it may also release mercury and other organic pollutants into waterways. Increases in river flows caused by melting in the Arctic may increase the transport of unwanted nutrients and pollutants in those rivers, and higher flows could restrict some species from accessing breeding or spawning habitat. Anadromous fish in Gates of the Arctic,

many of which are important subsistence species, could be at risk if ocean acidification affects the quality or quantity of their prey; cool high-latitude ocean waters are currently acidified enough to start dissolving marine snails, which are one of the primary food sources of young salmon (Fabry et al. 2008; Feely et al. 2008).

Shallow high latitude lakes and ponds are shrinking in some situations, and disappearing in others (50% of the ponds in boreal forest regions) due to changes in permafrost and runoff patterns, reducing the extent of suitable fish habitat (Riordan et al. 2006). Changes in water temperature, salinity, oxygen levels, circulation, and ice cover in marine and freshwater ecosystems have resulted in shifts in zooplankton abundance in high-latitude and high-altitude lakes (Fabry et al. 2008; Feely et al. 2008).

Although many of the fish and wildlife in the park could be adversely affected by climate change, some species are expected to benefit in the short term. Porcupine caribou, for example, exhibited increased calf survival in some areas from 1985 to 1996, partially because there was more forage available to females during calving and lactation (Griffith et al. 2001; Griffith et al. 2002). The body size of masked (cinereus) shrews in Alaska has increased significantly within the last half century because of higher survival rates of the shrew's prey (Yom-Tov and Yom-Tov 2005). Many other species of plants and animals will benefit from increased access to fertile plains and alpine lakes formerly covered in glaciers.

However, this increased access, together with other climate-induced factors, may increase the risk of nonnative species invasion. It also may induce farmers to begin cultivating formerly frozen land, or permit natural resource extraction (ACIA 2004). Both of these examples, secondary impacts of climate change, have the potential to damage the natural resources of Gates of the Arctic.

WILD AND SCENIC RIVERS

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 USC 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The act is notable for safeguarding the special character of designated rivers, while recognizing the potential for their appropriate use and development. There are six designated wild and scenic rivers in Gates of the Arctic: the Alatna River, the John River, the Kobuk River, the Noatak River, the North Fork of the Koyukuk River, and the Tinayguk River. These six rivers were designated as part of ANILCA in 1980.

Table 7 briefly describes the rivers and their values, including their scenic qualities, recreational opportunities, geologic features, natural resources, and cultural resources.

The **Alatna River** drains the central Brooks Range. Wildlife, spectacular scenery, and interesting geologic features abound along the river corridor.

The **John River** flows south from Anaktuvuk Pass through Alaska's Brooks Range to the Koyukuk River just below Bettles Field/Evansville. The river runs through beautiful landscapes and a variety of ecosystems. The John River valley is an important migration route for the arctic caribou herds.

The **Kobuk River** flows from its headwaters in the Endicott Mountains and Walker Lake, through a broad valley. Located on the southernmost reaches of the Brooks Range, it passes through one of the largest continuous forested areas in the park and preserve.

The **Noatak River** drains the largest mountain-ringed river basin in the United States that is still virtually unaffected by human activities. However, this high-use area is a designated wilderness concern.

The **North Fork of the Koyukuk River** flows from the south flank on the Arctic Divide through broad, glacially carved valleys in the rugged Endicott Mountains of the central Brooks Range. The river passes between Boreal Mountain and Frigid Crags, dubbed the Gates to the Arctic by Bob Marshall. The North Fork joins the Middle Fork and can be traveled all the way to Bettles Field.

The **Tinayguk River** is the largest tributary of the North Fork of the Koyukuk. Both are entirely within the pristine environment of Gates of the Arctic National Park.

Rivers are classified as wild, scenic, or recreational. All six wild and scenic rivers in the park are classified as "wild," or "those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America." The National Park Service manages these rivers to protect their free-flowing character, water quality, and the scenic, recreational, geologic, natural, and cultural values for which they were designated. A formal analysis of these values identifies the outstandingly remarkable values of a designated river (NPS 2014b).

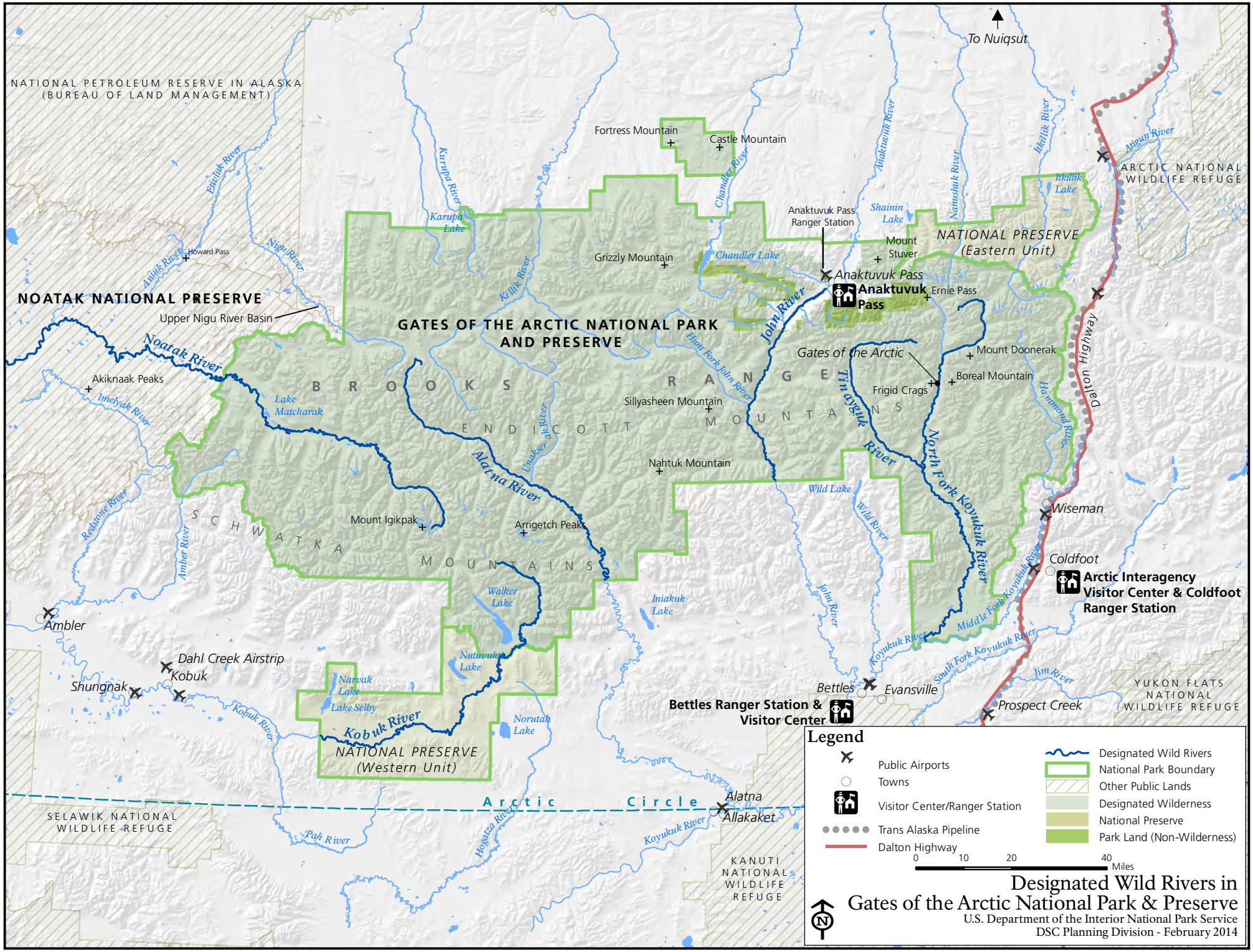

NATIONAL PETROLEUM RESERVE IN ALASKA
(BUREAU OF LAND MANAGEMENT)
To Nuiqsut
Fortress Mountain
Castle Mountain
Karupa River
Karupa Lake
Chandler River
Anaktuvuk River
Namushak River
Itkillik River
Itkillik Lake
Shainin Lake
Anigun River
ARCTIC NATIONAL WILDLIFE REFUGE
Anaktuvuk Pass Ranger Station
Mount Stuver
NATIONAL PRESERVE (Eastern Unit)
Howard Pass
Anuk River
Nigu River
Grizzly Mountain
Chandler Lake
Anaktuvuk Pass
Anaktuvuk Pass
Ernie Pass
NOATAK NATIONAL PRESERVE
Upper Nigu River Basin
Killik River
John River
GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE
Hunt Fork John River
Gates of the Arctic
Mount Doonerak
Boreal Mountain
Frigid Crags
Dalton Highway
Noatak River
Akiknaak Peaks
Imelyak River
B R O O K S R A N G E
Lake Matcharak
Sillyasheen Mountain
Tinayguk River
Hammond River
E N D I C O T T M O U N T A I N S
Alatna River
Unakserak River
North Fork Koyukuk River
Nahtuk Mountain
Wild Lake
Wiseman
Redstone River
S C H W A T K A
Mount Igikpak
Arrigetch Peaks
Amber River
M O U N T A I N S
Wild River
Coldfoot
Arctic Interagency Visitor Center & Coldfoot Ranger Station
Walker Lake
Iniakuk Lake
Middle Fork Koyukuk River
Ambler
John River
Koyukuk River
South Fork Koyukuk River
Dahl Creek Airstrip
Kobuk
Nutuvukti Lake
Jim River
Bettles
Evansville
Shungnak
Narvak Lake
Lake Selby
Bettles Ranger Station & Visitor Center
Prospect Creek
YUKON FLATS NATIONAL WILDLIFE REFUGE
Kobuk River
Norutak Lake
Kobuk River
NATIONAL PRESERVE (Western Unit)
Arctic Circle
Alatna
Allakaket
SELAWIK NATIONAL WILDLIFE REFUGE
Pah River
Hogatza River
Koyukuk River
KANUTI NATIONAL WILDLIFE REFUGE
Legend
Public Airports
Towns
Visitor Center/Ranger Station
Trans Alaska Pipeline
Dalton Highway
Designated Wild Rivers
National Park Boundary
Other Public Lands
Designated Wilderness
National Preserve
Park Land (Non-Wilderness)
0 10 20 40 Miles
N
Designated Wild Rivers in
Gates of the Arctic National Park & Preserve
U.S. Department of the Interior National Park Service
DSC Planning Division - February 2014

TABLE 7. WILD AND SCENIC RIVERS IN GATES OF THE ARCTIC

River	Approximate Length	Scenic Quality	Recreational Opportunities	Geologic Features	Natural Resources	Cultural Resources
Alatna	83 mi / 133.5 km within the park boundary	High; varies from snow-capped mountains to spruce-hardwood forest.	Plentiful sightseeing, nature study, hiking, photography, fishing, and floating.	Rugged mountains of central Brooks Range, including Arrigetch Peaks.	Easily observed, variety of large and small mammals, migration route for the Western Arctic caribou herd.	The Alatna has a rich cultural history. This valley is traditional hunting territory for the Koyukon Athabaskans and the Nunamiut (Iñupiat) who trace their origins to the upper regions. Dozens of historic and prehistoric sites spanning 4,000 years have been identified.
John	52 mi / 84 km	Outstanding; the John flows through a variety of eco-systems and vegetation types. The river winds through exposed rock, cliffs, and outcroppings. The upper portions of the river provide a class 2 to class 3+ float when water is high enough. The lower reaches make an excellent family float. There is excellent hiking and back-packing in upper river area; initially the river runs through Nunamiut Corporation land.	The upper portions of the river provide a class 2 to class 3+ float when water is high enough. The lower reaches make an excellent family float. There is excellent hiking and back-packing in upper river area though initially the river runs through Nunamiut Corporation land.	The river flows through wide glacial valleys dissecting central Brooks Range. It is lined with bluffs in the lower reaches.	Variety of large and small mammals; important migration route for the Western Arctic caribou herd; unique habitat for William's milk vetch.	The numerous cultural sites in the John River drainage reflect a long and continuous history of use by residents of Anaktuvuk Pass.

TABLE 7. WILD AND SCENIC RIVERS IN GATES OF THE ARCTIC

River	Approximate Length	Scenic Quality	Recreational Opportunities	Geologic Features	Natural Resources	Cultural Resources
Kobuk	110 mi / 177 km	Wide valleys with sweeping vistas of nearby hills and low mountains; Walker Lake; two canyons.	Exceptional float river; a few short stretches of extremely rugged rapids (up to class V); good opportunities for sport hunting (in preserve only), wildlife observation and backpacking.	Endicott Mountains of central Brooks Range; upper and lower Kobuk canyons.	Variety of fish and wildlife; one of largest concentra-tions of sheefish; wintering grounds for Western Arctic caribou herd; one of the largest continuous spruce forest areas in the Brooks Range.	Highly significant potential for archeology because of continuous occupation and links between inland Iñupiat people. The Kobuk River was the site of a minor gold rush at the turn of the century.
Noatak	65 mi / 104 km — *The Noatak River continues for another 265 mi / 426 km through Noatak National Preserve	Glacial valley with snowcapped peaks.	One of the longest designated wild and scenic rivers in Alaska; good floating, sightseeing, and wildlife viewing opportunities.	Mount Igikpak and Schwatka Mountains of west-central Brooks Range; narrow glacial valley.	Plentiful caribou, Dall sheep, grizzly bear, and several species of raptors.	Transportation route by Native people for thousands of years. The headwaters contain a dense concentration of archeological sites that span at least 6,000 years. Some of the most significant prehistoric sites in the park are among them.
NF Koyukuk	102 mi / 164 km	Beautiful glacial valleys bordered by rugged peaks of Endicott Mountains in central Brooks Range.	The river can be accessed in the headwaters area. There are a few challenging rapids depending on water levels. The river is mostly class two or less. There is out-standing wilderness backpacking in upper reaches of drainage.	South flank of the arctic Continental Divide; broad glacial valleys bordered by the Endicott Mountains.	Variety of wildlife; caribou migration route.	This drainage contains one of the densest concentrations of archeological and historical sites in the park. These sites include gold mining sites from the early 20th century and prehistoric sites dating to as old as 10,000 years.

TABLE 7. WILD AND SCENIC RIVERS IN GATES OF THE ARCTIC

River	Approximate Length	Scenic Quality	Recreational Opportunities	Geologic Features	Natural Resources	Cultural Resources
Tinayguk	44 mi / 71 km	Broad, glacial valley bordered by the rugged peaks of the Endicott Mountains.	High potential for hiking and back-packing; access is more difficult than North Fork of Koyukuk.	South flank of the arctic Continental Divide; glacial valleys bordered by the Endicott Mountains.	Variety of wildlife.	Significant cultural resources were not identified on the Tinayguk River at the time of its designation as a wild and scenic river. Although little inventory of this valley has been conducted, it has high potential to contain significant prehistoric archeo-logical sites based on inventory results from adjacent drainages.

WILDERNESS CHARACTER

Wilderness character is the fundamental concept in the Wilderness Act of 1964 and is broadly defined in section 2(c) of the act. The Wilderness Act speaks of wilderness as a resource in itself. A wilderness, in contrast to those areas where humans dominate the landscape, is defined by the qualities comprising its wilderness character. Wilderness character encompasses a combination of biophysical, experiential, and symbolic elements as described by four principal qualities: natural, undeveloped, untrammeled, and having outstanding opportunities for solitude or a primitive and unconfined type of recreation.

In 1980, Congress designated approximately 7,052,000 acres as the Gates of the Arctic Wilderness in section 701(2) of ANILCA. Due to changes resulting from the 1992 Anaktuvuk Pass land exchange, other changes in land status conditions and the adoption of digital mapping technology, the wilderness area now has a total of approximately 7,154,000 acres or about 84% of the park. For details, see the park atlas maps in the portfolio (NPS 2013b).

This section describes the character of both the designated wilderness area and the two preserve units—both of which were found to be eligible for wilderness designation. Unless otherwise stated, the description of wilderness character applies to the two preserve units as well as the designated wilderness area. For more detail on the wilderness character of the park and preserve, see "Gates of the Arctic Wilderness Character Narrative" (NPS 2012b).

Natural Character

The Wilderness Act states that wilderness is "protected and managed so as to preserve its natural conditions." In short, wilderness ecological systems are substantially free from the effects of contemporary civilization. This quality can be degraded by the intended or unintended effects of people visiting a wilderness area (USFS 2008).

Gates of the Arctic National Park and Preserve has been maintained in a predominantly "natural" condition, with intact arctic ecosystems. The park remains one of the largest, most remote and difficult to access wilderness areas in the national park system. Consequently, little biophysical degradation has occurred. Ecosystem processes are intact throughout the park. Habitats are seamlessly interconnected and provide the scene for supporting wholly intact, naturally occurring species of plants and wildlife populations. The majority of the area has been left to the forces of nature. Uninterrupted ecological processes are prevalent and contribute to pristine conditions. Today, there is no permanent human presence in the wilderness area, and the signs of past human activity are generally no longer visible. From an overall perspective (and compared to most of the United States), the wilderness area and the two preserve units are relatively free from the effects of human interference.

Although seemingly remote and uninhabitable, Gates of the Arctic has supported 12,000 years of interaction between people and the landscape. Human presence and connection with the land is a natural part of a functioning healthy ecosystem. The realities of these harsh wild places make subsistence living a necessity. There are few remaining places in the United States where subsistence lifeways are an active part of ecological integrity.

Undeveloped

The Wilderness Act states that wilderness is "an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, . . .where man himself is a visitor who does not remain" and "with the imprint of man's work substantially unnoticeable." This quality is degraded by the presence of structures, installations, habitation, and by the use of motor vehicles, motorized equipment, or mechanical transport that increases the ability of people to occupy or modify the environment (USFS 2008).

Gates of the Arctic National Park and Preserve contains one of the largest wilderness areas in the national park system and is one of the least developed. Remoteness, difficulty of access, and the associated high cost of access has helped protect the area's undeveloped quality. The intense and often severe climatic and geographic conditions found within the Gates of the Arctic wilderness inhibit human activities on the landscape. Even the manner in which people access this wilderness highlights its undeveloped nature. Primary access is by airplane, yet the park is without any developed airstrips. There are no trailheads or trails in the wilderness area and the two preserve units. Except for several cabins currently retained for emergency purposes (which are permitted in Alaska wilderness areas), cabins and other structures are in a state of benign neglect, slowly folding back into the natural landscape.

The National Park Service has not increased development within the wilderness area. Instead, the developed footprint has been decreased. A deliberate, conscious effort has been made to not include amenities such as designated campsites, groomed trails, and hardened access portals; instead, undeveloped conditions prevail and people must rely on themselves for comfort, shelter, and safety.

In Alaska, ANILCA allows motorized transportation in wilderness areas, including the use of airplanes, snowmachines, and motorboats. Although legally protected, these uses degrade the quality of undeveloped wilderness. While it is possible to see motorized vehicles in the wilderness area, they usually only occur along river corridors (e.g., Anaktuvuk River, John River, North Fork of the Koyukuk River, Kobuk River) and in the Anaktuvuk Pass area, primarily during the peak use period (June through August). In the winter and spring, snowmachines can regularly be heard in the Anaktuvuk River, John River, and Kollutaruk Creek valleys.

Historical and archeological remains of camps, villages, and human activities show the spiritual tie humans have to this land, and its wildlife and waters. Ancestors of Iñupiat and Athabascan peoples hunted migratory caribou, trapped small game, and pulled fish from these lakes and streams. The Native people used the area's natural resources to survive and create a subsistence lifeway in an unparalleled wild and intact ecosystem.

Untrammeled

The Wilderness Act states that wilderness is "an area where the earth and its community of life are untrammeled by man," and "generally appears to have been affected primarily by the forces of nature." In short, wilderness is essentially unhindered and free from human control or manipulation. This quality can be degraded by human activities or actions that control or manipulate the components or processes of ecological systems inside the wilderness (USFS 2008). At times, upholding the untrammeled quality can detract from another wilderness quality, such as "naturalness," as is the

case when managers decide to not eradicate or otherwise control an invasive species. Perpetuating the untrammeled quality may require great restraint on the part of NPS managers.

The Gates of the Arctic Wilderness and the national preserve represent the essence of the term "untrammeled." The remoteness of this wilderness from other centers of human settlement has protected its ecosystems, leaving them by and large intact and vibrant, predominantly under the control of natural processes and not under the control of civilization. Almost all of the wilderness area and the preserve are untrammeled. However, trammeling activities have occurred in the past, and some activities continue to occur, including control of invasive nonnative species. The expansion of invasive species presents the potential need for more rigorous manipulation of the wilderness in order to protect ecosystems. Although sport hunting occurs in the preserve, and subsistence hunting occurs in the park and preserve, these activities have not substantially affected wildlife populations in Gates of the Arctic.

Solitude or Primitive and Unconfined Recreation

The Wilderness Act states that wilderness has "outstanding opportunities for solitude or a primitive and unconfined type of recreation." This quality is about the opportunity for people to experience wilderness; it is not directly about visitor experiences per se. This quality can be degraded by elements that reduce these opportunities such as visitor encounters, signs of contemporary civilization, recreation facilities, and management of or restriction on visitor behavior (USFS 2008).

The Gates of the Arctic Wilderness area and the national preserve offer superb opportunities for solitude that can rarely be found in the rest of the United States. With over 8 million acres of designated and eligible wilderness, the park and preserve cover a huge area, but remain remote and isolated. Most of the park is miles from the nearest highway, and hundreds of miles from the nearest community (with the exception of Anaktuvuk Pass). With the exception of a few commuter aircraft corridors and localized air tour activity, the wilderness is largely free of aircraft overflights and contrails, a condition rarely experienced in even the wildest wilderness areas in the continental United States.

The open skies and natural soundscapes in Gates of the Arctic Park and Preserve are dominated primarily by the sounds of wind, water, and wildlife. Human-caused sounds are evident in a few areas. Noise from motorized watercraft can be heard on some of the rivers and aircraft flying over drainages such as the John River and North Fork of the Koyukuk River. Noise from ATVs (Argo) may be heard near the village of Anaktuvuk Pass. In the winter and spring the sound of snowmachines can be heard near Anaktuvuk Pass, the Anaktuvuk River, John River, and Kollutaruk Creek valleys.

Few people visit the wilderness area and preserve. The absence of roads; the lack of infrastructure such as trails, airstrips, and designated campsites; the logistics of taking a trip in the area; the relatively high cost of flying into the area; and the short visitor season all limit the number of visitors that come to the wilderness area and preserve. Encounters with other visitors are more likely to occur in the eastern extremity of the wilderness area and the Eastern Unit (Itkillik Preserve) because of the relatively short distance from Dalton Highway, although river crossings can limit this use. In a few visitor attraction areas (including Arrigetch Peaks, Walker Lake, and several of the designated wild and scenic rivers, e.g., Noatak, Kobuk, North Fork of the

Koyukuk, and John rivers), during the peak season of June through August and holiday weekends, the chances are greater that one may encounter other groups. Areas near the village of Anaktuvuk Pass provide fewer opportunities for solitude. Also in the fall, during hunting season, groups may be encountered in a few popular areas such as on the John and North Fork of the Koyukuk rivers. For most of the time, however, it is possible to walk or float for miles without encountering another human or see signs of civilization in much of the wilderness area and preserve.

There are a multitude of opportunities for primitive, unconfined recreation throughout the Gates of the Arctic Wilderness area and the preserve, including fishing, hiking, mountaineering, backpacking, camping, wildlife watching, cross-country skiing, and snowshoeing, and sport hunting in the preserve units. The lack of visitor facilities, including developed campsites and trails and limited access, promises a primitive recreation experience in nature. Visitors who come to the wilderness area and preserve can wander freely throughout the environment and enjoy solitary isolated experiences, while subsisting and traveling completely on their own resources within a primitive setting. A wilderness landscape so raw and wild demands absolute self-reliance.

Except for fishing (and sport hunting in the preserve), which require a state permit, requirements to safeguard food from bears and a time limit on camping at one location, recreation in the wilderness area and preserve is unconfined. Occasionally, there are temporary closures of areas due to wildlife issues (e.g., bears interacting with visitors). Otherwise, access to recreation in most of the wilderness area and preserve is unregulated.

Fifth Quality of Wilderness Character

In addition to the four qualities identified above, wilderness preserves other tangible features that are of scientific, educational, scenic, or historical value such as cultural or paleontological resources. This quality is based on the last clause of section 2(c) of the Wilderness Act, which states that a wilderness "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." This quality is unique to individual wilderness areas and may or may not be present. Unlike the other qualities of wilderness character, the fifth quality focuses on features that typically occur in specific locations. It is also possible that the fifth quality can overlap with other qualities—it may be difficult to assign a feature to one quality or another. In this plan, wilderness character is integrated with visitor use indicators and standards. See chapter 2 for more discussion of the five qualities of wilderness character.

CULTURAL RESOURCES

The following overview of Gates of the Arctic National Park and Preserve archeological sites, historic structures, and ethnographic resources highlights the subtle signs of interaction between human beings and the challenging environment of northern Alaska over the past 12,000 years. Evidence of prehistoric peoples and more recent use of the land by Iñupiat (Eskimos), Athabascans, miners, trappers, backcountry guides, and back-to-the-landers is scattered throughout the park.

The lands encompassed by the park have deep human connections, beginning with some of the first people to traverse the Bering Land Bridge and settle the Americas at the end of the last ice age. Subsequent cultural developments are documented by a rich archeological record composed of thousands of sites. The park contains particularly good examples of sites spanning the last 6,000 years, from the Northern Archaic, Denbigh Flint Complex, and Late Prehistoric and historic Nunamiut periods.

In the more recent past, people of European descent first found their way to the Brooks Range in the 1880s, almost two decades after the United States purchased Alaska from Russia. Military explorers, gold prospectors, and government scientists helped to fill in what had been a blank space on U.S. maps. In 1929, these blank spaces drew noted wilderness advocate Robert Marshall to the Brooks Range. Seeking empty spaces, he found instead a complex world of miners, trappers, local indigenous people, and breathtaking vistas. Marshall's descriptions of the peaks he called the "gates of the arctic" and his enthusiasm for wilderness protection inspired later wilderness advocates to select a vast swath of the central Brooks Range to be Gates of the Arctic National Park and Preserve.

When the park was created in 1980, NPS employees began the challenging task of finding and documenting cultural resources across the vast and remote central Brooks Range. Significant discoveries were made early on in the fields of archeology, history, and ethnography. Gates of the Arctic has a rich, well-preserved, and significant archeological record that documents an estimated 12,000 years of human activities. More than 1,500 archeological sites—almost half of all documented sites on NPS lands in Alaska—are found within the park. Examples of archeological sites found in the park include campsites, villages, hunting overlooks, fish camps, caribou drive lines, and historic gold mining operations. Information about the archeological resources of the park is maintained in the NPS Archeological Sites Management Information System.

Archeological surveys and inventories supply the information necessary to understand the settlement of Alaska and its history of cultural development, but less than 2% of the park has been examined by archeologists.

The park has an active program in place to research, protect, and interpret archeological resources. Research and documentation efforts supply detail about the distribution, contents, and significance of archeological sites, including information that can lead to the site's evaluation and nomination to the National Register of Historic Places. Information about archeological resources is incorporated into park planning efforts and provides a basis for

considering effects to archeological resources that may result from park operations and other present-day activities. Archeologists monitor the condition of known sites in order to evaluate impacts and changes and to make recommendations to protect the sites. Where appropriate, NPS cultural resource experts preserve and maintain the archeological resources of the park.

Park staff also undertakes research to document, protect, and interpret historic structures in the park. Information about historic structures and their significance is used to nominate them for national register eligibility, develop park planning efforts, and determine the effects that may result from park operations and other activities. The condition of historic structures is also monitored according to the requirements of the List of Classified Structures, which directs NPS cultural resource staff to assess the condition of historic structures on a cyclical basis. Where appropriate, NPS cultural resource experts perform preservation and ongoing maintenance of these historic structures. Some historic structures have been documented for the Historic American Buildings Survey, which is the nation's first federal preservation program, begun in 1933 to document U.S. architectural heritage through measured drawings and photographs. In total, 120 historic properties and archeological sites have been determined eligible for listing in the National Register of Historic Places.

Historic structures within the park consist primarily of cabins, cabin ruins, and structures associated with mining, trapping, and guiding activities. A few of these remain intact enough to warrant preservation efforts. Because of the advanced state of deterioration of most historic structures in the park, these intact sites are considered "discovery sites" for park visitors who happen upon them. Such sites can be investigated using the techniques of historic archeology and may also serve as illustrations of regional history for interpretation purposes.

In addition to archeological resources and historic structures, park staff documents and manages information regarding ethnographic resources. Gates of the Arctic ethnographic resources are those cultural and natural features that are of significance to traditionally associated peoples. Traditionally associated peoples generally differ as a group from other park visitors in that they typically assign significance to ethnographic resources or places closely linked with their own sense of purpose, existence as a community, and development as ethnically distinctive peoples (NPS 2006, section 5.3.5.3).

The park staff works collaboratively with traditionally associated peoples to document and interpret their local cultural and traditional practices, beliefs, and languages to visitors. The park staff plans to continue to support and expand ethnographic resources documentation in cooperation with government, tribal, and other organizations and stakeholders associated with the park. The park staff seeks to compile, collate, and interpret this information in the form of oral history projects, research reports, and interpretive outreach, as well as developing a complete and publicly accessible bibliographic, archival, digital manuscript atlas of ethnographic materials relating to Gates of the Arctic and its traditionally associated peoples and communities. Ethnographic resource documentation projects address information needs for park management and include but are not limited to traditional and ecological studies projects, language and place name studies, oral history documentation, subsistence studies, subsistence harvest surveys, bibliographic and information syntheses, and digital delivery via online portals and resource use studies.

Falling under the umbrella of ethnographic resources is the matter of subsistence. Today, as in the past, many Alaskans live off the land, relying on fish, wildlife, and plants. Alaska Natives have used these subsistence resources for food, shelter, clothing, transportation, handicrafts, and trade for thousands of years. Subsistence, and all it entails, is critical to sustaining both the physical and spiritual culture of Alaska Native peoples. It is an important tradition for many non-Natives as well.

Due to the interconnectedness of subsistence and other cultural resources with the wilderness resources and values in Gates of the Arctic National Park and Preserve, cultural resources are addressed in the natural and undeveloped wilderness character qualities in this plan rather than being included under the fifth quality of wilderness character. Please see the discussions of wilderness character in chapter 2 and the visitor use and indicators and standards / wilderness character table in chapter 2 for a further explanation of this approach.

When the first Europeans visited Alaska during the 1740s, all local residents they met were living a subsistence way of life. As the population grew through the territorial days, many new and conflicting demands were made on Alaska's natural and cultural resources. Development in various forms—harvesting marine and inland furbearers, commercial fisheries, mining operations, agriculture, development of military bases, and the establishment of cities and towns—often impacted local resources and subsistence activities. By the time Alaska gained statehood in 1959, subsistence patterns in some of Alaska's more populated areas had changed dramatically.

When Representative Morris Udall and others were writing the Alaska National Interest Lands Conservation Act during the 1970s, it was recognized that the connection between the people and the land and the need to harvest subsistence resources was of primary importance. As a result, the architects of the lands act included Title VIII: Subsistence Management and Use Findings to protect subsistence needs of rural Alaskans. The wording of title VIII reveals the unusual conditions of life in Alaska's rural areas:

> *The Congress finds and declares that—*
>
> *(1) the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives, on the public lands and by Alaska Natives on Native lands is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence; (2) the situation in Alaska is unique in that, in most cases, no practical alternative means are available to replace the food supplies and other items gathered from fish and wildlife which supply rural residents dependent on subsistence uses.*

Recognizing the special nature of national parks and national monuments where subsistence uses were authorized, Congress created legislation to establish the Gates of the Arctic National Park Subsistence Resource Commission to promote local participation in the process of managing subsistence uses in the park.

In 1981, 10 communities near Gates of the Arctic National Park were designated by the National Park Service as Subsistence Resident Zone Communities for the Park. Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles\Evansville, Hughes, Kobuk, Nuiqsut, Shungnak, and Wiseman were identified as communities with a significant concentration of

subsistence users who have customarily and traditionally utilized park resources. Resident zones authorize all permanent residents within these zones to participate in subsistence activities on NPS lands without a subsistence use permit (13.44).

Individuals who reside outside resident zone communities, who have customarily and traditionally used park subsistence resources, may apply to the park superintendent for a subsistence use permit (13.44).

VISITOR USE AND EXPERIENCE

Gates of the Arctic National Park and Preserve is considered by many to be the ultimate wilderness park, valued for its remoteness and naturalness. Visitation figures to the park are low, however, especially when the overall acreage of the park and preserve is considered. The number of visitors to the park remained relatively constant for the first 12 years of the park's existence (figure 1), with an average of 1,656 visitors per year from 1982 through 1994. Visitation then rose sharply from 1994 to 2000, dipped again from 2001 to 2003, and has since leveled off with an average of 10,340 from 2004 to 2009. These numbers represent overall recreational visitation, which includes ranger stations, visitor centers, park headquarters, and backcountry use. Thus, the number of visitors that actually enter the park is likely to be much lower; staff estimate that only approximately 400 to 800 visitors cross into the park boundaries during the peak summer season. It was found through a study of a similar adjacent park (Arctic National Wildlife Refuge) that the ability to accurately estimate visitor use of a park so vast, with unlimited entry points, is difficult (Christensen & Christensen 2009). A study conducted by the URS Corporation (2011) suggested that actual visitation inside the park ranged from 500 to 2,200 visitors from 1998 to 2010. However, these up and down trends likely reflect political and economic factors and trends in overall visitation to sites across the national park system.

This trend may be especially important at this park because of external influences that may impact visitation patterns in the next 10 to 15 years. Regional population growth may have a minimal influence on the amount of visitors to the park, but the three biggest factors could be further improvement and increased use of Dalton Highway, the creation of roads adjacent to the park for resource extraction, and the increased awareness of the uniqueness of Gates of the Arctic National Park and Preserve as one of the largest wilderness areas in the United States.

The pattern of recreational use throughout the year is characterized by an extremely sharp peak in the months of June, July, and August (figure 2). Approximately 91% of recreational visitation occurs during those three months.

The average group size in the park varies by different visitor surveys and where the survey is conducted, but ranges between three and six people per group, with an average stay of between 9 and 11 nights (Christensen & Watson 2001; Pendergrast 2001). While the number of visitors is extremely low for an area millions of acres in size, trip lengths are often longer than in other national park system units. These statistics reflect the remote nature of the area, which requires a greater time and financial commitment for wilderness expeditions.

DISTRIBUTION AND MAKEUP OF VISITORS

There are no designated hiking trails in the park—much of the recreational use is concentrated around the river corridors of the Noatak River, Alatna River, and the North Fork of the Koyukuk River (Pendergrast 2001). Other parts of the park that receive visitors are Arrigetch Peaks, Anaktuvuk Pass, the John River, Killik River, the Itkillik River, and Walker Lake. The visitation figures of these areas is very low compared to most other backcountry areas managed by the National Park Service, especially considering the vast acreages involved.

However, resource damage does occur, and the impacts of humans are distinguishable from natural disruptions. This damage occurs because the tundra and boreal forest ecosystem are sensitive to repeated, concentrated use and take exceptionally long periods for recovery. Visitors tend to concentrate in certain areas of the park, as previously described, and within those areas they concentrate even further along easily traversable valley bottoms, at aircraft landing sites, primary visitor-created campsites, etc. Accordingly, a high percentage of use is concentrated in a small-acreage area of the park total.

Visitor entry and exit points to and from the park vary considerably based on the number of visitors and conditions within the park for that particular year. Landing sites and access areas change seasonally as a result of changes in natural conditions such as high water levels or shifts in gravel bar locations. From 2000 to 2007, the four most popular areas (based on commercial use authorizations) for the start of their visit were Noatak River, Circle Lake, North Fork of the Koyukuk River, and Hunt Fork Lake. The most popular exit points from the park (based on commercial use authorizations) from 2000 to 2007 were Matchurak, Takahula Lake, the Noatak River, Kavachurak, and Circle Lake (URS 2011).

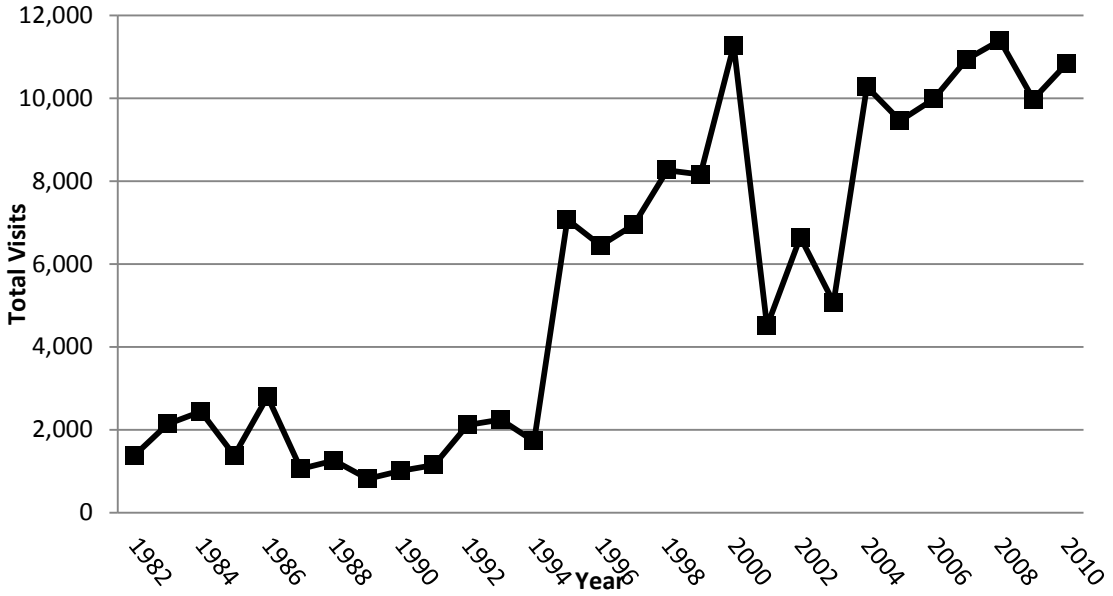
There is a trend away from the backpacking/hiking experience to a less strenuous river floating trip. This trend may change due to increased use of Dalton Highway, which is parallel to the eastern border of the park. There are several access points to the park from Dalton Highway that have the potential to increase park use/impacts. These sites are Vi Creek, Dietrich Camp, Big Jim Creek, and Kuyuktuvuk Creek (NPS 2010). Access to the park may become easier if a transportation corridor is developed to the Ambler Mining District, which may cross through the Kobuk Unit of the preserve (URS 2011). Although this project has not been finalized, the potential for impacts to the park make consideration of a transportation corridor important.

The majority of visitors to Gates of the Arctic are first-time visitors and come for a wilderness experience (Christian 2003). A large portion of these visitors participate in guided trips (40%), are male (71%), are not from Alaska (86%), and are a mean age of 41 years old (Watson et al. 2003).

VISITOR PERCEPTIONS, OPINIONS, AND CONCERNS

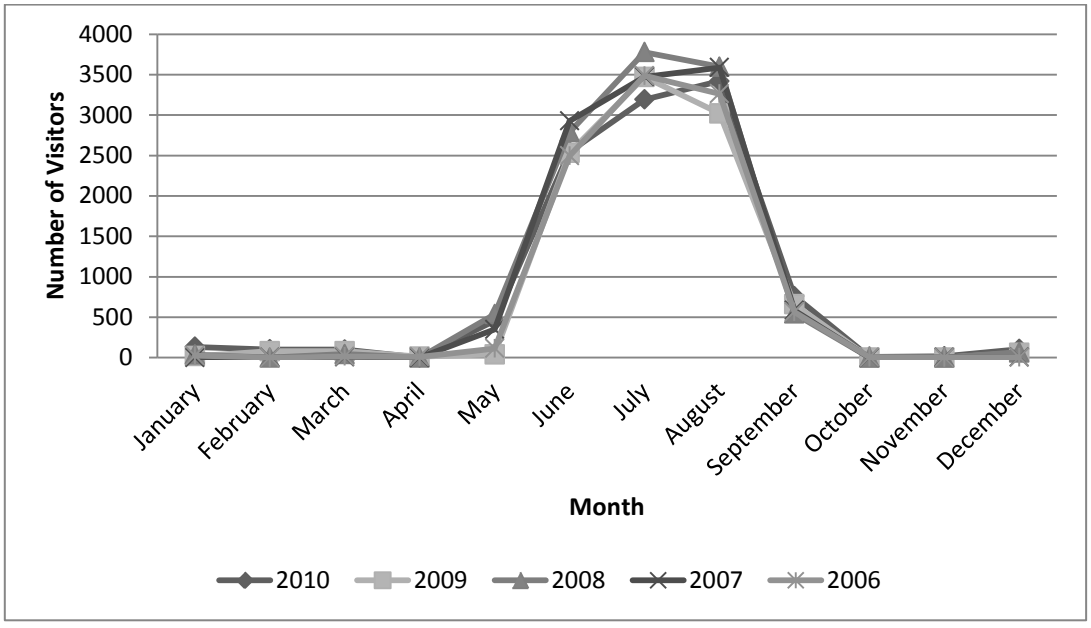
Based on a 2002 visitor survey conducted by Watson et al., annual polling of visitor satisfaction, and general management plan scoping comments, the overall quality of visitor experience in the park is considered to be very high. In both the 2002 visitor survey and scoping comments, people said they wanted to see little, if any, change to the current visitor recreation opportunities. Some people mentioned wanting more access to the wilderness for less able citizens; however, many more wanted to see reduced access to preserve the wilderness character of the park (Watson et al. 2003).

The annual visitor survey card project conducted by the University of Idaho Park Studies Unit found that the overall satisfaction with the quality of facilities, service, and recreational opportunities to be very good and to have a higher percentage of satisfaction in 2009 compared to the years 2005–2008. This survey also found that 84% of visitors surveyed in 2009 found the recreational opportunities (learning about nature, history, or culture and outdoor recreation) very good, compared to 79% for the years 2005–2008 (University of Idaho 2009).



Source: National Park Service Public Use Statistics Office

FIGURE 1. ANNUAL VISITATION, 1982–2010[4]



Source: National Park Service Public Use Statistics Office

FIGURE 2. MONTHLY VISITATION, 2006–2010[5]

[4] Include visits to ranger stations, visitor centers, park headquarters, and the backcountry.
[5] Include visits to ranger stations, visitor centers, park headquarters, and the backcountry.

Items frequently identified in the 2002 survey and supported by public comments early in the planning process, that greatly contribute to a positive visitor experience include an untrammeled wilderness, the opportunity to view wildlife, and the feeling of being the first to visit a particular area (Watson et al. 2003). Also in the 2002 visitor survey, visitors were asked what experience was most important to them while visiting the park. Freedom from management intervention was found to be more important than the elements of risk and uncertainty. This survey also asked what management techniques would be most acceptable if regulations to preserve visitor experience were needed. Visitors stated that limitations on group size and a mandatory backcountry orientation would be the most acceptable management techniques. Conversely, installation of park boundary signs and restrictions on the length of stay were perceived to be the least desirable potential management strategies (Watson et al. 2003).

Encounter rates within the park have remained low and are, in fact, so low that many visitors view encounters with others as a positive experience. However, visitors do not view encounters with groups of five or larger positively (NPS 2003a; Christensen & Watson 2001). The encounter rates vary depending on the recreational activity and the location within the park. Water-based recreational activities have the potential for higher encounter rates than land-based activities. A study of the Noatak wilderness found that the average encounters per week was 1.7 (Christensen 2003). This number will be much lower than areas with more visitor activity and may change with increased visitation.

Ability to Access the Park, Including Universal Access

Currently, the park has several facilities outside park boundaries that are accessible to visitors with disabilities, including the visitor center at headquarters, the Arctic Interagency Visitor Center at Coldfoot, and the Bettles Ranger Station. Currently, there are no recreation trails that are designed for universal access. Although there are few facilities in the park designed specifically to promote universal access, there have been several organized groups of visitors with disabilities who have visited the park.

The majority of recreational visitors (73%) gain access to the park by air taxi, with hiking (11%) and private aircraft (10%) being a distant second and third, respectively (URS 2011). Once in the park, most recreational visitors travel on the rivers by raft, canoe, or kayak. Other visitors travel mainly by foot or a combination of foot and float. During the winter months, access is by dogsled or cross-country ski trips.

Visitor access points are distributed unevenly throughout the park. Availability of small plane landing sites for light aircraft affects distribution, as does selection of areas used frequently by commercial guides. Transportation costs vary with destination and group size. For example, transportation costs for a float trip down one of the rivers may be substantially more per person than a backpacker entering the park from Dalton Highway because float trips are accessed primarily by aircraft whereas visitors can enter the park on foot from the highway. Recommendations via websites, guides, books, magazine articles, or rangers will also influence where visitors decide to travel within the park.

Opportunities to Understand the History of Gates of the Arctic National Park and Preserve

Enjoyment of the park and its resources is a fundamental part of the visitor experience. That experience is heightened when it progresses from enjoyment to an understanding of the reasons for the existence of the park and the significance of its resources. Participating in personal interpretive services (e.g., engaging with staff at visitor centers, attending ranger-led activities), and making use of nonpersonal interpretive services (e.g., visitor center exhibits, publications, computer technologies) help visitors form their own intellectual and emotional connections to the meanings and importance of park resources.

The park protects a 12,000-year record of human cultural adaptations to high altitude mountain environments and an unbroken tradition of living on the land. Visitors have the opportunity to understand how Native residents continue a subsistence way of life and how the park is, in fact, an inhabited wilderness that protects the homeland of many different peoples.

Visitor Safety

Gates of the Arctic National Park and Preserve is a large, remote, rugged, and potentially hazardous area. Visitors are advised of this and are expected to be responsible for themselves. Information is a key tool for safe visitor trips and reduced potential for life threatening emergencies. The information provided to visitors includes known hazards and safety techniques.

The National Park Service maintains basic first aid and search and rescue equipment. NPS personnel receive first aid and safety training, and some employees are trained in advance emergency skills. The park staff do not routinely attempt to keep track of visitors throughout the park. Visitors who are concerned about emergency assistance are encouraged to leave an itinerary with a friend or relative who can contact help if they are overdue. If made aware of an emergency situation, park staff respond with all available resources and notify the rescue coordination center, the Alaska State Troopers and the North Slope Borough.

The park encompasses more than 8.4 million acres of the Alaskan interior that is renowned for its unpredictable weather patterns. Park staff inform visitors of the risks and hazards associated with the arctic environment.

Other visitor safety concerns include the resident bear populations—bear safety is relevant to all visitors. Information on the availability of water and water treatment options is also important for visitor safety, especially for those planning overnight trips. Finally, topics such as campfire safety and insect control are safety-related issues that visitors are educated about before and during their trip to the park and preserve.

SUBSISTENCE USE

OVERVIEW

The people living in the northern reaches of Alaska, including the area in and around the park, continue to practice traditional livelihoods that have survived for more than 10,000 years. The earliest people to settle the Brooks Range were among the first to cross the Bering Land Bridge from Asia in a series of migrations that eventually populated the Americas. The first European explorers found their way to the Brooks Range in the 1880s, almost two decades after the United States purchased Alaska from Russia in 1867. They found it occupied with Native people representing both the Iñupiaq and Athabascan cultures. The land area of the park has been and continues to be used for subsistence purposes by Kuuvanmiit Iñupiat Eskimos and Nunamiut Iñupiat Eskimos that generally occupy the upper drainages of the Koyukuk River, Kobuk River valley, and the continental divide highlands and major north-flowing streams, respectively. Although resource use was historically vaguely defined by territories, the different groups of people did not demarcate distinct boundaries and contact between groups occurred.

The most important resource to the Native inhabitants in the area was caribou. The movement of caribou was a primary factor influencing the subsistence strategy of people in the central Brooks Range prior to contact with outsiders. Even today, the caribou gather seasonally in large herds, similar to the bison of the Great Plains in the continental United States, and provide local people with the sustenance they need to survive. Caribou is not the only resource utilized by people of the area. Other resources include fish, waterfowl, marmot, Dall sheep, bear, moose, ptarmigan, hare, furbearers, a variety of plant life, and even a few mineral deposits.

Contact with European explorers, traders, gold seekers, missionaries, and government agents brought technologies that changed some of the traditional lifeways of the people in the area. Firearms, for example, reduced the need for cooperative hunting patterns and people turned to harvesting furbearers as a means to acquire money to purchase imported goods. Disease reduced aboriginal populations, and caribou numbers declined, further reducing the number of people living in the area. Many abandoned their traditional use territories and the free-roaming, seminomadic existence gave way to village-based life on the coast or working for miners and traders in the interior.

The promise of gold brought prospectors, suppliers, freighters, and others who continued to harvest wildlife for food and as a source of cash. In the decades following the gold rush, traditional land use patterns and complex, Western ways existed in parallel, although gradually technological innovations like the airplane transformed daily life by making transportation and communication easier. There were only a few remaining year-round residents in Old Bettles and Wiseman by the 1940s. Alaska became the 49th state in 1959, and by the mid-1960s new technologies such as snowmachines and mechanical overland vehicles provided transportation sources that revolutionized the way people accessed resources. The ability to cover a lot of ground in a short period of time became possible, particularly in winter, a critical time for subsistence activities.

The 1970s brought the passage of the Alaska Native Claims Settlement Act,

which introduced the concept of private landownership, extinguished previous Native land claims, and transferred the title of 44 million surface acres to village corporations and subsurface rights to regional corporations. The State of Alaska then passed a comprehensive subsistence law that specifically defined subsistence use. The construction of the trans-Alaska pipeline and Dalton Highway brought with it a statewide economic boom and large amounts of money to rural Alaska. Dalton Highway now provides an overland route connecting places like Wiseman with population and economic centers such as Fairbanks. The infusion of oil money greatly contributed to the development of infrastructure in rural Alaska such as new housing, electricity, television, telephones, central heating, and other community services and technological conveniences. These changes brought with them the need for cash income to purchase commodities and pay bills, which continued to alter the traditional economic foundation of the area.

Congress passed the Alaska National Interest Lands Conservation Act in 1980, which designated over 104 million acres of federal lands as new or expanded conservation system units. This landmark legislation created Gates of the Arctic National Park and Preserve. A primary purpose of ANILCA was to accommodate the continuation of a rural subsistence way of life. Under ANILCA, the subsistence means applies to Alaska Natives and non-Natives; a subsistence priority is given to rural Alaskans.

Even with such dramatic economic and social changes to the area, subsistence use and traditional activities remain an enduring component of the lifeways of the region.

CURRENT SUBSISTENCE USE

Federal regulations authorize title VIII subsistence uses (including hunting, trapping, fishing) in Gates of the Arctic National Park and Preserve. Alaska Natives and other local subsistence users continue to rely on caribou, fish, and other species in the park for nutritional and other needs. Cooperative management of wildlife (uses) with the state occurs in the preserve as long as it is consistent with NPS mandates. In the park, the federal government (NPS and the Federal Subsistence Management Program) manages wildlife uses (subsistence) since the state was found to be out of compliance with federal law in 1990 (Office of Subsistence Management, Alaska, USFWS). Joint management of wildlife in Gates of the Arctic ensures that priority is given to subsistence users and that harvests are carried out at sustainable levels.

Caribou remain an extremely important subsistence resource, especially to residents of Anaktuvuk Pass, where 91.7% of the households rely on caribou meat. Moose are also an important subsistence resource for villages south and west of the park. Residents of Anaktuvuk Pass also harvest moose occasionally. Dall sheep are harvested for subsistence purposes by Anaktuvuk Pass and other resident zone community residents. Sheefish and whitefish are the most important subsistence fishes. Some lake trout and arctic char are also taken from lakes for subsistence use.

The land area of the park is vast, but it is not all used for subsistence purposes due to the rugged, mountainous terrain. Most resources, with the exception of Dall sheep, typically are found in or near the valley floors. Subsistence users generally access their hunting grounds or fishing locations via floatplane, boat, or snowmachine. While off-road vehicles are not allowed throughout the park, six- and

eight-wheeled off-road vehicles are used by residents of Anaktuvuk Pass through a special legislative provision that provided access easements to hunt caribou and other prey through the Anaktuvuk Pass Land Exchange. Travel to Chandler Lake and Ernie Pass, for example, is possible on easements and allows people to use the area for hunting sheep, bear, marmot, and caribou, and to fish and gather edible plants.

In the summer, waterways remain an important method of accessing resources. Subsistence hunters may be encountered in the Anaktuvuk Pass land exchange area during August and September, which includes the Anaktuvuk River, the John River, and the Kollutaruk Creek valleys. To a lesser degree, there may be subsistence activities in the North Fork Koyukuk River, John River, Kobuk River, and the Alatna River. The Kobuk, up to the lower canyon, is still used for hunting, fishing, and gathering; the Alatna River is used for hunting moose, sheep, and bear up to the confluence of the Unakserak River; the John River is used for hunting moose, bear, and sheep up to the area near Wolverine Creek. Sport and subsistence caribou hunting occurs in the Eastern Unit (Itkillik Preserve) in the spring and fall, but hunting in this area is sporadic due to the unpredictable movements of the caribou herds. The Western Unit (Kobuk Preserve) is visited infrequently by caribou hunters. Most resource use, however, occurs during the winter months.

Accessing resources in the winter becomes easier by early November when waterways are frozen and snow cover makes travel by snowmachine easy. Snowmachine access can be hindered by deep snow and rugged terrain, which is why most winter use occurs in the northern half of the park where the land is treeless and has a shallow, wind-blown snow pack that makes snowmachine travel less difficult. Hundreds of miles of valleys are traveled each winter within the park for subsistence purposes.

SUBSISTENCE AND CLIMATE CHANGE

Subsistence users in the park rely on the good health, location, and consistent timing of vegetation and wildlife populations for part of their diet and for other needs. Climate impacts could affect when and where resources are available, as well as the time and energy required to procure them. For example, climate change impacts on snow and ice cover may provide increased water access to caribou habitat, but decreased access by snowmachine (AK Park Science: Scientific research on climate change in Alaska's National Parks pp.23). As some populations adapt better than others to a changing climate, subsistence activities will shift accordingly. New species or species previously thought of as unimportant may become valuable subsistence resources, forcing decision makers to alter their management strategies.

Generally, climate change has resulted in the earlier onset of the growing season and an approximately 20% increase in growing days. This may permit the cultivation or forage of more plants. However, potential climate change impacts such as altered precipitation patterns, increased wildfires, and pest disturbances make it difficult to determine if this will ultimately be beneficial for subsistence users (AK Park Science: Scientific research on climate change in Alaska's National Parks p. 20).

Water quality and flow changes linked to climate impacts have already affected the range and quality of some fisheries important to Alaskan subsistence users such as salmon and sheefish. From 1982 to 2006, fish and invertebrate species shifted north an average of 34 ± 56 km in

response to the shift in ocean temperatures (Mueter and Litzow 2008). For communities that have established infrastructure corresponding to the historic migration patterns of fish, these shifts could have costly financial and sociocultural repercussions if relocation is necessary.

SOCIOECONOMICS

OVERVIEW

- In Alaska, and unlike most other states that have many overlapping local government service providers, there are only two types of municipal government—cities and organized boroughs. Both city governments and organized boroughs are municipal corporations and political subdivisions of the state. There are 16 organized boroughs, which are intermediate-sized governments that are much larger than cities.

- Most of Gates of the Arctic National Park and Preserve lies within the Yukon Koyukuk Regional Educational Attendance Area (REAA), part of the one unorganized borough in the state, which is a unit of state government. The Yukon Koyukuk REAA is a state service area that provides public education to the unorganized borough, with the exception of home rule and first-class cities in the area. The northernmost portion of the park lies within the North Slope Borough and the very western edge of the park lies within the Northwest Arctic Borough.

- There are three types of cities in Alaska—home rule, first-class, and second-class cities. First- and second-class cities are "general law cities" and their powers are defined by state law as opposed to home rule cities that retain all legislative powers not prohibited by law or charter. At least 400 permanent residents are required to form a home rule or first-class city (AK Dept. of Community and Economic Development 2001). The largest population centers nearest the park are all second-class cities and include Anaktuvuk Pass; the area including Kobuk, Shungnak, and Ambler; and Bettles.

Most of the inhabitants of the vast and rugged Brooks Range region live in scattered, small communities. The region's economy comprises subsistence, wage employment, and other forms of income. Given the rural nature of the area and continuation of traditional activities, rural residents rely extensively on subsistence activities to meet their dietary and cultural needs. Identified "resident zone communities—areas with significant concentrations of residents that qualify as subsistence users—include Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles/Evansville, Hughes, Kobuk, Nuiqsut, Shungnak, and Wiseman (subsistence activities are further discussed under "Subsistence Use").

Although the mountains divide the region into four culturally distinct areas (upper Koyukuk River drainage, Kobuk River valley, northern side of the Brooks Range, and the Dalton Highway vicinity) with different histories and lifestyles, the influence area for economic and social consideration associated with the park for this plan is partially associated with the borough and REAA boundaries, although the primary focus is on communities adjacent to the park such as Anaktuvuk Pass, Kobuk, Shungnak, and Ambler, and Bettles, which are highlighted in more detail. The regional economic hub is Fairbanks, which is

about 250 miles southeast of the park, or just under an 8-hour drive.

North Slope Borough

The North Slope Borough is the most northern of all boroughs in Alaska. It traverses the entire state, from Point Hope to Canada and from the Brooks Range to the Arctic Ocean, encompassing just under 95,000 square miles (about 6.3% is water). The majority of the population is Iñupiat. All communities in the borough are incorporated as second-class municipalities, with the exception of Point Lay, which is unincorporated. The only incorporated community in the vicinity of the park is Anaktuvuk Pass. The borough's economy is dominated by the petroleum industry, local government services, and subsistence activities. The borough's fiscal year 2010–2011 operating budget was just under $315 million (North Slope Borough 2011).

Anaktuvuk Pass

Anaktuvuk Pass lies in the Endicott Mountains of the Brooks Range at about 2,200 feet of elevation. It is in the Gates of the Arctic National Park and Preserve and is situated about 250 miles northwest of Fairbanks and about 250 miles southeast of Barrow. In the 1920s, many residents left the area and settled along the Beaufort Sea Coast as caribou populations declined and western settlers arrived. The village was incorporated in the late 1950s and became a second-class city in 1971. The Village of Anaktuvuk Pass is a federally recognized tribe, which is governed by the Naqsragmiut Tribal Council. The Nunamiut Iñupiat Corporation is the local ANCSA village corporation. A variety of traditional land uses occur within and adjacent to the community for subsistence and cultural purposes (North Slope Borough 2010).

The community is isolated and not accessible by road, making the Anaktuvuk Pass Airport (operated by the North Slope Borough) a critical piece of infrastructure connecting it to other communities. Other important community facilities include the Nunamiut schools, in which students attend from kindergarten through 12th grade. The community also has a fire station, health clinic, and post office, and the Simon Paneak Memorial Museum, which showcases information about the area's natural and cultural history.

In the late 1990s, water and sewer projects were initiated and now the community has a functioning electric and telecommunications infrastructure. Telecommunications infrastructure includes a fully digital local telephone system, local dial-up Internet, a community teleconference center, cable television, public radio broadcast, an interactive video distance education system, wide area data network, and two-way radio technologies. A water treatment plant and sewage treatment building are in place. Additional key infrastructure includes bulk storage tanks for fuel storage, which are flown in from Fairbanks via cargo planes. Electricity is available to some housing units and generated using diesel fuel and transmitted via overhead transmission lines. Anaktuvuk Pass residents are also able to use a power cost equalization subsidy (AK Department of Commerce, Community, and Economic Development 2010).

Northwest Arctic Borough

The Northwest Arctic Borough is the second-largest borough in Alaska, encompassing about 39,000 square miles. The population is primarily Iñupiat and the lifestyle and economic activity is largely subsistence based. Mining activity, government services, transportation, and

construction are major industries. Although the Red Dog Mine is not near the park, it is about 90 miles north of Kotzebue, and is the world's largest zinc and lead mine, and a major contributor to the borough's economy. The mine has a $52 million payroll, provides 550 high-paying jobs, and in excess of 25% of the borough's payroll (AK Department of Commerce, Community, and Economic Development 2010; Red Dog Mine 2011).

Kobuk

Kobuk was founded in 1899 as a supply point for mining activities in the Cosmos Hills to the north. The city was incorporated in 1973. The community's economy is based on subsistence activities, with whitefish, caribou, and moose providing the main sources of meat. The local school, local city government, and Maniilaq clinic provide limited cash employment opportunities. Seasonal job opportunities are available in construction and wildland firefighting for the Bureau of Land Management. Community infrastructure includes electricity, a water well, and piped water and sewer systems (AK Department of Commerce, Community, and Economic Development 2010).

Shungnak

Like Kobuk, Shungnak was founded in 1899 as a supply point for mining activities in the Cosmos Hills. River erosion from flooding forced the Iñupiat village to move from the present site of Kobuk to Shungnak in the 1920s, originally named "Kochuk." The economy is dominated by subsistence activities. The Bureau of Land Management hires approximately 30 residents each year for firefighting. Full-time employment is limited to the school district, the city, Maniilaq Association, two stores, and a lodge. There is a strong arts and crafts industry in the community. Shungnak is accessible by plane via the state-owned illuminated gravel runway, as well as by barge and small boat. Fuel and supplies are barged to Shungnak from Kotzebue and local modes of travel consist of small boats, ATVs, snow-machines, and dog sleds (AK Department of Commerce, Community, and Economic Development 2011).

Ambler

Located on the north bank of the Kobuk River, Ambler lies 45 miles north of the Arctic Circle and 30 miles northwest of Kobuk. Although named after Dr. James M. Ambler, a U.S. Navy surgeon, the town was permanently settled in 1958 when people from Shungnak and Kobuk moved downriver to take advantage of the variety of fish, wild game, and spruce trees in the area. The city was incorporated in 1971 and has limited cash employment. The residents of Ambler are primarily Kuuvanmiit Iñupiat with a traditional subsistence way of life.

Only two residents hold commercial fishing permits. Other forms of cash employment include the school, health clinic, and local stores. Key infrastructure includes a state-owned gravel airstrip, a water well, water treatment facility, and water storage tank. Transportation includes daily scheduled flights from Kotzebue, chartered air taxis, boats for intervillage travel, and ATVs, as well as snowmachines in the winter (AK Department of Commerce, Community, and Economic Development 2011).

Yukon Koyukuk Regional Educational Attendance Area

The Yukon Koyukuk REAA is a state service area that provides public education to the unorganized borough. This REAA encompasses about 148,000 square miles (about the size of the state of

Montana) and is the largest area of any county or county-equivalent in the United States. It has no form of county government. Population density is extremely low, with a total population of 5,588 in 2010. The REAA is extremely rural and economic activity is primarily subsistence based. Coldfoot is a small census-designated place that primarily serves as a truck stop along Dalton Highway with a population of 13 as of the 2000 U.S. Census (U.S. Census Bureau 2011). The National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service jointly operate and staff the Arctic Interagency Visitor Center & Coldfoot Ranger Station in Coldfoot, which has the highest visitation of any location where the park gathers visitor statistics (over 8,000 visitors in 2010) (NPS Public Use Statistics Office 2011).

Bettles

Bettles is a second-class city about 180 air miles and 250 road miles northwest of Fairbanks, Alaska, on the southeast bank of the Koyukuk River. Several Native groups have inhabited the area for thousands of years. A trading post was opened 6 miles from the present community and referred to as "Old Bettles." It was the northern terminus of the Koyukuk River barge line and had an operating post office until 1956. In 1945, the U.S. Navy constructed Bettles runway to support exploration of the National Petroleum Reserve. Bettles was incorporated as a city in 1985.

Community facilities and infrastructure include a landfill operated by the Native Village of Evansville and electrical service. A state-owned airport has a manned FAA contract weather station. The community is accessible in the late winter months, via the 30-mile-long Bettles Winter Ice Road that connects with Dalton Highway.

The economy is driven by air transportation, visitor services, and government employment. Summer seasonal employment is linked to the park in the form of tourist-oriented businesses and guide services. Subsistence activities are also prominent. It is home to the Gates of the Arctic National Park and Preserve ranger station for field operations (AK Department of Commerce, Community, and Economic Development 2010).

DEMOGRAPHICS

Population

The three boroughs are sparsely populated, with fewer than 10,000 total residents in each borough as of 2010. The specific communities identified in each borough represent a small fraction of the total population. The estimated 2010 Anaktuvuk Pass population, for example, represents only about 3% of the total borough population; Kobuk, Shungnak, and Ambler, when combined, represent 9% of the population of the Northwest Arctic Borough's total estimated population in 2010; and Bettles represents less than 1% of the population within the Yukon-Koyukuk REAA.

The North Slope Borough and Northwest Arctic Borough experienced an increase in population from 1990 to 2000 and from 2000 to 2010. In addition, each of the communities within these two boroughs (see table 8) also witnessed a population increase from 1990 to 2000 and from 2000 to 2010. The exception is Ambler, where the population has declined since 1990. The Yukon-Koyukuk REAA has experienced a declining population since 1990. The population of Bettles, however, grew between 1990 to 2000, but decreased between 2000 and 2010.

Other communities within the vicinity of the park have small populations,

including Wiseman (14 people as of 2010), Coldfoot (11 people as of 2010), and Evansville (15 people as of 2010).

Race

The racial profile of the three-borough regions is predominantly American Indians and Alaska Natives, in this case Iñupiat, who have occupied the area for at least the past 10,000 years. The percentages included in table 9 are taken from the U.S. Census Bureau, Alaska Census Data 2010, the most current data available. Alaska Natives comprise the vast majority of the population in the three boroughs. Anaktuvuk Pass, Kobuk, Shungnak, and Ambler are predominantly populated by Native people, whereas Bettles is almost completely populated by people identifying themselves as white.

Housing

The three-borough area has just fewer than 9,500 total housing units, only 366 of which are in the five communities in table 10. Of the five communities, Bettles has the highest vacancy rate (64%) and Shungnak has the lowest (15%).

Housing structures in the five communities are aging with very few new structures. Some do not have home utility services, such as plumbing and kitchen utilities, or telephone service. The home heating fuel used differs to some extent by community, but primarily consists of fuel oil, kerosene, or wood.

In sum, the communities nearest to the park are remote, rural communities with small populations primarily composed of Alaska Natives, with the exception of Bettles. Housing structures are aging to some extent, and vacancy rates are high. Household utilities are not available in all housing units and a large number of housing units rely on fuel oil, kerosene, or wood to heat their homes.

ECONOMY AND EMPLOYMENT

The people living in communities in or near the park have utilized the knowledge, wisdom, and skills developed over generations and continue to thrive in this sometimes challenging environment. The way that people earn a living in Alaska is often by subsistence traditions. In this part of the country, earning a living often does not take the form of cash-based employment. For those that do earn a living from cash-based employment, their job is often tied to government services or seasonal employment opportunities. Due to the area's geographic isolation, lack of convenient connectivity with major economic centers, such as Fairbanks or Anchorage, and a small population, cash-based employment opportunities are limited.

The opening of Dalton Highway (often referred to as the Haul Road) in 1994 to the general public provided another way to access the park and nearby communities, spurring some economic development along the road. It is a 414-mile north-south road that begins at Elliott Highway north of Fairbanks and ends at Deadhorse near the Arctic Ocean and the Prudhoe Bay oil fields. The highway was constructed and completed in 1974 as a supply road during construction of the Trans-Alaska Pipeline system and provides vehicular access to communities near the park. Hiking access into the park did not begin until the Dalton Highway was opened to the public in 1994. The Dalton Highway was designated as a State Scenic Byway in 1998 and carries primarily supply truck traffic, although there is some, albeit minimal, tourist traffic during the short summer months. Average daily traffic volumes gathered by the Alaska Department of Transportation and Public Facilities indicate there were

between 190 and 290 vehicles per day on the road, depending on the location of the count. The highest traffic count was at mile zero and the lowest was at mile 253.73 (Atigun River 1) (Dalton Highway Scenic Byway Corridor Partnership Plan 2010).

Employment

The industry employing the largest number of civilian workers is "educational services, health care, and social assistance." This industry employs roughly 36% of the Northwest Arctic Borough, 33% of the North Slope Borough, and 31% of the Yukon Koyukuk REAA. The industry employing the next highest percentage of the civilian population in the North Slope and Yukon Koyukuk REAA is public administration. In the Northwest Arctic Borough, the "agriculture, forestry, fishing and hunting, and mining" industry employs 12% of the civilian population, followed closely by "retail trade" and "public administration" at 11%, respectively.

Given the small population of the five communities highlighted in table 13, most data about workers and the industry that employs them is not available. The most current data from the state is included below. Local government remains the top employer in these communities.

Although the seasonal increase in the number of people employed over the summer months in the North Slope Borough, Northwest Arctic Borough, and Yukon-Koyukuk REAA is less pronounced than other areas in Alaska, there are still seasonal increases. The largest seasonal increase in 2010 was in the Yukon-Koyukuk REAA, where employment was the lowest in January and the highest in September, with an additional 539 people employed, a 27% increase. The increase was smaller in the North Slope Borough at 11% and a 9% increase in the Northwest Arctic Borough. These two boroughs saw an employment low in December and a high in August and July, respectively (Dept. of Labor and Workforce Development, Quarterly Census of Employment and Wages 2011).

Unemployment

Between 2004 and 2009, the unemployment rate in the North Slope Borough and Northwest Arctic Borough was highest in 2004, whereas it was highest in 2009 in the Yukon-Koyukuk census area (table 12).

The unemployment rate in the Northwest Arctic Borough and Yukon-Koyukuk Borough has been much higher than that in the Fairbanks area and across the state as a whole. From 2007 to 2009, the North Slope Borough had a lower unemployment rate than both the Fairbanks North Star Borough MSA and the state as a whole. In the communities nearest the park, the most recent unemployment insurance claimant figures are included in table 13.

The median household income by borough is shown in table 14, along with the percentage of people below the poverty level. The median household income in North Slope Borough is much greater than that in the Yukon-Koyukuk REAA, which also has a higher poverty level.

TABLE 8. POPULATION OF BOROUGHS AND POPULATION CENTERS ENCOMPASSING GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE

	1990	2000	2010	% change ('90 –'10) [1]
North Slope Borough	5,979	7,385	9,430	58%
Anaktuvuk Pass	259	282	324	25%
Northwest Arctic Borough	6,113	7,208	7,523	23%
Kobuk	69	109	151	119%
Shungnak	223	256	262	17%
Ambler	311	309	258	-17%
Yukon-Koyukuk REAA	8,478	6,551	5,588	-34%
Bettles	36	43	12	-67%

Source: U.S. Census Bureau, 2010 Census, Census 2000, 1990 Census; [1] rounded to the nearest whole percentage

TABLE 9. RACIAL BREAKDOWN OF SELECT COMMUNITIES

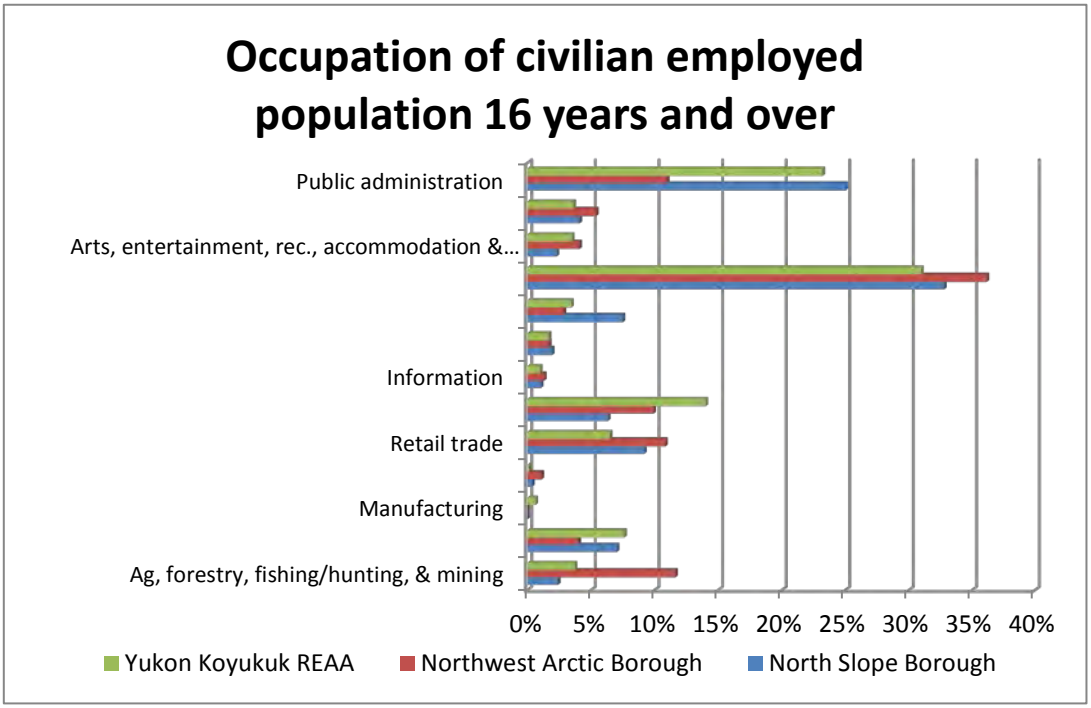
	Anaktuvuk Pass	Kobuk	Shungnak	Ambler	Bettles
One Race	84%	100%	100%	94%	100%
American Indian and Alaska Native	75%	82%	99%	82%	0%
White	6%	14%	1%	12%	100%
Black or African American	4%	0%	0%	0%	0%
Asian	0%	1%	0%	0%	0%
Native Hawaiian and Other Pacific Islander	0%	3%	0%	0%	0%
Some other race	0%	0%	0%	0%	0%
Two or more races	17%	0%	0%	6%	0%

Source: U.S. Census Bureau, Alaska Census Data 2010
Note: All figures rounded to the nearest whole percentage.

TABLE 10. HOUSING CHARACTERISTICS OF SELECT COMMUNITIES

	Anaktuvuk Pass	Kobuk	Shungnak	Ambler	Bettles
Total Housing Units	118	51	73	99	25
Occupied Housing Units	99	36	62	75	9
Vacant Housing Units	19	15	11	24	16
Vacant Housing Units as a Percentage of Total Housing Units	16%	29%	15%	24%	64%

Source: U.S. Census Bureau, Alaska Census Data 2010



Source: U.S. Census Bureau, American Community Survey 2005–2009

FIGURE 3. OCCUPATION OF CIVILIAN POPULATION 16 YEARS AND OLDER

TABLE 11. WORKERS BY INDUSTRY

	Anaktuvuk Pass	Kobuk	Shungnak	Ambler	Bettles
Natural Resources and Mining	—	—	7	5	N/A
Trade, Transportation, and Utilities		—	—	5	N/A
Professional and Business Services	—	6	26	12	N/A
Educational and Health Services	—	8	11	10	N/A
Financial Activities	21	—	—	—	N/A
Local Government	122	27	59	67	N/A

Source: Alaska Department of Labor and Workforce Development, Alaska Local and Regional Information. Workforce Info. 2011

Note: all industries not represented and those included, but with an asterisk (*) means data is suppressed.

TABLE 12. ANNUAL AVERAGE UNEMPLOYMENT RATE COMPARISON (2004–2009)

	State of Alaska	Fairbanks North Star Borough MSA	North Slope Borough	Northwest Arctic Borough	Yukon-Koyukuk Census Area
2004	7.4%	6.4%	10.2%	13.2%	11.9%
2005	6.9%	5.8%	9.0%	11.9%	11.7%
2006	6.5%	5.6%	6.8%	11.2%	13.0%
2007	6.1%	5.3%	5.2%	10.6%	13.4%
2008	6.5%	5.8%	4.1%	11.2%	13.6%
2009	8.0%	7.1%	4.7%	12.7%	15.7%

*not seasonally adjusted

Source: Alaska Department of Labor and Workforce Development, Unemployment Data

TABLE 13. NUMBER OF UNEMPLOYMENT INSURANCE CLAIMANTS

	March 2011
Anaktuvuk Pass	18
Kobuk	7
Shungnak	14
Ambler	24
Bettles	NA

Source: Alaska Department of Labor and Workforce Development, Alaska Local and Regional Information

Note: UI claimants are individuals in this area who had an active claim at any time during the month.

TABLE 14. MEDIAN HOUSEHOLD INCOME AND POVERTY LEVEL

	Median Household Income	Below Poverty Level [1]
North Slope Borough	66,556	15%
Northwest Arctic Borough	57,885	19%
Yukon-Koyukuk REAA	33,716	24%

Source: U.S. Census Bureau, American Community Survey 2005–2009

[1] Percentage of people whose income in the past 12 months is below the poverty level.

Economic Contributions of Gates of the Arctic National Park and Preserve

Gates of the Arctic National Park and Preserve does benefit the local and regional economy in the form of park operations, capital expenditures, federal payments in lieu of taxes (PILT), concession operations and contracts, and by visitor expenditures. The park also benefits the economy when employees spend their income in the local and regional economy. In addition, the park budget includes spending for utilities, supplies, and other purchases, which support local and regional jobs and generate tax revenue that supports government programs and services. The effect of this spending is in addition to effects related to visitor spending.

PILT Payments

A source of revenue that affects the region's economy is federal payments in lieu of taxes. These payments are made by the federal government to the boroughs to help offset losses in property taxes as a result of the nontaxable federal lands within their boundaries. These payments assist the boroughs in paying for government services.

Based on current data for the government's fiscal year (FY) 2010, the total PILT acres and payment by borough are included in table 15, as well as an approximate PILT payment as a result of Gates of the Arctic acres. This calculation is coarse and does not account for the complexities built into the actual formulas used.

VISITOR AND PARK SPENDING

Visitor spending related to Gates of the Arctic National Park and Preserve is difficult to determine for a number of reasons. The primary difficulty is that the park is extremely isolated and visitor spending to reach Alaska and the park itself is difficult to track.

Visitor spending associated with the park is primarily associated with spending in gateway communities such as Fairbanks, Anaktuvuk Pass, Bettles, and Coldfoot. This spending benefits those respective economies. Park visitors either access the park via foot from the Dalton Highway or via floatplane and often use air taxi services and guide services. These businesses rely heavily on the park for their business revenue.

TABLE 15. PILT PAYMENTS BY BOROUGH, FISCAL YEAR 2010

County	PILT Payment	Total Acres	Price per Acre	Gates of the Arctic NPP Acres	Approximate Payment from Gates of the Arctic NPP Acres
North Slope Borough	995,130	40,576,447	$0.025	8,472,506	$207,787
Northwest Arctic Borough	995,130	17,573,218	$0.057	8,472,506	$479,778
Yukon-Koyukuk REAA	905,837	58,696,546	$0.015	8,472,506	$130,752

Source: U.S. Department of the Interior

Visitor spending associated with the park is primarily associated with spending in gateway communities such as Fairbanks, Anaktuvuk Pass, Bettles, and Coldfoot. This spending benefits those respective economies. Park visitors either access the park via foot from the Dalton Highway or via floatplane and often use air taxi services and guide services. These businesses rely heavily on the park for their business revenue.

Based on NPS visitor statistics, there were 9,975 recreational visitors in 2009 and 10,840 in 2010 (Note: subsistence users are not counted in this figure). Only 579 people actually entered the park (guided or nonguided) in 2010. All other visitation occurs at sites outside the park (NPS Public Use Statistics Office 2011).

Based on the 2009 NPS Park Visitor Spending and Payroll Impacts report, all visitors to the park (this includes areas outside the park boundary) spent just under $3 million in 2009, supporting 32 jobs. The park payroll (salary and payroll benefits) was about $1.8 million in FY 2009, which supported 37 NPS jobs and a total of 46 jobs (includes non-NPS jobs) and added $2.7 million to the economy (Stynes 2009).

COMMERCIAL SERVICES

There is one concession contract for operations within the park. The contract is for guide and outfitting services for sport hunting. The contractor had gross receipts of $66,500 for the most recent reporting period (date unknown).

Commercial Use Authorizations

Section 418 of the National Parks Omnibus Management Act of 1998, Public Law 105-391, authorizes the National Park Service, upon request, to issue commercial use authorizations to individuals, corporations, and other entities to provide commercial services to park area visitors in limited circumstances. Commercial use authorizations are used to authorize commercial services to park area visitors, but are not concession contracts. They are intended to provide a simple means to authorize suitable commercial services to visitors in park areas in the limited circumstances in the legislation.

In 2010, there were 32 commercial use authorizations issued by the park. This was the largest number of commercial use authorizations issued by the park over the last five years and was six more than the previous year. The services provided by these companies range from food and

service operations to fishing guide services. Of the 32, four are special-use (nonprofit) permits and therefore their fees are waived (table 16).

TABLE 16. NUMBER OF COMMERCIAL USE AUTHORIZATIONS BY YEAR, 2006–2010

Year	CUAs
2006	28
2007	29
2008	23
2009	26
2010	32

Source: Gates of the Arctic NPP

The overall revenue generated by commercial use authorizations is not available. The range of revenue received by each commercial use authorization is wide, from a few hundred to tens of thousands of dollars. Regardless of the actual dollar amounts, the opportunities to visit and experience the wild and undeveloped park is a draw that keeps hunting, fishing, and river guides, as well as air taxi pilots in business.

CONCLUSION

Gates of the Arctic National Park and Preserve is an integral component of the economic fabric of the area, whether providing natural habitat for subsistence uses, luring recreational visitors that spend money in communities near the park, or through employee payroll and direct expenditures.

PARK OPERATIONS

INTRODUCTION

In 2008, Gates of the Arctic National Park and Preserve, Yukon-Charley Rivers National Preserve, and the Fairbanks Alaska Public Lands Information Center were organized into a single organization called YUGA. YUGA is led by a NPS management team stationed in Fairbanks. Park staff is also duty-stationed in Anaktuvuk Pass, Bettles, Coldfoot, and Eagle. The alignment of the three national park system units into one organization results in some instances where elements of Gates of the Arctic operations are intermingled with Yukon-Charley operations. Overlap between the operations of the two parks is noted below under "Visitor and Resource Protection Division."

OPERATIONS AND MANAGEMENT

Gates of the Arctic is administered by a superintendent and several division chiefs. Management of the park is organized into the park superintendent's office and six distinct divisions. The divisions are discussed in the sections that follow. As of 2010, there were 28 permanent FTEs who worked for Gates of the Arctic.

The park superintendent is directly responsible for the six division chiefs. The main base of operations for the superintendent and the division chiefs is in the Fairbanks Administrative Center, an office building leased by the General Services Administration.

ADMINISTRATION DIVISION

The administration division is responsible for the park budget, human resources, travel, information technology, property management activities, purchasing, central filing, and recycling. As of 2010, seven permanent, FTEs work in this division; six are in Fairbanks and one is in Eagle.

FACILITIES MANAGEMENT DIVISION

The facilities management division is responsible for the maintenance and repair of park administrative buildings, support structures, employee housing, roads, grounds, utilities, and fleet vehicles. The fleet contains vessels, cars, trucks, snowmachines, ATVs, utility terrain vehicles, and construction equipment. The division manages facility project formulation and oversight, environmental and hazardous waste projects, the safety program, equipment replacement projects, the carbon footprint reduction project, fuel consumption data, and the Facility Management Software Systems data and work order reporting system.

As of 2010, two permanent, FTEs work in this division and they are duty-stationed in Fairbanks. One permanent, FTE is in Bettles. Several seasonal and subject-to-furlough employees are duty-stationed in Bettles, Eagle, and Coldfoot.

Roads and Snow Removal

There are no roads within the park, but the facilities management division oversees maintenance and snow removal for small sections of roads and parking

lots outside the park where Gates of the Arctic shares facilities with other federal agencies such as the interagency visitor center at Coldfoot.

Structures and Utilities

All administrative facilities exist outside the boundary of the park in Fairbanks, Bettles, Anaktuvuk Pass, Coldfoot, and Dahl Creek. Facilities in Fairbanks include a leased office building and two sheds. The park leases space at the hangar and part of the Morris Thompson Cultural and Visitors Center where the Alaska Public Lands Information Center is managed as part of the National Park Service. In Bettles, facilities include a visitor center shared with the U.S. Fish and Wildlife Service, six housing units for permanent and seasonal employees, three well and four septic systems, a pit privy, tool shed, a mess hall used for storage and overflow staff temporary lodging, a recreation hall, a bunkhouse jointly operated by U.S. Fish and Wildlife Service, a fire cache and backcountry cache and eight heating fuel storage and distribution systems. Facilities in Anaktuvuk Pass include a residence that doubles as office space, a bunkhouse, a storage shed, two heating fuel storage and distribution systems and a wind turbine generator. In Dahl Creek, the park leases two bunkhouses, one of which is being used as a storage shed and heating fuel storage and distribution system. The park operationally supports the Arctic Interagency Visitor Center managed by the Bureau of Land Management in Coldfoot. There is also an old ranger station used as offices, one heating fuel storage and distribution system and storage with a parking lot that is used in the summer for temporary seasonal housing. The National Park Service also leases a 4.6-acre parcel that includes a building used formerly as the Coldfoot Visitor Center. Currently, this building is shared with the U.S. Fish and Wildlife Service. Additionally, the National Park Service possesses two lots of state land in perpetuity, one of 2.1 acres is vacant and one of 7.7 acres contains the Volunteers-In-the-Park cabin for seasonal housing of volunteers. There are two single-family homes, a septic system, a well water distribution system, a storage weather-port, three heating fuel storage and distribution systems, and a power generation system that consists of solar cells, solar electricity storage (a battery bank), and generators at Marion Creek that will be studied for relocation to Coldfoot. The work performed by staff in the facilities management division includes daily custodial labor (where appropriate) and repairs, preventive maintenance, preservation, and rehabilitation of buildings, structures, and utility systems. The division also maintains the fuel system and float plane dock in Bettles.

Trails

There are no maintained trails inside the park. However, the park has an informal agreement with Anaktuvuk Pass (not on park lands) to maintain trails in that area.

INTERPRETATION DIVISION

The interpretation division is responsible for visitor services, trip planning assistance and materials, developing and distributing educational materials, developing and delivering educational programs for schools and villages, developing and maintaining the Gates of the Arctic website, giving interpretive programs at the Bettles Ranger Station and Arctic Interagency Visitor Center in Coldfoot, informal interpretive visitor contacts, ranger support (dispatch, patrol database, etc.), developing podcasts and new interpretive exhibits, managing the Artist-in-Residence program, and performing the lead role among partners

in the Far North Conservation Film Festival. The division also partners with the Fairbanks Alaska Public Lands Information Center to offer backcountry orientations, exhibits, and other formal and informal interpretive opportunities. The interpretation division also works with the Anaktuvuk Pass in a program involving students and others monitoring bird species of concern.

As of 2010, the division includes a permanent, full-time employee and a subject-to-furlough employee duty-stationed in Fairbanks. Four other subject-to-furlough and seasonal employees are duty stationed in Bettles and Coldfoot.

RESOURCE MANAGEMENT DIVISION

The resource division is responsible for the following program areas: archeology, ethnography (local and traditional knowledge and repatriation), traditional use, historic structures, cultural landscapes, curation/museum collections, fire, paleontology, water quality, fisheries, nonnative plant management, species of special concern, wildlife (mammals and birds), vegetation, GIS, planning and compliance, research permits, and climate change. The resources division works closely with the Bureau of Land Management, U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and Alaska Department of Environmental Conservation. The division also collaborates with the Western Arctic Caribou Herd Working Group, Tanana Chiefs Conference Consortium, Alaska Inner Tribal Council, and several universities.

As of 2010, the resources division has nine permanent, full-time employees and seven part-time, subject-to-furlough, or term employees duty stationed in Fairbanks.

SUBSISTENCE / ETHNOGRAPHY DIVISION

The park's subsistence program is responsible for meeting requirements under ANILCA. These requirements include acting as a liaison between Gates of the Arctic management and the local Subsistence Resource Commission, which is composed of local subsistence users in and around Gates of the Arctic. The program has an active social science research program focusing on the traditional lifeways in resident zone communities, oral history documentation, and subsistence-related research. The Subsistence Resource Commission and NPS subsistence program staff provide reports and are engaged with several Federal Subsistence Program Regional Advisory Councils that advise and make recommendations to the Federal Subsistence Board on subsistence hunting, fishing, and trapping on federal lands. The program also has regular formal and informal contact with local tribes and Native Alaskan organizations, mostly focusing on cultural documentation and subsistence-related research.

As of 2011, the subsistence/ethnography division has one permanent, subject-to-furlough employee in Fairbanks.

VISITOR AND RESOURCE PROTECTION DIVISION

The visitor and resource protection division provides law enforcement protection for visitors and wildlife, interpretive and safety information to visitors in the visitor centers and in the park itself, search and rescue and emergency medical services, and aviation services for all park divisions. This division manages two concessions contracts and more than 50 commercial use authorizations in Gates of the Arctic and Yukon-Charley. Law enforcement staff participates in resource management

activities such as moose and sheep surveys.

This division also works collaboratively with the interpretation division to provide visitor services, trip planning assistance, and materials interpreting safety and Leave No Trace information.

As of 2011, the subsistence/ethnography division has one permanent, subject-to-furlough employee in Fairbanks.

Chapter 4

Environmental Consequences

INTRODUCTION

The National Environmental Policy Act mandates that environmental documents disclose the environmental effects of proposed federal actions. In this case, the proposed federal action would be the adoption of a GMP Amendment for Gates of the Arctic National Park and Preserve. This "Environmental Consequences" chapter analyzes the potential effects of three management alternatives on natural resources, wilderness character, cultural resources, visitor use and experience, subsistence use, socioeconomics, and park operations. By examining the environmental consequences of all alternatives on an equivalent basis, decision makers can determine which alternative produces the most desirable combination of beneficial results with the fewest adverse effects on the park.

The impact topics presented in this chapter and the organization of the topics correspond to the resource discussions contained in "Chapter Three: Affected Environment." This chapter includes information on the general methodology and assumptions for analyzing impacts, the analysis methods used for determining cumulative impacts, and definitions of impact thresholds (minor, moderate, and major) for each impact topic. A summary of the environmental consequences for each alternative is provided in table 6, which can be found in "Chapter Two: Alternatives."

The alternatives in this GMP Amendment provide broad management directions. Because of the general nature of the alternatives, the potential consequences of the alternatives are analyzed in similarly general terms using qualitative analyses. Thus, this environmental assessment should be considered a programmatic analysis.

The existing conditions for all of the impact topics that are analyzed here were identified in the "Affected Environment" chapter. All of the impact topics are assessed for each alternative. For each impact topic, there is a description of the beneficial and adverse effects of the alternative, a discussion of the cumulative effects when the alternatives are considered in conjunction with other actions occurring in the region, and a brief conclusion.

GENERAL METHODOLOGY FOR ANALYZING IMPACTS

The planning team based the impact analysis and the conclusions in this chapter on the review of existing literature and studies, information provided by experts in the National Park Service, park staff insights, public scoping, and professional judgment. The analysis includes an assessment of both direct and indirect impacts. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later in time or are farther removed from the place, but are still reasonably foreseeable. It is important to remember that all the impacts have been assessed assuming that mitigation measures described in chapter two have been implemented to minimize or avoid impacts.

Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making*, presents the approach used to identify the duration (short or long term), geographic context,

type (adverse or beneficial), and intensity or magnitude (e.g., minor, moderate, or major) of the impacts. Assumptions used when considering impacts are explained further in this section.

Duration

Impact duration refers to how long an impact would last. The planning horizon for this plan is approximately 15 to 20 years. Unless otherwise specified in this document, the following terms are used to describe the duration of impacts:

Short-term Impacts. Effects that are temporary in nature and last for up to two consecutive visitation seasons (or years), such as impacts associated with construction.

Long-term Impacts. Effects that last for more than two consecutive visitation seasons (or years) and can be permanent in nature, such as the loss of soil due to the construction of a new facility. (Although an impact may only occur for a short duration at one time, if it occurs regularly over a longer period of time the impact may be considered a long-term impact. For example, the noise from a vehicle driving on a road would be heard for a short time and intermittently, but because vehicles would be driving the same road throughout the 15-year life of the plan, the impact on the natural soundscape would be considered to be long term.)

Type of Impact

The following definitions of an adverse and beneficial impact were used in the analysis:

Adverse. Effects that reduce the quality of, degrade, or diminish the visitor experience, park resources (e.g., wildlife, historic resources, wilderness), opportunities for subsistence use, the social and economic environment, or park operations.

Beneficial. Effects that improve or enhance the visitor experience, park resources, opportunities for subsistence use, the social and economic environment, or park operations.

Geographic Context

Context refers to the setting within which an impact may occur, such as the affected region or locality. In this document, most impacts are either localized (site specific) or parkwide.

Local Impacts. For most impact topics, effects would occur in specific sites or areas, such as along a river. For socioeconomic impacts, effects would occur within one or more communities in or adjacent to the park, including Anaktuvuk Pass, Coldfoot, Wiseman, Bettles/ Evansville, Kobuk, Shungnak, and Ambler.

Regionwide or Parkwide Impacts. Effects would occur throughout or beyond the park. For socioeconomic impacts, effects would occur over a broad geographic region that could include large portions or all of the North Slope Borough, Northwest Arctic Borough, and/or Yukon Koyukuk REAA.

Intensity

Determining impact thresholds is a key component in applying NPS *Management Policies 2006* and Director's Order 12. These thresholds provide the reader with an idea of the intensity of a given impact on a specific topic. Because the intensity of impacts varies by resource, definitions of these impacts are provided separately

with each impact topic analyzed in this document. Table 17 in this section shows all of the impact topic intensity threshold definitions.

GENERAL ASSUMPTIONS

For the purposes of this analysis, several assumptions were made in analyzing impacts of the alternatives:

- Parkwide, visitor use patterns would not substantially change from current patterns. The majority of visitors would continue to be found along the park's rivers, Walker Lake, and the Arrigetch Peaks area. Visitor use levels would increase on the eastern side of the park due to visitors walking in from Dalton Highway, but use levels would not substantially increase.
- No changes would occur in the uses allowed on or adjacent to Dalton Highway (e.g., snow-machines and other off-road vehicles would continue to not be allowed in the winter in the Dalton Highway corridor).
- No new NPS or commercial operator facilities (temporary or permanent) would be built within the park and preserve during the planning time frame being considered.
- No oil and gas drilling or mining occur on Native corporation lands within the park during the life of the plan.
- No changes would occur in the use of cabins in the park.
- The wilderness proposals in the alternatives would be designated by Congress as wilderness. Eligible areas not included in the proposals would be released from further wilderness consideration.
- All of the specific actions proposed in the alternatives would occur during the life of the plan.
- Climate change will not be analyzed in chapter four (see "Affected Environment").

CUMULATIVE IMPACT ANALYSIS

A cumulative impact is described in CEQ regulation 1508.7 as follows:

> *Cumulative impacts are the impacts that result from incremental impacts of the action when added to other past, present, and reasonably foreseeable actions, regardless of what agency (federal or nonfederal) or person undertakes such other action. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time.*

Each cumulative impact analysis is additive, considering the overall impact of the alternative when combined with effects of other actions—both inside and outside the park—that have occurred or that would likely occur in the foreseeable future.

TABLE 17. IMPACT THRESHOLD DEFINITIONS

Impact Topic and Duration	Minor	Moderate	Major
Natural Resources (vegetation, wildlife, and water quality)	Changes are slight but detectable and have a local effect on a population. This could include changes in the abundance or distribution of individuals in a local area, but not changes that would affect the viability of local populations. Changes to local ecological processes would be minimal. There would be measurable effects on water quality that may affect a few plant or wildlife populations, such as increased or decreased loads of sediment, debris, chemical or toxic substances, or pathogenic organisms.	Changes would be apparent in a population. This could include changes in the abundance or distribution of local populations, but not changes that would affect the viability of regional populations. Changes to local ecological processes would be of limited extent. There would be clearly detectable changes in water quality, which potentially would affect a number of plant or wildlife populations or natural ecological processes.	Changes would be obvious and may be severely adverse or exceptionally beneficial to a population. The effects would be substantial and highly noticeable, and they could result in widespread change. This could include changes in the abundance or distribution of a local or regional population to the extent that the population would not be likely to recover (adverse) or return to a sustainable level (beneficial). Key ecological processes would be altered, and "landscape-level" (regional) changes would be expected. There would be substantial changes in water quality, which would affect many plant or wildlife populations or natural ecological processes.
Cultural Resources (archeological resources, historic structures, and ethnographic resources)	Adverse impact: impact is slight but noticeable and would neither appreciably alter the resources' condition, such as historic integrity or traditional access, nor, in the case of ethnographic resources, alter the relationship between the resource and the associated group's body of beliefs and practices. For purposes of section 106, the determination of effect would be *no adverse effect*. Beneficial impact: proposed action is to maintain or preserve the resource in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*; additionally, for ethnographic resources, the proposed action allows access to and/or accommodates a	Adverse impact: impact is apparent and would alter the resources' condition to the extent that its historic integrity is compromised; additionally, for ethnographic resources, the impact interferes with traditional access or the relationship between the resource and the associated group's beliefs and practices, even though the group's practices and beliefs would survive. For purposes of section 106, the determination of effect would be *adverse effect*. Beneficial impact: proposed action is to stabilize the resource in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*; additionally, for ethnographic resources, the proposed action facilitates traditional access and/or	Adverse impact: impact alters the resources' condition to the extent that its historic integrity is destroyed; additionally, for ethnographic resources, proposed actions would block or greatly affect traditional access or the relationship between the resource and the associated group's body of beliefs and practices to the extent that the survival of a group's beliefs and/or practices would be jeopardized. For purposes of section 106, the determination of effect would be *adverse effect*. Beneficial impact: proposed action is to actively intervene to preserve the resource in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and* Historic Preservation; additionally, for ethnographic resources, the proposed action encourages traditional access and/or accommodates a group's practices or beliefs.

TABLE 17. IMPACT THRESHOLD DEFINITIONS

Impact Topic and Duration	Minor	Moderate	Major
	group's traditional practices or beliefs.	accommodates a group's practices or beliefs.	
Wilderness Character	A change to wilderness character would be slight but noticeable, affecting a few areas. Changes in visible development or other factors that alter the undeveloped, natural, or untrammeled qualities of wilderness would be evident to a low degree and affect an isolated part of the wilderness (or wilderness-eligible) area. A change to natural or undeveloped conditions due to human-caused actions (either beneficial or adverse) would be apparent but confined to small areas. Very limited, one-time trammeling of a few components of ecological systems may occur in a few areas. Effects on opportunities for solitude or primitive and unconfined recreation would be slightly beneficial or adverse and confined to a limited area.	A change to wilderness character would be noticeable and spread over a number of locations in different areas. Changes in visible development or other factors that alter the undeveloped, natural, or untrammeled qualities of wilderness would be evident and would affect one or more portions of the wilderness area (or wilderness-eligible areas). A change to natural or undeveloped conditions due to human-caused actions (beneficial or adverse) would be apparent in several areas. Some trammeling of components of ecological systems may occur on a repeated basis in several areas. Effects on opportunities for solitude or primitive and unconfined recreation (beneficial or adverse) would be apparent to visitors in a few areas.	A change to wilderness character would be highly noticeable and widespread, affecting many areas, and could result in substantial changes that enhance or detract from the qualities of the wilderness character. Changes in visible development or other factors that alter the undeveloped, natural, or untrammeled qualities of wilderness would be extensive and would affect multiple portions of the wilderness area (or wilderness-eligible areas). Changes to natural or undeveloped conditions due to human-caused actions (beneficial or adverse) would be readily apparent in a large area. Large-scale trammeling of ecological systems may occur on a repeated basis in several areas. Effects on opportunities for solitude or primitive and unconfined recreation would be substantial, and would be obvious to most visitors throughout the wilderness area.
Visitor Use and Experience	Changes in visitor opportunities and/or setting conditions would be slight but detectable, would affect few visitors, and would not appreciably limit or enhance experiences identified as fundamental to the park's purpose and significance.	Changes in visitor opportunities and/or setting conditions would be noticeable, would affect many visitors, and would result in some changes to experiences identified as fundamental to the park's purpose and significance.	Changes in visitor opportunities and/or setting conditions would be highly apparent, would affect most visitors, and would result in several changes to experiences identified as fundamental to park purpose and significance.

TABLE 17. IMPACT THRESHOLD DEFINITIONS

Impact Topic and Duration	Minor	Moderate	Major
Subsistence Use	Changes in opportunities for subsistence use by qualified rural residents would be very small, affect few people, but would not alter traditional subsistence use patterns and behavior.	Changes in opportunities for subsistence use by qualified rural residents would be small, affect many people, and could alter traditional subsistence use patterns and behavior.	Changes in opportunities for subsistence use by qualified rural residents would be noticeable, affect a large segment of subsistence users and have a substantial influence on traditional subsistence use patterns and behavior.
Socioeconomics	Effects on concessioners, other private businesses, communities, community infrastructure, other affected governmental agencies, and social conditions would be small, affect few people, be comparable to year-to-year seasonal variations, and would not be expected to alter established social and economic structures and conditions.	Effects on concessioners, other private businesses, communities, community infrastructure, other affected governmental agencies, and social conditions would affect many people and could alter established social and economic structures and conditions.	Effects on concessioners, other private businesses, communities, community infrastructure, other affected governmental agencies, and social conditions would affect a large segment of the population, and have a substantial influence on the established social and economic structures and conditions.
Park Operations	Effects would be small but detectable. The change would be noticeable to staff, but probably not to the public.	Effects would be readily apparent to staff and possibly to the public in terms of effects on visitor experience.	Effects would be readily apparent to staff and the public, and would result in substantial, widespread changes.

To determine potential cumulative impacts, past, present, and reasonably foreseeable future potential actions and developments within and surrounding Gates of the Arctic National Park and Preserve were considered by the planning team. The primary area considered for cumulative impacts is in the vicinity of the park. The area considered for socio-economic cumulative impacts was broader, primarily focused on nearby boroughs, including all of the park's resident zone communities and Fairbanks.

Gates of the Arctic National Park and Preserve is a remote park. The area is only accessible by foot, air, or boat, and with the exception of the Anaktuvuk Pass area, it is mostly surrounded by federal, state, and Native corporation lands. Virtually all of the actions considered in the cumulative impact analysis were NPS actions. No changes in landownership and management of adjacent lands are expected to occur that would directly or indirectly affect the park and preserve. No new uses of the area or changes in transportation into the park and preserve are considered likely, independent of what is proposed in the alternatives.

This environmental assessment does not consider the effects of building and maintaining a surface transportation right-of-way across the Western Unit

(Kobuk Preserve) to the Ambler Mining District, although survey work underway for the study routes in the preserve is considered in the cumulative impacts section. There is insufficient information on the proposed action and its location to analyze this right-of-way under the cumulative impacts section. As called for in section 201(4)(d) of ANILCA, an environmental and economic analysis will be completed once an application is submitted including the environmental consequences of the construction and use of the Ambler Mining District Right-of-Way.

Future reasonably foreseeable NPS actions considered in the cumulative impact analysis, independent of this plan, include the following:

- Annual maintenance of up to four automated climate monitoring stations at Chimney Lake, Pamichtuk Lake, Ram Creek, and Killik Pass—all in the park's wilderness area (NPS 2010b).
- Survey work in the Western Unit (Kobuk Preserve) regarding the possible construction of the Ambler Mining District Right-of-Way
- Both ground and aerial reconnaissance would occur, looking at river crossing possibilities, vegetation, geomorphology, terrain, and potential borrow pits.

Actions and projects outside the park that were considered in the cumulative analysis include:

- Implementation of a plan by the Bureau of Land Management to manage nonnative invasive plants on its lands along Dalton Highway. A combination of treatment methods would be used to control and eradicate nonnative plants, including manual, mechanical, and chemical methods (BLM 2009).
- Continued aircraft flights over the park, including commuter planes, air tours, private operators, and high-flying jets.

NATURAL RESOURCES

METHODOLOGY

As noted in chapter one, due to the nature of the alternatives, vegetation, wildlife, and water quality have been grouped into one natural resource topic. The overall impact of each alternative was identified based on considering the impacts of all of these elements.

ALTERNATIVE A (NO ACTION)

Analysis

As described in the "Affected Environment" chapter, Gates of the Arctic National Park is a mostly undisturbed area with respect to vegetation, wildlife, and water quality. A few adverse impacts would continue to occur to vegetation in localized areas that are relatively popular destinations for visitors, including Walker Lake, the Arrigetch Peaks area, the "Gates," and the designated wild and scenic rivers (e.g., John, Alatna, Noatak, North Fork of the Koyukuk, Kobuk, and Tinayguk rivers). In these areas, visitors have trampled some vegetation in creating unofficial trails, campfire rings, and campsites. In areas where camping is frequent, bare mineral surfaces can form from compaction and trampling (Monti and Mackintosh 1979 as cited in NPS 2005). Visitor-created "trails" are typically devoid of vegetation and may gully and impound water. Trail braiding can occur with increased use on wet or steep slopes. The most common impacts in the park are visitor-created trails that run from aircraft landing sites to put in/take out sites, such as the access point to the Kobuk River from Walker Lake, Circle Lake on the Alatna River, 12 Mile Slough on the Noatak River, Matchurak Lake on the Noatak River, Pingo Lake on the Noatak River, and Tulilik Lake on the Itkillik River (NPS 1995; NPS 1998; G. Youngblood, Gates of the Arctic National Park, pers. comm., 6/29/2011). All of these impacts would likely continue under alternative A. Visitors may also introduce nonnative plants into the park, although this has not been documented. (Nonnative plants have been seen on floatplanes in Alaska [NPS 2005].)

In the popular Arrigetch Peaks area, visitor impacts have been more studied than in other areas. Visitors have created campsites and trails that are evident in three valleys (Arrigetch, Aquarius, and Aiyagomahala) (Pfeiffer and Lawler 2003; NPS 1998). Visitors also have trampled and destroyed fragile lichen knolls while climbing into the area. Lichens are particularly sensitive to trampling and may not recover for several years (NPS 1998;Tietz 1996 as cited in NPS 2005). One pass up or down the hills is sufficient to adversely affect this vegetation (T. Liebscher, Gates of the Arctic National Park, pers. comm., 6/28/2011).

Continuing NPS efforts to control nonnative plants in the Walker Lake area would help prevent the spread of these plants, and thus benefit native vegetation in this area.

Although visitor use levels are not expected to substantially change over the life of this GMP Amendment, some wildlife likely would continue to be disturbed and behavior altered by hikers in popular use areas. Trails and noise from aircraft landing and taking off would be expected to temporarily displace wildlife. Motorized boating on rivers may have localized impacts on some species (Knight and Cole 1995 as cited in NPS 2005). Visitor-created trails can directly degrade

and fragment wildlife habitats and the presence of trail users may affect wildlife activities, such as feeding, reproduction, and the raising of young (Knight and Cole 1995 as cited in Marion and Wimpey 2011). Visitor encounters with wildlife, such as caribou, Dall sheep, and black and brown bears, would result in behavioral changes to animals (e.g., cessation of foraging or altering reproductive behavior, caring for young), increased stress levels, and possibly temporary displacement in areas that are regularly used by visitors (e.g., Walker Lake, the "Gates," and popular camping sites along the park's wild and scenic rivers). Although such impacts would be of short duration, they would likely occur regularly over time and thus would be considered long-term impacts. Although sport hunting and fishing would continue to result in the harvest of target animals, and occasional injuries to individuals, this should have no effect on park wildlife populations, assuming visitors adhere to existing hunting and fishing regulations.

Occasionally brown bears would be shot as a result of visitor confrontations with bears. This has happened several times in the Arrigetch Peaks area (Pfeiffer and Lawler 2003). Bears may be shot by visitors or by park staff depending on the situation.

Noise from ongoing, day-to-day NPS management of the park (e.g., park patrols) and research efforts, including the use of airplanes and helicopters and the presence of staff on the ground (e.g., research camps), likely disturb wildlife in localized areas. Some changes in animal behavior, including temporary displacement of some animals, probably would occur from these activities. However, these impacts would be localized and not affect park populations.

Some adverse impacts to water quality due to visitors would likely continue in a few localized, popular use areas like Walker Lake. Human waste from visitors likely would infrequently result in small measurable changes to nutrient levels and bacteria levels. Likewise, discharges from float planes and motorboats (e.g., petroleum hydrocarbons) would be expected to result in some adverse impacts to water quality.

Overall, continuing visitor use under alternative A would be expected to result in minor, long-term, adverse impacts to vegetation, wildlife, and water quality in localized areas. These impacts would include vegetation trampling and loss of native vegetation, disturbances to wildlife, and discharges/release of human waste and pollutants. All of these visitor impacts would be of short duration during the visitation season, but would be repeated over the lifetime of the plan and thus would be long-term impacts.

Overall, vegetation, wildlife, and water quality in Gates of the Arctic National Park and Preserve is untouched and untrammeled. Small areas of vegetation in parts of the park have been cleared for construction of cabins, and there has been some dispersed vegetation impacts caused by visitors hiking through the park. But by and large the majority of the park and preserve show little effect of human disturbance.

Cumulative Impacts. Past human activities have had relatively little effect on the park's natural resources. Some small areas of vegetation have been cleared for construction of cabins, and there has been some dispersed vegetation impacts caused by visitors hiking and camping in the park. These have had a long-term, negligible, adverse impact in localized areas.

Several present and reasonably foreseeable future actions and projects within and outside the park, independent of this plan, would likely affect the park's natural resources in localized areas. The BLM plan to implement an integrative approach

to managing nonnative plants along the Dalton Highway would benefit native vegetation, preventing the spread of invasive nonnative plants into the park. (Twenty-eight nonnative invasive plant species have been documented within the Dalton Management Area [BLM 2009].)

On the other hand, several actions and projects would have adverse effects on the park's natural resources in localized areas. The installation of up to four automated weather stations in the park would result in the loss of plants and wildlife habitat, and disturbance of wildlife, such as temporary displacement during installation and maintenance of the weather stations (NPS 2010). Survey work in the Western Unit (Kobuk Preserve) for a potential transportation corridor would result in aircraft overflights and ground surveys, which would potentially result in the disturbance of some wildlife.

Collectively, the above past, present, and reasonably foreseeable future actions and projects would have long-term, minor, adverse impacts on wildlife and vegetation in localized areas. When the minor adverse effects of alternative A are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas.

Conclusion. Under alternative A, continuing use of the park by visitors and park staff at about existing levels would continue to result in long-term, minor, adverse impacts to vegetation and wildlife, primarily due to noise and the presence of people in a few relatively small localized areas—primarily popular destinations like the Arrigetch Peaks and Walker Lake areas. When the minor adverse effects of alternative A are added to the effects of other past, present, and reasonably foreseeable actions, there would be a long-term, minor, adverse cumulative impact on natural resources in localized areas.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Analysis

Few actions in alternative B would affect the park's natural resources, and those effects that do occur generally would be localized. No new developments or programs that would substantially increase use in the park would occur under the alternative. No new resource management actions would be implemented. All of the same adverse effects to vegetation, wildlife, and water quality due to visitor use described under alternative A would continue. As in alternative A, in alternative B, adverse impacts would occur to vegetation and wildlife at popular visitor destinations, including Walker Lake, the Arrigetch Peaks area, the Gates of the Arctic, and the designated wild and scenic rivers. These adverse effects would include the alteration or loss of native vegetation in localized areas due to the formation of unofficial trails and campsites, and campfire rings. There would be the potential for visitors to introduce nonnative plants into the park. Some wildlife, such as Dall sheep, caribou, and black and brown bears, would experience behavior changes (e.g., cessation of foraging or altering reproductive behavior, caring for young), increased stress levels, and temporary displacement in areas that are regularly used by visitors (e.g., Walker Lake, Gates of the Arctic, and popular camping sites along the park's wild and scenic rivers). Occasionally, brown bears may be shot in defense of life and property by visitors. Sport hunting in the preserve and fishing in the park would continue to result in the harvest of target animals and occasional injuries to animals, but this would have no effect on the park's wildlife populations. Some degradation of water quality would occur in a few popular areas due to the infrequent disposal of human wastes and discharges from float planes and motorboats.

A few actions in alternative B would benefit vegetation and wildlife in the park. The establishment and monitoring of wilderness character measures and standards, including the social trail, campsite, and human-caused fire starts indicators, would benefit vegetation and wildlife by avoiding potential adverse impacts that might otherwise occur if visitor use was not being monitored in the park. However, visitor use levels would not be expected to rise to a level during the lifetime of this plan that would exceed standards and trigger management action.

Overall, despite the above measures to help minimize/avoid natural resource impacts, continued use of the park by visitors and park staff at around existing levels would be expected to result in a long-term, minor, adverse impact to park vegetation, wildlife, and water quality in localized areas. These impacts would occur each year during the visitation season, and would include alteration and loss of vegetation, disturbance to wildlife behavior, and slight degradation of water quality in localized areas. Although some individual animals may be displaced, injured, or lost, none of the changes resulting from alternative B would affect the overall viability of populations of plants and wildlife in the park. Compared to alternative A, alternative B would likely reduce the potential for adverse impacts to vegetation and wildlife due to actions such as the establishment and monitoring of wilderness character/user capacity measures and standards, and the prohibition on the use of hooved pack animals.

Cumulative Impacts. Several past, present, and reasonably foreseeable future actions and projects have, and could, affect the park's vegetation and wildlife in localized areas. The effects of these actions and projects were described under alternative A and are the same for this alternative.

Taken together, the past, present, and reasonably foreseeable future actions and projects independent of this alternative would have long-term, minor, adverse impacts on wildlife and vegetation in localized areas. When the minor adverse effects of alternative B are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas.

Conclusion. Under alternative B, continuing use of the park by visitors and park staff at about existing levels would result in long-term, minor, adverse impacts to vegetation and wildlife. These impacts would be primarily due to noise from aircraft and the presence of people in a few relatively small localized areas, mainly popular destinations like the Arrigetch Peaks and Walker Lake areas. However, alternative B also would benefit vegetation and wildlife from actions such as the application and monitoring of wilderness character measures and standards. When the minor adverse effects of alternative B are added to the effects of other past, present, and reasonably foreseeable actions, there would be a long-term, minor, adverse cumulative impact on natural resources in localized areas.

ALTERNATIVE C

Analysis

Few actions in alternative C would affect the natural resources of the park, and those effects that do occur generally would be localized. No new developments or programs that would substantially increase use in the park would occur under the alternative. No new resource management actions would be implemented. All of the same adverse effects to vegetation, wildlife, and water quality due to visitor use described under alternative A would continue. As in alternative A, in alternative C, adverse impacts would occur to vegetation and wildlife at popular

visitor destinations, including Walker Lake, the Arrigetch Peaks area, the "Gates," and the designated wild and scenic rivers. These adverse effects would include the alteration or loss of native vegetation in localized areas due to the formation of unofficial trails and campsites, and campfire rings. There would be the potential for visitors to introduce nonnative plants into the park. Some wildlife, such as Dall sheep, caribou, and black and brown bears, would experience behavior changes (e.g., cessation of foraging or altering reproductive behavior, caring for young), increased stress levels, and temporary displacement in areas that are regularly used by visitors (e.g., Walker Lake, the "Gates," and popular camping sites along the park's wild and scenic rivers). Occasionally, brown bears may be shot in defense of life and property by visitors. Sport hunting in the preserve and fishing in the park would continue to result in the harvest of target animals and occasional injuries to animals, but this would have no effect on park wildlife populations. Some degradation of water quality would occur in a few popular areas due to the infrequent disposal of human waste and discharges from float planes and motorboats.

A few actions in alternative C would benefit vegetation and wildlife in the park. The establishment and monitoring of wilderness character measures and standards, including the social trail, campsite, and human-caused fire starts indicators, would benefit vegetation and wildlife by avoiding potential adverse impacts that might otherwise occur if visitor use was not being monitored in the park. (However, visitor use levels would not be expected to rise to a level during the lifetime of this plan that would exceed standards and trigger management action.) Increased research efforts in alternative C would increase information about park resources and would be expected to provide better informed management, which in turn should benefit park resources. Increased education efforts aimed at park visitors and coordinating with tour providers and transporters, as well as visitors, would be expected to enhance the visitor conservation/stewardship ethic, which in turn would help reduce and avoid potential impacts (e.g., applying Leave No Trace principles would encourage visitors to not create new trails or campsites, which in turn would benefit vegetation).

Overall, despite the above measures to help minimize/avoid natural resource impacts, continued use of the park by visitors and park staff at around existing levels would be expected to result in a long-term, minor, adverse impact to park vegetation and wildlife, and water quality in localized areas. These impacts would occur each year during the visitation season, and would include alteration and loss of vegetation, disturbance to wildlife behavior, and slight degradation of water quality in localized areas. Although some individual animals may be displaced, injured, or lost, none of the changes resulting from alternative C would affect the overall viability of populations of plants and wildlife in the park. Compared to alternative A, alternative C would likely reduce the potential for adverse impacts to vegetation and wildlife due to actions such as the establishment and monitoring of wilderness character/user capacity measures and standards, and increased education efforts.

Cumulative Impacts. Several past, present, and reasonably foreseeable future actions and projects have, and could, affect park vegetation and wildlife in localized areas. The effects of these actions and projects were described under alternative A and are the same for this alternative.

Taken together, the past, present, and reasonably foreseeable future actions and projects independent of this alternative

would have long-term, minor, adverse impacts on wildlife and vegetation in localized areas. When the minor adverse effects of alternative C are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas.

Conclusion. Under alternative C, Continuing use of the park by visitors and park staff at about existing levels would result in long-term, minor, adverse impacts to vegetation and wildlife. These impacts would be primarily due to noise from aircraft and the presence of people in a few relatively small localized areas, mainly popular destinations like the Arrigetch Peaks and Walker Lake areas. However, alternative C also would benefit vegetation and wildlife from actions such as the application and monitoring of wilderness character measures and standards, and increased education efforts. When the minor adverse effects of alternative C are added to the effects of other past, present, and reasonably foreseeable actions, there would be a long-term, minor, adverse cumulative impact on natural resources in localized areas.

WILDERNESS CHARACTER

METHODOLOGY

Based on the Wilderness Act mandate to preserve wilderness character, this impact topic focuses on the extent to which the alternatives affect the character of the Gates of the Arctic wilderness area. Four principal qualities define wilderness character: natural, undeveloped, untrammeled, and having outstanding opportunities for solitude or a primitive and unconfined type of recreation. (See chapter three for more details on what wilderness character is and definitions of the four qualities.)

It also should be noted that impacts on natural and cultural resources, visitor access, and in the wilderness area are evaluated elsewhere in this chapter.

ALTERNATIVE A (NO ACTION)

Analysis

Under alternative A, no changes in management would occur in the wilderness area—the area would continue to be managed as it is now. With use levels expected to stay at existing levels, no changes in management would occur.

Alternative A would not change the undeveloped or natural character of the wilderness area. No new developments or human occupation would occur in the wilderness area. Some signs of people would continue to be evident, such as occasional user-created trails and trampled vegetation from informal campsites. Occasionally, sounds from aircraft and motorboats would be heard in popular areas (e.g., Walker Lake), affecting the undeveloped quality, but these would be transient infrequent sounds. On certain drainages, such as the John River, North Fork of the Koyukuk River, and Kobuk River) and in the Anaktuvuk Pass area, sounds from motorboats and aircraft would be heard more frequently, primarily during the peak use period. But most visitors in this alternative would continue to find what they perceive to be natural conditions in the majority of the wilderness area—visitors would continue to find an alpine tundra/shrubby/forested landscape that appears pristine, with few obvious signs of disturbance or alteration of the natural landscape. Thus, alternative A would have little effect on the apparent naturalness and undeveloped quality of the area.

NPS efforts to control nonnative plant species in the Walker Lake area, preventing the spread of these plants, would beneficially affect native vegetation in this area, which would benefit the natural quality, but would detract from the untrammeled quality of wilderness character.

No other actions would occur under alternative A that would result in trammeling of resource—almost all of the wilderness area would remain untrammeled in this alternative.

Ongoing day-to-day NPS management of the park (e.g., park patrols) and research efforts all involve airplanes and helicopters. Noise from these aircraft, and the presence of staff on the ground (e.g., research camps), would adversely affect the opportunity for solitude, undeveloped, and primitive unconfined recreation qualities in localized areas.

There would be no other changes in the opportunities for solitude in the wilderness area under alternative A. Most of the

wilderness area would receive very low use. There would continue to be a few popular places where multiple groups may encounter each other during the prime use season, such as the Arrigetch Peaks, Walker Lake, Circle Lake, Anaktuvuk Pass, and the designated wild and scenic rivers (Noatak, Alatna, North Fork of the Koyukuk, John, Kobuk, and Tinayguk rivers). In these areas, opportunities for solitude would continue to be occasionally diminished.

Opportunities for primitive, unconfined recreation would continue to be present throughout the wilderness area. There would continue to be little to no notable NPS presence (in the form of regulations, infrastructure, management activity, or personnel) in the wilderness area, with some exceptions in localized areas when park management and research occur (see above). Visitors would have complete freedom to go wherever they pleased. A couple of requirements would continue to affect wilderness visitors, including requirements to secure food from bears, and a time limit on camping at one location. Although most visitors would likely agree that there would be outstanding opportunities for primitive, unconfined recreation in the wilderness area, these requirements would continue to slightly diminish this quality.

Considered as a whole, the four qualities of wilderness character would not change for the majority of the wilderness area under alternative A. However, in a few localized, popular use areas, such as the Arrigetch Peaks area, Walker Lake, and the designated wild and scenic rivers, there would be long-term, adverse impacts to wilderness character due to human use, primarily the undeveloped, natural, and solitude qualities in localized areas. Thus, overall, alternative A would have a long-term, minor, adverse impact on the wilderness character of the park.

Cumulative Impacts. Overall, the wilderness quality in Gates of the Arctic National Park and Preserve is relatively pristine. Small areas of vegetation in parts of the wilderness area have been cleared for construction of cabins, and there has been some dispersed vegetation impacts caused by visitors hiking through the wilderness. But by and large, past human activities have had little effect on the wilderness character of the majority of the wilderness area.

Several present and reasonably foreseeable future actions and projects within and outside the wilderness area, independent of this plan, would likely affect wilderness character in localized areas. The BLM plan to implement an integrative approach to managing nonnative plants along Dalton Highway would benefit native vegetation in the wilderness area, preventing the spread of invasive nonnative plants.

Several actions and projects would have adverse effects on park wilderness character in localized areas. The installation of up to four automated weather stations in the park would result in the loss of plants and wildlife habitat, and disturbance of wildlife, such as temporary displacement during installation and maintenance of the weather stations (NPS 2010). This would adversely affect the natural, undeveloped, and solitude qualities in these areas.

Survey work in the Western Unit (Kobuk Preserve) for a potential transportation corridor would result in aircraft overflights and ground surveys, which would potentially result in the degradation of undeveloped and solitude qualities of wilderness character, but these impacts would be short term and transitory.

Independent of this plan, noise from commuter aircraft, air tours, flying over the park, and the views of these aircraft and aircraft contrails, would continue to

detract from the undeveloped and solitude qualities in certain parts of the wilderness area, including the John, North Fork of the Koyukuk, and Tinayguk rivers. Helicopters flying north and south to and from the oil fields sometimes fly low through the wilderness area (G. Youngblood, Gates of the Arctic National Park, pers. comm., 7/1/11).

Collectively, the above past, present, and reasonably foreseeable future actions and projects would have long-term, minor, adverse impacts on park wilderness character in localized areas. When the effects of alternative A are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas in the wilderness area.

Conclusion. The majority of wilderness character in Gates of the Arctic National Park would not be affected by alternative A. However, alternative A would result in a long-term, minor, adverse impact to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in popular use areas, such as Walker Lake, the Arrigetch Peaks, and the park's designated wild and scenic rivers. The natural, undeveloped, and solitude qualities would all be slightly degraded in these areas. When the effects of alternative A are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, adverse cumulative impact in localized areas in the wilderness area.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Analysis

Few actions in alternative B would affect park wilderness character, and those effects that do occur generally would be localized. No new developments or programs that would substantially increase use in the park would occur under the alternative. No new resource management actions would be implemented. All of the same adverse effects to wilderness character due to visitor use described under alternative A would occur under alternative B. Like alternative A, in alternative B, some signs of people would be evident, such as occasional user-created trails and trampled vegetation from informal campsites. Occasionally, sounds from aircraft and motorboats would be heard in popular areas (e.g., Walker Lake), affecting the undeveloped quality, but these would be transient infrequent sounds. On certain drainages, such as the John River, North Fork of the Koyukuk River, and Kobuk River, and in the Anaktuvuk Pass area, sounds from motorboats and aircraft would be heard periodically, primarily during the peak use period. But most visitors in this alternative would continue to find what they perceive to be natural conditions in the majority of the wilderness area—visitors would continue to find an alpine tundra/shrubby/forested landscape that appears pristine, with few obvious signs of disturbance or alteration of the natural landscape. Thus, alternative B would have little effect on the apparent naturalness and undeveloped quality of the area.

No new actions would occur under alternative B that would result in trammeling of resources in the wilderness area.

There would be no change in the opportunities for solitude in the wilderness area under alternative B. Most of the wilderness area would receive very low use. There would continue to be a few popular places where multiple groups may encounter each other during the prime use season, such as the Arrigetch Peaks, Walker Lake, Circle Lake, Anaktuvuk Pass, and the park's designated wild and scenic rivers (Noatak, Alatna, North Fork of the Koyukuk, John, Kobuk, and Tinayguk rivers). In these areas,

opportunities for solitude would continue to be occasionally diminished.

Alternative B would not alter most opportunities for primitive recreation in the wilderness area—opportunities for primitive, unconfined recreation would continue to be present throughout the wilderness area. There would continue to be little to no notable NPS presence (in the form of regulations, infrastructure, management activity, or personnel) in the wilderness area. Generally, visitors would have complete freedom to go wherever they pleased. The prohibition on the use of hooved pack animals in alternative B would adversely affect this quality, but very few people have used stock in the park. A few requirements would continue to affect wilderness visitors, including requirements to secure food from bears, and a time limit on camping at one location. Although most visitors would likely agree that there would be outstanding opportunities for primitive, unconfined recreation in the wilderness area, these requirements would continue to slightly diminish this quality.

The establishment and monitoring of wilderness character measures and standards, such as natural resource conditions, visitor encounter rates, and the social trail indicators, would benefit the four qualities of wilderness character by avoiding potential adverse impacts that might otherwise occur if visitor use and NPS management activities were not being monitored in the park. (However, visitor use levels would not be expected to rise to a level during the lifetime of this plan that would exceed standards and trigger management action.)

Under alternative B, the designation of about 914,000 acres in the preserve as wilderness would provide permanent legal protection to the four qualities of wilderness character in these areas, and prevent potential actions or developments that would be inconsistent with wilderness—the undeveloped, natural, untrammeled, and outstanding opportunities for solitude and primitive unconfined recreation in the national preserve would be protected in perpetuity. This would maintain wilderness character in these areas.

Overall, alternative B would have a long-term, minor, adverse impact on park wilderness character. In a few localized, popular use areas, such as the Arrigetch Peaks area, Walker Lake, and the designated wild and scenic rivers, there would be long-term, adverse impacts to wilderness character due to human use, primarily the undeveloped, natural, and solitude qualities in localized areas. However, the four qualities of wilderness character would not change for the majority of the wilderness area under alternative B. In addition, the establishment and monitoring of wilderness character/user capacity measures and standards, would ensure wilderness character in the park is maintained. Compared to alternative A, overall, alternative B would improve wilderness character, primarily due to the establishment and monitoring of wilderness character/user capacity measures and standards.

Cumulative Impacts. Several past, present, and reasonably foreseeable future actions and projects have, and could, affect park wilderness character in localized areas. The effects of these actions and projects were described under alternative A and are the same for this alternative.

Taken together, the past, present, and reasonably foreseeable future actions and projects, independent of this alternative, would have long-term, minor, adverse impacts on wilderness character in localized areas. When the effects of alternative B are added to these other effects, there would be a long-term, minor, adverse cumulative impact to wilderness

character in localized areas. However, alternative B would add a very small increment to the overall adverse cumulative impact.

Conclusion. Alternative B would result in a long-term, minor, adverse impact to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in a few popular use areas, such as Walker Lake the Arrigetch Peaks, and the park's designated wild and scenic rivers. The natural, undeveloped, and solitude qualities would all be slightly degraded in these areas. However, the majority of the wilderness character in Gates of the Arctic National Park would not be affected by alternative B. Alternative B would improve wilderness character because of the establishment and monitoring of wilderness character measures and standards. When the effects of alternative B are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, adverse cumulative impact in localized areas in the wilderness area. However, alternative B would add a very small increment to the overall adverse cumulative impact.

ALTERNATIVE C

Analysis

Few actions in alternative C would affect the park's wilderness character, and those effects that do occur generally would be localized. No new developments or programs that would substantially increase use in the park would occur under the alternative. No new resource management actions would be implemented. Many of the same adverse effects to wilderness character due to visitor use described under alternative A would occur under alternative C. Unlike alternative A, increased education efforts would better protect and care for wilderness resources—e.g., more visitors would likely follow the principles of Leave No Trace. Additional research efforts would also result in better informed decision making, which would be expected to better protect the natural character of the wilderness area than would alternative A. However, in spite of these efforts it is likely that in alternative C some signs of people would be evident, such as occasional user-created trails and trampled vegetation from informal campsites. Occasionally, sounds from aircraft and motorboats would be heard in popular areas (e.g., Walker Lake), affecting the undeveloped quality, but these would be transient infrequent sounds. On certain drainages, such as the John River, North Fork of the Koyukuk River, and Kobuk River, and in the Anaktuvuk Pass area, sounds from motorboats and aircraft would be heard periodically, primarily during the peak use period. Nevertheless, most visitors in this alternative would continue to find what they perceive to be natural conditions in the majority of the wilderness area—visitors would continue to find an alpine tundra/shrubby/forested landscape that appears pristine, with few obvious signs of disturbance or alteration of the natural landscape. Thus, alternative C would have little effect on the apparent naturalness and undeveloped quality of the area.

No new actions are proposed in alternative C that would result in trammeling of resources.

There would be some improvements in opportunities for solitude in the wilderness area under alternative C. Most of the wilderness area would receive very low use. There would continue to be a few popular places where multiple groups may encounter each other during the prime use season, such as the Arrigetch Peaks, Walker Lake, Circle Lake, Anaktuvuk Pass, and the park's designated wild and scenic rivers (Noatak, Alatna, North Fork of the Koyukuk, John, Kobuk, and Tinayguk rivers). In these areas, oppor-

tunities for solitude would continue to be occasionally diminished. However, with increased education efforts and more information, some visitors could plan their trips to other parts of the park or avoid peak use levels at the popular sites, and thus increase their sense of solitude.

Alternative C would not alter most opportunities for primitive recreation in the wilderness area—opportunities for primitive, unconfined recreation would continue to be present throughout the wilderness area. There would continue to be little to no notable NPS presence (in the form of regulations, infrastructure, management activity, or personnel) in the wilderness area. Generally, visitors would have complete freedom to go wherever they pleased. A few requirements would continue to affect wilderness visitors, including requirements to secure food from bears, and a time limit on camping at one location. Although most visitors would likely agree that there would be outstanding opportunities for primitive, unconfined recreation in the wilderness area, these requirements would continue to slightly diminish this quality.

The establishment and monitoring of wilderness character measures and standards, such as natural resource conditions, visitor encounter rates, and the social trail indicators, would benefit the four qualities of wilderness character by avoiding potential adverse impacts that might otherwise occur if visitor use and NPS management activities were not being monitored in the park. (However, visitor use levels would not be expected to rise to a level during the lifetime of this plan that would exceed standards and trigger management action.)

Under alternative C, designation of about 459,690 acres in parts of the Eastern and Western units as wilderness would provide permanent legal protection to the four qualities of wilderness in these areas and prevent potential actions or developments that would be inconsistent with wilderness—the undeveloped, natural, untrammeled, and outstanding opportunities for solitude and primitive unconfined recreation in parts of the Eastern and Western units would be protected in perpetuity. This would maintain wilderness character in these areas.

Overall, alternative C would have a long-term, minor, adverse impact on park wilderness quality. In a few localized, popular use areas, such as the Arrigetch Peaks area, Walker Lake, and the designated wild and scenic rivers, there would be long-term, adverse impacts to wilderness character due to human use, primarily the undeveloped, natural, and solitude qualities in localized areas. However, the four qualities of wilderness character would not change for the majority of the wilderness area under alternative C. In addition, increased education efforts, increased research, the designation of wilderness in the preserve, and the establishment and monitoring of wilderness character measures and standards, would ensure wilderness character in the park and preserve is maintained. Compared to alternative A, overall, alternative C would improve wilderness character in the park, primarily due to the increased education efforts.

Cumulative Impacts. Several past, present, and reasonably foreseeable future actions and projects have, and could, affect the park's wilderness character in localized areas. The effects of these actions and projects were described under alternative A and are the same for this alternative.

Taken together, the past, present, and reasonably foreseeable future actions and projects independent of this alternative would have long-term, minor, adverse impacts on wilderness character in localized areas. When the effects of alternative C are added to these other

effects, there would be a long-term, minor, adverse cumulative impact to wilderness character in localized areas. However, alternative C would add a very small increment to the overall adverse cumulative impact.

Conclusion. Alternative C would result in a long-term, minor, adverse impact to the area's wilderness character, primarily due to the presence of aircraft and multiple groups in a few popular use areas, such as Walker Lake the Arrigetch Peaks, and the park's designated wild and scenic rivers. The natural, undeveloped, and solitude qualities would all be slightly degraded in these areas. However, the majority of wilderness character in Gates of the Arctic National Park would not be affected by alternative C. Alternative C would improve wilderness character due to increased education efforts to inform visitors about protecting wilderness character and minimizing their impacts, and the establishment and monitoring of wilderness character measures and standards. When the effects of alternative C are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, adverse cumulative impact in localized areas in the wilderness area. However, alternative C would add a very small increment to the overall adverse cumulative impact.

CULTURAL RESOURCES

METHODOLOGY

As noted in chapter one, due to the nature of the alternatives, archeological resources, historic structures, and ethnographic resources have been grouped into one cultural resources topic. The overall impact of each alternative was identified based on considering the impacts of all of these elements.

In this document, impact analysis for cultural resources is intended to comply with the requirements of both the National Environmental Policy Act and section 106 of the National Historic Preservation Act. In accordance with ACHP regulations implementing section 106 of the National Historic Preservation Act (36 CFR Part 800, Protection of Historic Properties), "effects," rather than impacts to cultural resources were identified and evaluated by: (1) determining the area of potential effects (project area); (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected, national register-eligible or national register-listed cultural resources; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Unlike analyses under the National Environmental Policy Act, under the section 106 process, an "effect" is defined as "an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16i). According to the criteria of "adverse effect" in the regulations (36 CFR 800.5[a][1]):

> *an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.*

A determination of "no adverse effect" means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the national register.

The regulations further specify that:

> *consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.*

Under the ACHP regulations, a determination of either adverse effect or no adverse effect must be made for affected eligible or listed national register cultural resources.

CEQ regulations and NPS Director's Order 12 also require a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., reducing the intensity of an

impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under National Environmental Policy Act only. It does not suggest that the level of effect as defined by section 106 is similarly reduced. Cultural resources are nonrenewable resources; adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under section 106 may be mitigated, the effect remains adverse.

While the impact analyses provided in this document are intended to comply with the National Environmental Policy Act and section 106 of the National Historic Preservation Act, it must be emphasized that the National Park Service does not intend to use this General Management Plan / Environmental Assessment to meet section 106 compliance in accordance with 36 CFR 800.8(c) for individual actions discussed in this document. The National Park Service would comply with section 106 in accordance with 36 CFR 800 as it continues planning and refining the proposed actions that would impact cultural resources. As is required under 36 CFR 800, the National Park Service would consult with the Alaska state historic preservation office and other consulting parties to determine areas of potential effects; to identify cultural resources and evaluate their national register eligibility; to determine effects on historic properties; and to develop measures to avoid, minimize, or mitigate adverse effects on historic properties. Measures to avoid, minimize, or mitigate adverse effects would be outlined in a memorandum of agreement or a programmatic agreement.

A section 106 summary is included under cultural resources for the action alternatives. This summary is an assessment of effect of the undertaking (implementation of the alternative) on cultural resources based on the criterion of effect and criteria of adverse effect found in ACHP regulations.

ALTERNATIVE A (NO ACTION)

Analysis

Under alternative A, there would be no changes to the way cultural resources are managed in the park. The park staff would continue to inventory, document, monitor, protect, and preserve archeological resources, historic structures, and ethnographic resources as funding and staffing allows. If new cultural resources are discovered during the inventories, they would be evaluated for eligibility for listing in the National Register of Historic Places. The surveys and research necessary to determine the eligibility of cultural resources for listing in the national register are a prerequisite for understanding the significance of the resources, as well as the basis of informed decision making in the future regarding how the resources should be managed.

Primarily park staff, but possibly others such as academic researchers or private sector cultural resource management consultants, etc., would continue to research the long-term human use of the area for the purposes of advancing cultural resource management objectives at the park. This research would be in the form of written histories and ethnographic overviews as well as archeological surveys and inventories and associated survey reports. Continuing research efforts would add to park managers' understanding of how humans have lived on the land for thousands of years, which supports the park objective of recognizing the past and present existence of peoples in the region and the traces of their use as an important part of the cultural environment to be preserved.

In an effort to prevent resource damage, law enforcement rangers would continue activities aimed at protecting cultural resources in the park, including monitoring visitor use impacts and educating visitors about avoiding inadvertent damage to cultural resources. The rangers would also continue to identify and document threats to cultural resources during their patrols of the park. These continued ranger activities would help preserve cultural resources for the enjoyment of future visitors.

Overall, implementation of alternative A would have long-term, parkwide, minor, beneficial impacts to cultural resources.

Cumulative Impacts. Other past, present, and reasonably foreseeable future actions would have no effect on cultural resources in the area. This is because none of the actions, as described in the methodology section of this GMP Amendment, would result in ground disturbance or impacts to above ground structures. Therefore, there would be no cumulative impacts to cultural resources under the alternative A.

Conclusion. Under alternative A, cultural resources in Gates of the Arctic National Park and Preserve would continue to be inventoried, documented, monitored, preserved, and protected. Management of cultural resources under alternative A would result in long-term, parkwide, minor, beneficial impacts.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Analysis

The methods for conducting cultural resource management would remain consistent with those described in alternative A.

The park staff would inventory, document, monitor, protect, and preserve archeological resources, historic structures, and ethnographic resources as funding and staffing allows. If new cultural resources are discovered during the inventories, they would be evaluated for eligibility for listing in the National Register of Historic Places. If determined eligible, a national register nomination form would be completed and submitted, at a minimum, to the Alaska state historic preservation office for review and comment. These efforts would help preserve and protect cultural resources, which fulfills NPS requirements as outlined in the Organic Act of 1916.

Park staff as well as students, professors, and other researchers would continue to study the long-term human use of the area for the purposes of advancing cultural resource management objectives at the park. This research would be in the form of written histories and ethnographic overviews as well as archeological surveys and inventories and associated survey reports. Research efforts would add to park employees' understanding of how humans have lived on the land for thousands of years.

In an effort to prevent resource damage, law enforcement rangers would undertake activities aimed at protecting cultural resources in the park, including monitoring visitor use impacts and educating visitors about avoiding inadvertent damage to cultural resources. The rangers would identify and document threats to cultural resources during their patrols of the park. These ranger activities would help preserve cultural resources for the enjoyment of future visitors.

Overall, implementation of alternative B would have long-term, parkwide, minor, beneficial impacts to cultural resources.

Cumulative Impacts. Other past, present, and reasonably foreseeable future actions would have no effect on cultural resources in the area. This is because none of the actions, as described in the methodology

section of this GMP Amendment, would result in ground disturbance or impacts to above ground structures. Therefore, there would be no cumulative impacts to cultural resources under the alternative B.

Conclusion. Under alternative B, cultural resources in Gates of the Arctic National Park and Preserve would continue to be inventoried, documented, monitored, preserved, and protected. Management of cultural resources under alternative B would result in long-term, parkwide, minor, beneficial impacts.

Section 106 Summary. After applying the ACHP criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the National Park Service concludes the proposed undertakings outlined in alternative B would have no adverse effect on cultural resources.

ALTERNATIVE C

Analysis

Under alternative C, the methods for conducting cultural resource management would remain consistent with those described in alternative A.

In addition, the park staff would actively pursue research opportunities for studying the effects of climate change on the cultural resources of the park. This would include identifying areas within the park that would be suitable for studying the effects and working with researchers and partners to further these efforts. This study would benefit cultural resources by park staff having a better understanding of how climate change is affecting the resources so that appropriate measures could be taken to preserve and protect them.

The park staff would also seek opportunities for greater public outreach and interaction with scientists working in the park. This could include direct participation in research activities as well as learning about research activities in the park through websites, social media, public talks, and classroom outreach. These activities would help preserve cultural resources for the enjoyment of future visitors by making the public more aware of what resources exist and how important it is to preserve and protect them.

Overall, implementation of alternative C would have long-term, parkwide, minor, beneficial impacts to cultural resources.

Cumulative Impacts. Other past, present, and reasonably foreseeable future actions would have no effect on cultural resources in the area. This is because none of the actions, as described in the methodology section of this GMP Amendment, would result in ground disturbance or impacts to above ground structures. Therefore, there would be no cumulative impacts to cultural resources under the alternative C.

Conclusion. Under alternative C, cultural resources in Gates of the Arctic National Park and Preserve would continue to be inventoried, documented, monitored, preserved, and protected. Additional research efforts to study the effects of climate change on cultural resources would also take place, along with greater public involvement in the preservation of these resources. Management of cultural resources under alternative C would result in long-term, parkwide, minor, beneficial impacts.

Section 106 Summary. After applying the ACHP criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the National Park Service concludes the proposed undertakings outlined in alternative C would have no adverse effect on cultural resources.

VISITOR USE AND EXPERIENCE

METHODOLOGY

The impact analysis considers various aspects of visitor use and experience at Gates of the Arctic National Park and Preserve, including the following:

- visitor use (including access, recreational opportunities and experiences, and interpretation and education and safety)

The analysis is primarily qualitative rather than quantitative due to the conceptual nature of the alternatives. Impacts on visitor use and experience were determined considering the best available information. Information on visitor use and opinions was taken from recent surveys of visitors conducted by the Aldo Leopold Wilderness Research Institute in 2001, 2002, and 2003.A transportation and visitor projection study by URS Corporation was also used to inform this analysis. Other information that was considered in the analysis includes the park's annual reporting of visitor use levels, including overnight stays, to the NPS Public Use Statistics Office, and local and regional travel and tourism data. All of this background data was supplemented by information gathered during the planning process for this GMP Amendment, including opinions from park visitors and neighbors, and information from park staff.

ALTERNATIVE A (NO ACTION)

Visitation Levels, Transportation, and Access

The remoteness of Gates of the Arctic National Park and Preserve would continue to be the main restrictive factor for visitation. Under alternative A, the primary mode of transportation into the park, especially to the backcountry, would continue to be by air taxi. Small percentages of visitors would still hike into the park, and even fewer would use private aircraft (URS 2011).

While convenient for reaching desired areas deep within park boundaries, the expense of aircraft access (whether air taxi or private aircraft) is much higher than pedestrian access and therefore is a limiting factor for many potential visitors. Pedestrian access still requires a sizeable expenditure to reach northern Alaska, since most (86%) visitors are from out of state (Watson et al. 2003), making even the least expensive access option a financial challenge for many potential visitors.

There would continue to be no formal or designated entry points for aircraft nor for pedestrian access, which would perpetuate the difficulty in accurately recording how many visitors actually enter the park each year. Popular areas of access, including the Noatak River, Circle Lake, North Fork of the Koyukuk River, and Hunt Fork Lake (URS 2011), would likely continue to receive the most visitors because air taxis primarily land on or near bodies of water. Because of this, visitation is unevenly distributed across the over 8.4 million acres of park land, despite the free-range visitors are given to decide not only where they travel once in the park but where to enter. Recreational trip guides would continue to be encouraged to diversify their trip options based on the desires expressed by each group, rather than to frequently travel the same route. Under alternative A, park managers reserve the right to allocate or distribute use if the need arises, which would be done in coordination with air taxi pilots.

This hands-off approach by park staff to transportation and access is consistent with the concept of an unmanaged wilderness experience that is heartily supported by the majority of visitors. It also contributes to the sense of freedom that is considered inherent in the idea of wilderness.

Visitor Understanding, Education, and Interpretation

Under alternative A, park staff would continue working to facilitate connections between visitors and resources, both in person and through Web media; it is recognized that a sound understanding of and appreciation for resources is the basis for inspiring stewardship in members of the public.

Creative opportunities, such as the Artist in Residence program or the Far North Conservation Film Festival, would continue to be considered innovative ways to increase understanding of park resources and to build a conservation ethic and connection to wilderness.

Current ranger stations and other visitor contact opportunities would allow park staff to communicate important information and practices to educate visitors on ways in which they can protect natural and cultural resources while in the park. This would include education of Leave No Trace principles, advisement against following any apparent social (visitor created) or migratory (wildlife created) trails or camping in previously disturbed areas, and encouragement of using dead or downed wood and driftwood for campfires. Trip planning assistance would be provided even though park staff would not instruct visitors on where to access the park.

Public outreach and education would continue in resident zone communities and Fairbanks schools, as well as virtually to other schools across the country. Education programs would be provided through a joint effort of the education and interpretation staff with the resource division.

Formal and informal interpretive programs would continue at the Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. Visitors would have access to exhibits, printed materials, and films about the park. In addition to these facilities just outside park boundaries, park staff would continue to partner with the Fairbanks Alaska Public Lands Information Center and the staff of the Yukon-Charley Rivers National Preserve. Online resources, such as the park website and other Web-based and multimedia products, would also continue to provide information to potential visitors, since pre-planning is critical to a safe and successful backcountry visit. No new backcountry or in-park visitor facilities would be provided under this alternative .

This level of education and interpretation would be consistent with the park purpose to "Preserve the wild and undeveloped character and natural environmental integrity—including natural processes, habitat, and biodiversity—of the central Brooks Range," since the primary focus of education would be on sustainable practices that allow "appropriate wilderness recreational activities and solitude" without damage to resources.

Recreational Opportunities and Use Levels

Under current management, visitors would continue to have a range of opportunities to recreate in the backcountry of a wild Alaskan park. Use would remain predominantly along river corridors, and recreation opportunities along the river would continue to include not only float trips, but also backpacking/hiking and sportfishing.

There would continue to be no designated or maintained trails, and visitors would be encouraged to find their own routes rather than follow suggestions from staff or other visitors. This not only would protect the delicate tundra and boreal forest ecosystems from repeated trampling, but also promotes the sense of freedom and self-discovery for which this wilderness environment is renowned.

Campsites would not be designated or maintained, and development and use of informal campsites would be discouraged by park staff. The one exception to this policy would be in the vicinity of Arrigetch Peaks, where the use of previously impacted areas would be encouraged in order to minimize damage to undisturbed areas. There would be a recommended limit of three camping groups in the Arrigetch Peaks area at any one time. Sufficient education on the need for this exception to the general rule would likely satisfy visitors seeking an unmanaged wilderness experience.

Sport hunting would continue to be allowed in the two state-assigned guided sport hunting areas in the preserve; however, no new land administered by the park would be deemed eligible for sport hunting.

Guided commercial services currently only consist of backpacking and float trips, but under alternative A, the park staff would continue to accept and review proposals for other commercial use authorizations, such as for guided climbing or guided fishing. The appropriateness of the commercial activity, its benefit to the public, and its ability to exist without damaging resources would be considered. Since guides are responsible for bringing in a high percentage of backcountry visitors, recreational activities such as climbing and fishing would likely increase notably if a CUA holder included them in a guided trip.

Few restrictions would be placed on visitor recreation within the park. Group size limits, including guides, would remain at 10 or fewer people for floating trips and 10 or fewer people for backpacking trips. Additionally, visitors wishing to use hooved pack animals (horses, llamas, mules, and the like) would be required to submit a trip itinerary to allow for monitoring the area(s) in which they travel in order to assess stock use impacts. There would also be a limit of three pack animals per group. Stock use is very low in the park, and these restrictions would not affect many visitors.

To better assess use levels, visitors would be encouraged to complete and submit voluntary registration forms. These forms would serve as a means of data collection and a visitor contact opportunity. By registering at a ranger station, backcountry visitors would be able to receive information about Leave No Trace principles and safety considerations, and in effect would be able to reduce their own impacts and improve their experience in the park.

Since park visitation is low, especially for such a large park, opportunities for solitude would abound. At peak times complete solitude may not exist in the most popular areas, but in most other areas visitors would be unlikely to encounter more than two parties per trip. Natural sounds would predominate, and the lack of designated trails and campsites would provide a sense of self-discovery for visitors exploring the park.

All visitor activities described above would be appropriate within wilderness, and commercial services offered would all be necessary and appropriate for public use. There would also be substantial opportunities for solitude, which is another important component of the park purpose.

Visitor Safety

Voluntary visitor registration would continue to be encouraged, in part so that park staff would be better able to respond in the case of an emergency. Safety information would also be dispersed at visitor contact stations when visitors register their trips. All guides would continue to be required to begin their trips with a visitor orientation by park staff, and air taxi operators would be encouraged to do the same.

Bear encounters would remain a concern, but park staff would continue to assist visitors in preparing for proper food storage, such as providing bear barrel loans at no charge, to reduce the likelihood of human-bear interactions.

Other safety concerns that park staff would advise visitors on would include water availability and treatment, campfire safety, and insect control.

Park staff would supply enough information, both on the park website and at visitor contact points, for visitors to adequately plan their wilderness experience with safety in mind. Consistent with the ideals of wilderness, visitors would be taking on the responsibility of self-reliance and would be accepting the risks inherent in a backcountry wilderness experience.

Overall, implementation of alternative A would have long-term, parkwide, minor, beneficial impacts on visitor use and experience.

Cumulative Impacts. Survey work in the Western Unit (Kobuk Preserve) would result in aircraft overflights and ground surveys, which would potentially affect some visitor experience in the area. However, it is likely that few if any visitors would be in the areas at the same time the surveys are occurring. This would have no effect on visitor levels in the area. Any impacts to visitor experience would be slight, short term, and transitory.

No other past, present, or reasonably foreseeable actions would affect visitor use and experience in the park. When the effects of the survey are combined with the effects of alternative A, there would be a minor, short-term, cumulative beneficial effect—the effects of alternative A would far outweigh the effects of the surveys degrading a few people's experience for a short time.

Conclusion. Alternative A would continue to provide opportunities for high-quality recreational wilderness experiences. Continued management of visitors under alternative A would result in long-term, parkwide, minor, beneficial impacts to visitor use and experience. There would be a minor, short-term, beneficial cumulative impact, although the beneficial effects of alternative A would far outweigh the slight adverse effects of right-of-way surveys in the Kobuk Preserve.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Visitation Levels, Transportation, and Access

Alternative B would not include any actions that would cause changes to visitation levels, which are predominantly influenced by external forces. Air taxis would be considered a necessary and appropriate public use and would be the primary mode of access to the park and backcountry. Because of this, and due to the remote location of the park in northern Alaska, access would require a significant investment of time and money by visitors.

No formal or designated entry points nor trails would exist in the park, and visitor groups would be encouraged to explore their own routes rather than following any

apparent trails. The most popular areas of entry, however, would likely continue to be the Noatak River, Circle Lake, North Fork of the Koyukuk River, and Hunt Fork Lake.

Despite the free-range visitors are given to decide not only where they travel once in the park, but where to enter, visitation is unevenly distributed across the over 8.4 million acres of park land. Recreational trip guides would be encouraged to diversify their trip options based on the desires expressed by each group, rather than to frequently travel the same route. Under alternative B, park managers reserve the right to allocate or distribute use if the need arises, which would be done in coordination with air taxi pilots.

This hands-off approach to transportation and access to the park is consistent with the concept of an unmanaged wilderness experience.

Visitor Understanding, Education, and Interpretation

Under alternative B, the park staff would continue working to facilitate connections between visitors and resources, both in person and through Web media; it is recognized that a sound understanding of and appreciation for resources is the basis for inspiring stewardship in members of the public.

The range of educational and interpretive opportunities described in alternative A would also apply to this alternative, including orientation information and advisements for visitors entering the park. No new backcountry or in-park visitor facilities would be provided.

Recreational Opportunities and Use Levels

Recreational opportunities would remain consistent with those described in alternative A, with the exception of stock use, which would be prohibited under alternative B. Few restrictions would be placed on visitor recreation within the park. Group size limits, including guides, for both floating trips and backpacking, would be set at 10 or fewer people.

Visitor registration would be voluntary, but encouraged. Through information provided by visitors, park staff would be better able to understand visitation and use levels, which are difficult to accurately determine in a park with no formal entry points.

Under alternative B, the majority of park lands would be classified as zone 3, in which visitor encounters are very rare and there is an extremely high degree of self-reliance on the part of the visitor. Popular areas, such as those around major rivers, would be zone 2; this would also provide high levels of solitude with an expected encounter rate of two or fewer parties, and would challenge visitors with a high degree of self-reliance. Throughout all of the backcountry, natural sounds would predominate.

All visitor activities described above would be appropriate within wilderness, and commercial services offered would all be necessary and appropriate for public use. There would also be substantial opportunities for solitude, which is another important component of the park purpose.

Visitor Safety

All aspects of visitor safety in alternative B are described in alternative A.

Overall, implementation of management actions in alternative B would have long-

term, parkwide, minor, beneficial impacts on visitor use and experience.

Cumulative Impacts. The only ongoing and reasonably foreseeable action that would affect visitor use and experience in the park is the survey work for the Ambler Right-of-Way in the Western Unit (Kobuk Preserve). The effects of this action on visitors was described under alternative A and are the same for this alternative. When the effects of the survey are combined with the effects of alternative B, there would be a minor, short-term, cumulative beneficial effect— the effects of alternative A would far outweigh the effects of the surveys degrading a few people's experience for a short time.

Conclusion. Alternative B would continue to provide opportunities for high-quality recreational wilderness experiences Management of visitors under alternative B would result in long-term, parkwide, minor, beneficial impacts to visitor use and experience. There would be a minor, short-term, beneficial cumulative impact, although the beneficial effects of alternative B would far outweigh the slight adverse effects of right-of-way surveys in the Kobuk Preserve.

ALTERNATIVE C

Visitation Levels, Transportation, and Access

No changes to visitation levels, transportation modes, or access would result from actions under alternative C. Refer to alternative A for a more detailed description of conditions that would be present under this alternative.

Visitor Understanding, Education, and Interpretation

Under alternative C, the park staff would continue working to facilitate connections between visitors and resources, both in person and through Web media; it is recognized that a sound understanding of and appreciation for resources is the basis for inspiring stewardship in members of the public. This alternative would also seek to foster a broader understanding of the significance of the park, including the role Gates of the Arctic National Park and Preserve played in the development of wilderness in the United States.

Creative opportunities, such as the Artist in Residence program or the Far North Conservation Film Festival, would continue to be considered innovative ways to increase understanding of park resources and to build a conservation ethic and connection to wilderness.

Partnerships with village elders and the leaders of the Anaktuvuk Pass community would be strengthened to increase visitor cultural understanding and respect through interpretation. The park staff would seek to further educate visitors on appropriate behavior and camping locations in relation to subsistence users.

This alternative would require all visitors, whether guided or unguided, to stop at a ranger station or other information facility for an orientation that would cover Leave No Trace ethics, safety considerations, group size limits, private property considerations, and subsistence uses. The exception would be for regular CUA holders that would enter the to-be-created "Guardian of the Gates" program. Under this proposed program, the guides would hold their own orientations and Leave No Trace programs, and would provide their own bear barrels. This would eliminate the need to visit a ranger station.

Although no designated or maintained campsites would be planned under this alternative, some temporary campsites may be used in support of educational programs. Cabins in the vicinity of

regularly used access points would also be considered for potential use to enhance educational outreach efforts; educational outreach opportunities may be provided near regularly used access points. This would result in more contact with park staff in the backcountry.

Public outreach and education would continue in resident zone communities and Fairbanks schools, as well as virtually to other schools across the country. Education programs would also be provided through a joint effort of the education and interpretation staff with the resource division. Also under this alternative, reports from research and resource management activities could be made available on the park website to further inform visitors.

Formal and informal interpretive programs would continue at Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. Visitors would have access to exhibits, printed materials, and movies about the park. In addition to these facilities located just outside park boundaries, the park would continue to partner with the Fairbanks Alaska Public Lands Information Center and the staff of the Yukon-Charley Rivers National Preserve. Online resources, such as the park website and other Web-based and multimedia products, would continue to provide information to potential visitors.

No new backcountry or in-park visitor facilities would be anticipated under this alternative; however, if a state surface transportation route is developed as allowed under ANILCA section 201(4)(d), the park could further the intent of this alternative by evaluating a new facility (i.e., ranger station) along the route that would provide new educational and interpretive opportunities. Limited roadside interpretive panels may also be pursued.

The level of education and interpretation provided under alternative C would not only support the park purpose, but would also seek to deepen the understanding of the park's significance for both actual and virtual visitors. The park's resources would be protected by instructing visitors on practices such as Leave No Trace, and they would be further preserved through the advocacy efforts of visitors who would act as stewards of the resources. Increased cultural understanding of subsistence users would generate more respect from visitors, which would contribute to the third element of the park purpose, to "Allow rural residents engaged in a subsistence way of life to continue to do so."

Recreational Opportunities and Use Levels

The range of recreational opportunities would remain consistent with those described in alternative A, including the special requirements for pack animals.

Visitors would be encouraged to seek out their own routes into and through the park to promote the sense of self-discovery. However, in contrast to alternative A, informal access points and social or migratory trails may be formalized or even maintained in the future if needed to protect resources or visitor experience. Similarly, some visitor-created campsites may be hardened to concentrate use in those areas as a means of protecting surrounding resources. This trammeling would detract somewhat from backcountry visitors' sense of being completely alone in wilderness, but these modifications would not be permitted in zone 3.

Under alternative C, a few relatively small areas of the park would be classified under zone 1, which would have the highest potential encounter rate of no more than three parties per trip and could occasion-

ally include encounters with park staff. Much larger sections of parkland would be in zone 2, and would have encounter rates of two or fewer parties per trip. Visitors would be unlikely to encounter staff in zone 2, and would need a high degree of self-sufficiency. The majority of the park would be classified as zone 3, under which visitors would be unlikely to encounter any other visitors or staff and would therefore have a high degree of self-reliance. Within each zone, natural sounds would predominate, and the likelihood of hearing any human-caused sounds would decrease as the visitors enter more remote zones.

Visitor Safety

All aspects of visitor safety in alternative C are described in alternative A.

Overall, implementation of management actions in alternative C would have long-term, parkwide, moderate beneficial impacts on visitor use and experience.

Cumulative Impacts. The only ongoing and reasonably foreseeable action that would affect visitor use and experience in the park is the survey work for the Ambler Mining District Right-of-Way in the Western Unit (Kobuk Preserve). The effects of this action on visitors was described under alternative A and are the same for this alternative. When the effects of the survey are combined with the effects of alternative C there would be a minor, short-term, cumulative beneficial effect—the effects of alternative A would far outweigh the effects of the surveys degrading a few people's experience for a short time.

Conclusion. Alternative C would provide opportunities for high-quality recreational and educational wilderness experiences. Management of visitors under alternative C would result in long-term, parkwide, moderate beneficial impacts to visitor use and experience. There would be a minor, short-term, beneficial cumulative impact, although the beneficial effects of alternative C would far outweigh the slight adverse effects of right-of-way surveys in the Kobuk Preserve.

SUBSISTENCE USE

METHODOLOGY

Based on the ANILCA mandate to allow continued subsistence uses by federally qualified local and rural residents within the park, this impact topic focuses on the extent to which the alternatives affect opportunities for subsistence use. The impact analysis includes various aspects of the opportunities for subsistence use, including access to the park, ecological systems and processes (wildlife, vegetation, etc.), the wild and undeveloped character of the park, and user conflict.

The analysis is primarily qualitative rather than quantitative due to the conceptual nature of the alternatives. NPS staff intimately familiar with ANILCA and subsistence use in the park were the primary source of information that informed the analysis.

ALTERNATIVE A (NO ACTION)

Analysis

Under alternative A, there would be no change to opportunities for subsistence uses by federally qualified local and rural residents. The National Park Service would maintain the wild and undeveloped character of the park. In addition, the National Park Service would use conditions-based adaptive management strategies, assisted by robust research and management programs, which would continue to benefit subsistence opportunities in the park by maintaining intact, healthy, natural systems. Research would continue to be conducted to make sure that subsistence resource management objectives are met over the life of this plan. Action would be taken, as necessary and appropriate, to protect park resources and values and to ensure the continuation of opportunities for subsistence use.

For example, ranger staff would continue to not only protect the subsistence priority for rural residents in the park, but would also ensure that resources are protected, including those relied upon by subsistence users. The National Park Service and U.S. Fish and Wildlife Service, Office of Subsistence Management, would continue to manage subsistence activities on federal lands to ensure that priority is given to subsistence users by monitoring sport hunting takes and ensuring harvests are sustainable, benefiting subsistence opportunities. Opportunities for subsistence use would also continue to benefit from monitoring for resource impacts and visitor conflicts. Ongoing control of nonnative plants would likely reduce the adverse impact from nonnative plant introductions into the park. The continued development of interpretation and education programs would benefit subsistence opportunities because educated park visitors would be more aware of their potential impacts on subsistence opportunities and how to mitigate that potential. No new construction is proposed under alternative A in order to maintain the wild and undeveloped character of the park, which would continue to allow opportunities for subsistence use.

The opportunity to use hoofed pack animals in the park would continue, which may increase the spread of invasive species in those areas, which has the potential to adversely impact opportunities for subsistence gathering of plants in the park.

All of the above effects would continue under alternative A. Overall, maintaining the wild and undeveloped character of the park, no new development, and research and operations that continue to be conducted to ensure the continuation of subsistence opportunities would have long-term, minor, beneficial impacts to subsistence opportunities parkwide. These impacts would continue to provide opportunities for subsistence user's to retain their traditional and cultural existence. Rural residents would continue to be able to hunt, gather, and trap for food supplies and other vital items gathered from fish and wildlife.

Cumulative Impacts. Only limited past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on opportunities for subsistence use in the park. Most of these projects and actions are implemented by the National Park Service. Establishment and annual maintenance of climate-monitoring stations would not directly impact subsistence opportunities, but the information gathered could positively impact subsistence opportunities by informing appropriate adaptive management strategies. Survey work regarding the possible construction of the Ambler Mining District Right-of-Way would not be expected to impact subsistence use opportunities in the park.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, parkwide impacts on subsistence use in the park. When the likely effects of actions in alternative A are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact parkwide. Alternative A would contribute a small positive increment to this cumulative impact.

Conclusion. Alternative A would result in long-term, minor, beneficial, parkwide impacts to opportunities for subsistence use in the park. These effects would primarily result from maintaining the wild and undeveloped character of the park, no new development, and research and operations that continue to be conducted to ensure the protection and continuation of subsistence opportunities.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Analysis

Under alternative B, opportunities for subsistence use by federally qualified local and rural residents would continue unchanged, but actions proposed would have some discernible impacts on such opportunities. Alternative B would involve multiple management changes that would benefit subsistence opportunities in the park. For example, the application of management tools such as zoning and indicators and standards for wilderness character would allow more focused management of visitors in prime hunting and gathering areas, benefiting subsistence opportunities. It is important to note that minimizing the imprint of contemporary humans under this alternative does not include restricting traditional and customary uses (like hunting or fishing camps) by subsistence users. Subsistence opportunities would also benefit from an NPS attempt to further reduce its interaction with and impact on park users when accessing the park for operational activities.

All of the above effects would continue under alternative B. In total, the inclusion of zoning, indicators, and standards would beneficially impact subsistence opportunities. In addition, the park would be managed to ensure its wild and undeveloped character through no new development and resource management.

Altogether, the projects and actions under alternative B would have long-term, minor, beneficial impacts to subsistence opportunities parkwide. When compared to alternative A, this alternative would likely increase the beneficial impacts to subsistence opportunities primarily due to actions such as instituting zoning and indicators and standards.

Cumulative Impacts. Only a few past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on opportunities for subsistence use in the park. These projects and actions are described and summarized in the alternative A section above, and would have the same effects for this alternative.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, parkwide impacts on subsistence use in the park. When the likely effects of actions in alternative B are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact parkwide. Alternative B would contribute a small positive increment to this cumulative impact.

Conclusion. Alternative B would have long-term, minor, beneficial, parkwide impacts to subsistence opportunities in the park. These effects would primarily result from instituting zoning, indicators, and standards and research and operations that continue to be conducted to ensure the continuation of subsistence opportunities. Other benefits include maintaining the wild and undeveloped character of the park through no new development and appropriate resource management to ensure subsistence opportunities.

ALTERNATIVE C

Analysis

Under alternative C, opportunities for subsistence use by federally qualified local and rural residents would continue unchanged, but actions proposed would have some discernible impacts on such opportunities. Benefits to subsistence use under alternative C are primarily related to providing more opportunities to educate visitors about the importance of subsistence activities to rural residents and ways in which many Alaska national parks are different than parks in the rest of the United States. These efforts would be expected to reduce the number of visitors that unknowingly adversely impact subsistence opportunities. This is true of the "Guardian of the Gates" program, working with elders and leaders of Anaktuvuk Pass (including the Anaktuvuk Pass Museum), coordination with tour providers on Dalton Highway, requiring visitor orientation prior to entering the park, public participation in field activities, and the potential use of cabins for educational outreach.

In addition, an increased focus on more effective communication between authorized commercial users and the National Park Service may benefit subsistence opportunities due to more accurate real-time information sharing between these two groups. Benefits to subsistence opportunities would also accrue as a result of the application of zoning and indicators and standards for wilderness character because these management tools would allow more focused management of visitors in prime hunting and gathering areas.

A higher level of park management, operations, community outreach, and provision of visitor services under alternative C would mainly benefit subsistence opportunities. Benefits would accrue as a result of enhanced monitoring

of natural systems relied upon by subsistence users and increased ranger operations to mitigate the potential for conflicts between visitors and subsistence users by spending more time in the park. However, the expansion of educational activities and research in the backcountry proposed by this alternative might bring visitors and researchers in contact with subsistence users on a more regular basis, which has the potential to degrade subsistence opportunities; whether such interactions are negative or positive depends largely on the individuals involved. Increasing public awareness of subsistence activities in the park would most likely result in greater sensitivity to the needs of subsistence users should visitors and hunters (or other subsistence users) meet in the backcountry.

All of the above effects would continue under alternative C. Overall, the strong focus on educating visitors and telling a more comprehensive story about the history of the area and the continuation and importance of subsistence activities to rural residents would beneficially impact subsistence opportunities. Other benefits include the inclusion of zoning and indicators and standards that would provide more focused management direction to protect park resources and values and maintain the wild character of the area. Altogether, the projects and actions under alternative C would have long-term, minor, beneficial impacts parkwide. When compared to alternative A, this alternative would likely increase the beneficial impacts to subsistence opportunities primarily due to enhanced education and interpretation, as well as instituting zoning and indicators and standards.

Cumulative Impacts. Only a few past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on opportunities for subsistence use in the park. These projects and actions are described and summarized in the alternative A section above, and would have the same effects for this alternative.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, parkwide impacts on subsistence use in the park. When the likely effects of actions in alternative C are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact parkwide. Alternative C would contribute a small positive increment to this cumulative impact.

Conclusion. Alternative C would have long-term, minor, beneficial, parkwide impacts to subsistence opportunities in the park. These effects would primarily result from an enhanced focus on education and interpretation that includes information about the importance of subsistence activities to rural residents and ways in which many Alaska national parks differ from those in the rest of the United States, as well as instituting zoning and indicators and standards.

SOCIOECONOMICS

METHODOLOGY

This impact topic focused primarily on the effects of the alternatives on businesses, communities, and the local/regional economy. Available economic, visitor use, and park data were used to identify and evaluate likely effects. The analysis relied on the following main factors:

- projected future expenditures related to the alternatives
- projected income generated by commercial services and commercial use authorization permit holders
- changes in employment opportunities
- changes in staffing and federal spending to operate and maintain the park and related infrastructure
- changes in the levels of visitor use at the park

The continuation of subsistence activities and uses provided by ANILCA would be a priority of the park and park staff. Subsistence activities are not specifically addressed in the socioeconomic environment section, but rather evaluated separately in the "Subsistence Use" section of this chapter.

Duration

The duration for analyzing socioeconomic impacts differs from other impact topics; the longer time frame better captures general time frames of socioeconomic conditions in response to changes in management actions.

Short-term Impacts. Effects that last for up to five consecutive years/ visitation seasons.

Long-term Impacts. Effects that last for more than five consecutive years/ visitation seasons.

ALTERNATIVE A (NO ACTION)

Analysis

Maintaining the current management direction under alternative A would result in few, if any, noticeable impacts to the socioeconomic environment. There would continue to be no commercial services or other ways for visitors to spend money within the park, so any impacts discussed in this section originate outside of the park. Maintaining the wild and undeveloped character of the park and continuing to provide opportunities for wilderness recreation activities with minimal imprint of contemporary humans would continue to lure those seeking solitude or primitive and unconfined recreation opportunities. As a result, visitor spending would continue to benefit businesses and communities adjacent to the park.

Demographic projections prepared by the State of Alaska show that the population of the North Slope Borough and Northwest Arctic Borough are expected to increase by approximately 22% and 23%, respectively, by the summer of 2030. The population of the Yukon Koyukuk REAA / Census Area is projected to decrease by approximately 13%, or just fewer than 800 people by 2030 (using middle projection figures) (Alaska Dept. of Labor and Workforce Development

2011). Despite the projected population changes at the borough level, large population changes in communities adjacent to the park are unlikely because natural increases would remain low and in-migration would also remain low due to few cash-based economic opportunities.

The social and economic outlook for the communities adjacent to the park is expected to remain much the same as today. Subsistence activities would continue and cash-based employment would remain closely aligned with the provision of government services. Under alternative A, visitation is not expected to increase or decrease much, but rather remain within or near the historic range. Continued visitation to the park would continue to benefit guide businesses, air taxi operators, and other local businesses with revenues directly or indirectly tied to park visitor spending.

Business activity, including CUA activity, directly or indirectly associated with recreational use of the park would continue to benefit the most during the summer months, peaking in June, July, and August. Winter recreation use is extremely low, with less than 3% of park visits occurring in months other than June, July, August, or September (URS 2011). Economic benefits from winter use in the park would remain extremely small.

Air taxi businesses would continue to benefit from the fact that the majority (most recent data is 73%) of all registered backcountry visitors enter/exit the park via this transportation mode (URS 2011). Additional spending may occur in locations where there are ranger stations since air taxi operators would be required to encourage visitors to visit one of the ranger stations prior to entering the park. Any additional spending would benefit the business owner and local tax base.

The types of recreation users would not likely change much, although if the trend of visitors increasingly floating rivers as a means of experiencing and seeing the park continues, the river guide business could experience higher benefits than other types of guide services. Current data shows that approximately 54% of backcountry visitors use watercraft to travel within the park (URS 2011). Existing guide services would continue to benefit from recreational visitor spending for their services. New business startups would face barriers to entry, including no established clientele and the fact that the National Park Service would continue to discourage highly structured, repetitive trip packages over the life of the plan to ensure a high-quality, primitive recreation experience. Thus, the types of guide services that promote self-reliance and true wilderness adventure would prosper relative to more structured trip package-type business models. In addition, all guides would continue to be required to bring visitors to a ranger station prior to entry to the park for orientation by park staff, which could lead to an increase in visitor spending in these locations.

The foot-only access points along the Dalton Highway could see increasing use as more people use the highway, which would continue to benefit businesses in Wiseman and Coldfoot and generate tax revenue. The Arctic Interagency Visitor Center would continue to attract the highest visitation levels of any location where visitor statistics are gathered as a result of being one of the only areas where services are available along the length of the Dalton Highway. The Alaska Geographic Association bookstore in the visitor center would continue to benefit from visitor expenditures, whether the visitors are entering the park or not. The benefits of expenditures in the bookstore are compounded due to Alaska Geographic's annual contribution of nearly $3 million in financial support and services to Alaska parks, forests, refuges, and other public lands (Alaska Geographic 2011).

Although not currently offered, there are other types of commercial services that would be evaluated on a case-by-case basis as they are received to determine if they are necessary and appropriate to wilderness recreation activities and how they would benefit the public and help protect resources. Examples of commercial services not currently offered are guided climbing and guided hiking. If these or other commercial services were allowed by the park in the future, they would benefit not only the individual CUA holders, but also the air taxi operators taking them into the park and local communities as a result of additional expenditures and associated tax receipts.

Although economic benefits accrue to businesses in Anchorage and Fairbanks that carry the types of gear and provisions needed for extended wilderness and backcountry trips into the park, there is no good source of data to quantify the expenditures from those cities or other small towns. In addition, data quantifying the economic benefits to individual companies and corresponding tax receipts associated with people visiting the park from the lower 48 states is also not available. Such benefits primarily accrue in Anchorage or Fairbanks and result from the purchase of airline tickets and spending on lodging, equipment, and food prior to or following their trip to the park.

Economic benefits from fees and permits associated with sport hunting, fishing, and trapping in the preserve would continue to accrue to the state. Direct spending by the park and park staff and associated tax revenue, as well as indirect contributions in the form of PILT payments would continue to benefit local economies.

All of the above effects would continue under alternative A. Overall, economic activity would continue to be primarily tied to visitors, with benefits accruing to CUA holders, local businesses, and government tax receipts. Maintaining the wild and undeveloped character of the park and no new development would ensure that the lure to visit this wild place is not diminished. Actions in alternative A would have long-term, minor, beneficial impacts to local economic activity. These impacts would continue to provide opportunities for local people to support themselves through their business income. No change in the social character of the area would be expected.

Cumulative Impacts. Only limited past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on economic activity associated with the park.

Survey work regarding the possible construction of the Ambler Mining District Right-of-Way would not be expected to have much of an economic impact, although some additional spending in local communities may occur as survey workers spend money in nearby communities. Air taxi operators may also see a temporary increase in revenue related to transporting people to and from survey sites.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, localized impacts on economic activity near the park. When the likely effects of actions in alternative A are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact to local communities and business operators. Alternative A would contribute a relatively small positive increment to this cumulative impact.

Conclusion. Alternative A would result in long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air

taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Analysis

Under alternative B, economic opportunities in and near the park would remain almost unchanged. Air taxi operators, guides, and other local businesses would continue to benefit from visitor spending.

Direct park spending, park staff spending, and associated tax revenue could continue to benefit local economies near the park. A slight increase in staffing levels under alternative B would only provide benefits to local economies adjacent to the park, but any effect would be very small.

All of the above effects would continue under alternative B. Overall, the benefits of economic activity would continue to be tied to visitors and park spending. Some adverse impacts are possible, but overall, actions under alternative B would have long-term, minor, beneficial impacts to local economic activity. These impacts would continue to provide opportunities for local people to support themselves through their business income. No change in the social character of the area would be expected.

Cumulative Impacts. Only a few past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on economic activity in or near the park. These projects and actions are described and summarized in the alternative A section above, and would have the same effects for this alternative.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, localized impacts on economic activity near the park. When the likely effects of actions in alternative B are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact to local communities and business operators. Alternative B would contribute a small positive increment to this cumulative impact.

Conclusion. Alternative B would result in long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.

ALTERNATIVE C

Analysis

Under alternative C, economic opportunities in and near the park would remain almost unchanged. Air taxi operators, guides, and other local businesses would continue to benefit from visitor spending. Direct park spending, park staff spending, and associated tax revenue would continue to benefit local economies near the park. A slight increase in staffing levels under alternative C would only provide benefits to local economies adjacent to the park, but any effect would be very small. Benefits to economic activity may result if efforts to enhance education, interpretation, and outreach attract more visitors to the area, increasing visitor spending. Any increase would be small.

All of the above effects would continue under alternative C. Overall, the benefits of economic activity would continue to be tied to visitors and park spending. Some

adverse impacts are possible, but overall, actions in alternative C would have long-term, minor, beneficial impacts to local economic activity. These impacts would continue to provide opportunities for local people to support themselves through their business income. No change in the social character of the area would be expected.

Cumulative Impacts. Only a few past, present, and reasonably foreseeable future projects and actions in or near the park would have any discernible effects on economic activity in or near the park. These projects and actions are described and summarized in the alternative A section above, and would have the same effects for this alternative.

Collectively, the other past, present, and reasonably foreseeable future projects and actions would have long-term, minor, beneficial, localized impacts on economic activity near the park. When the likely effects of actions in alternative C are added to the effects of other past, present, and reasonably foreseeable future actions, there would be a long-term, minor, beneficial impact to local communities and business operators. Alternative C would contribute a small positive increment to this cumulative impact.

Conclusion. Alternative C would result in long-term, minor, beneficial, localized impacts to economic activity in or near the park. These effects would primarily result from continuing to allow guides and air taxi operators to transport visitors into and out of the park, as well as continued direct spending by the park and park staff and associated tax receipts.

PARK OPERATIONS

METHODOLOGY

The impacts of the alternatives on park operations were determined by examining the effects and changes on staffing, infrastructure, visitor facilities, and services.

This impact analysis considers aspects of park operations including the effects of each alternative on the number of staff required to conduct park operations and modifications to operating procedures. The analysis is primarily qualitative rather than quantitative because of the conceptual nature of the alternatives.

ALTERNATIVE A (NO ACTION)

Analysis

Under alternative A, there would be no changes to the way park operations are conducted. With its current staffing levels, park staff would continue to perform duties as usual in the administration, facilities management, interpretation, resource management, subsistence, and visitor and resource protection divisions. For example, facilities management staff would continue to perform routine maintenance and repairs on the administrative and/or visitor facilities in Fairbanks, Bettles, Marion Creek, Dahl Creek, Coldfoot, Anaktuvuk Pass, and Walker Lake. Interpretation staff would offer formal and informal interpretive programs at Bettles Ranger Station and the Arctic Interagency Visitor Center in Coldfoot. Ranger staff would continue conducting ongoing day-to-day park patrols of the wilderness area. Where there is a shortage of staff in a division, the workload would be redistributed to other park employees. The redistribution of work may negatively affect park employees since they are responsible for the management of Yukon-Charley Rivers National Preserve as well. This results in a discrepancy between work load and work capability.

Overall, alternative A would have long-term, localized, minor, adverse impacts to park operations due to the redistribution of work among employees.

Cumulative Impacts. Several present and reasonably foreseeable future actions and projects within the park, independent of this plan, would likely affect park operations in localized areas. The annual maintenance of four automated climate monitoring stations at Chimney Lake, Pamichtuk Lake, Ram Creek, and Killik Pass (all in the wilderness area), and the survey work in the Western Unit (Kobuk Preserve) associated with the possible construction of the Ambler Mining District Right-of-Way when taken together adversely affects park operations due to the discrepancy between workload and capability for park employees.

Collectively, the above present and reasonably foreseeable future actions and projects would have long-term, minor, adverse impacts on park operations in localized areas. When the effects of alternative A are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas. However, alternative A would add a small increment to the overall adverse cumulative impact.

Conclusion. Under alternative A, park operations at Gates of the Arctic National Park and Preserve would continue as they have in the past, and where staffing levels

fall below the current need, work would be distributed among park employees. Alternative A would result in long-term, localized, minor, adverse impacts on park operations

ALTERNATIVE B (NPS PREFERRED ALTERNATIVE)

Under alternative B, there would be a slight change in park operations. The staffing level would increase by two FTE employees. An additional visitor and resource protection ranger would be hired and stationed at Coldfoot to patrol the Dalton Highway, and another maintenance employee would be brought on to help with routine maintenance projects. Everything else associated with park operations would remain consistent with what was described in alternative A, including the redistribution of work when there is a shortage of staff in a division. The redistribution of work may negatively affect park employees since they are responsible for the management of Yukon–Charley Rivers National Preserve as well. This results in a discrepancy between work load and work capability.

Overall, alternative B would have long-term, localized, minor, adverse impacts to park operations due to the redistribution of work among employees.

Cumulative Impacts. Several present and reasonably foreseeable future actions and projects within the park, independent of this plan, would likely affect park operations in localized areas. The annual maintenance of four automated climate monitoring stations at Chimney Lake, Pamichtuk Lake, Ram Creek, and Killik Pass (all in the wilderness area), and the survey work in the Western Unit (Kobuk Preserve) associated with the possible construction of the Ambler Mining District Right-of-Way, when taken together, adversely affects park operations due to the increase in work-load for park employees. Some of the effects may be lessened by the addition of visitor and resource protection and maintenance employees.

Collectively, the above present and reasonably foreseeable future actions and projects would have long-term, minor, adverse impacts on park operations in localized areas. When the effects of alternative B are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas. However, alternative B would add a very small increment to the overall adverse cumulative impact.

Conclusion. Under alternative B, park operations at Gates of the Arctic National Park and Preserve would change slightly with the increase in staffing by two FTEs while the rest of the operation would remain unchanged, including the redistribution of work among employees when there are vacant positions in a division. Alternative B would result in long-term, localized, minor, adverse impacts on park operations

ALTERNATIVE C

Under alternative C, park operations would be enhanced with the addition of six FTEs and six seasonal employees (which equates to two FTE). The facilities management division would hire two seasonal maintenance workers to help maintain cabins and to possibly work on social trails, two FTE maintenance workers to help with routine maintenance, and an existing maintenance position for Anaktuvuk Pass would be increased to one FTE from half an FTE. The interpretation division would hire park rangers for backcountry educational activities and a Web/social media ranger for a total of 1.5 FTE and four seasonal employees. The resource management division would hire a climate change

specialist, or one FTE, to conduct research for the park. The visitor and resource protection division would hire a ranger, or one FTE, to patrol the Dalton Highway and they would be stationed at Coldfoot.

Everything else associated with park operations would remain consistent with what was described in alternative A, including the redistribution of work when there is a shortage of staff in a division. The redistribution of work may negatively affect park employees since they are responsible for the management of Yukon– Charley Rivers National Preserve as well. This results in a discrepancy between work load and work capability.

Overall, alternative C would have long-term, localized, minor, adverse impacts to park operations due to the redistribution of work among employees.

Cumulative Impacts. Several present and reasonably foreseeable future actions and projects within the park, independent of this plan, would likely affect park operations in localized areas. The annual maintenance of four automated climate monitoring stations at Chimney Lake, Pamichtuk Lake, Ram Creek, and Killik Pass (all in the wilderness area), and the survey work in the Western Unit (Kobuk Preserve) associated with the possible construction of the Ambler Mining District transportation corridor, when taken together, adversely affects park operations due to the increase in workload for park employees. Some of the effects may be lessened by the addition of visitor and resource protection and maintenance employees.

Collectively, the above present and reasonably foreseeable future actions and projects would have long-term, minor, adverse impacts on park operations in localized areas. When the effects of alternative C are added to these other effects, there would be a long-term, minor, adverse cumulative impact in localized areas. However, alternative C would add a slight increment to the overall adverse cumulative impact.

Conclusion. Under alternative C, park operations at Gates of the Arctic National Park and Preserve would noticeably change with the increase in staffing by six FTEs and six seasonal employees (eight FTE total) while the rest of the operation would remain unchanged, including the redistribution of work among employees when there are vacant positions in a division. Alternative C would result in long-term, localized, minor, adverse impacts on park operations.

Chapter 5

Consultation and Coordination

PUBLIC AND AGENCY INVOLVEMENT

The environmental assessment for *Gates of the Arctic National Park and Preserve General Management Plan Amendment* represents thoughts presented by the National Park Service, park staff, Alaska Native groups, the state of Alaska, and the public. Consultation and coordination among the agencies and the public were vitally important throughout the planning process. The public had three primary avenues by which it participated during the development of the plan: participation in public meetings, responses to newsletters by mail, and through the NPS Planning, Environment, and Public Comment (PEPC) website.

PUBLIC MEETINGS AND NEWSLETTERS

Public meetings and newsletters were used to keep the public informed and involved in the planning process for Gates of the Arctic National Park and Preserve. A mailing list was compiled that consisted of members of governmental agencies, organizations, businesses, legislators, local governments, and interested citizens. Comments and suggestions offered by participants have provided NPS planners with important insights about what visitors, subsistence users, state and local governments, and others expect from the general management plan amendment.

A notice of intent to prepare an environmental impact statement for a general management plan amendment/ wilderness study, for Gates of the Arctic National Park and Preserve was published in the *Federal Register* on January 27, 2010 (volume 75, number 17, page 4413). The environmental impact statement and the wilderness study were subsequently terminated and an environmental assessment for the general management plan amendment was prepared.

Public Scoping Meetings

In February 2010, a scoping newsletter was distributed inviting the general public to open house events in Anchorage and Fairbanks, and public meetings in the following Gates of the Arctic National Park and Preserve Resident Zone Communities: Anaktuvuk Pass, Bettles/ Evansville, Wiseman, Alatna, Allakaket, Nuiqsut, Kobuk and Shungnak. All meetings were completed by late April 2010. A total of 40 electronic and mailed comments were received in response to this newsletter. These comments were considered and incorporated into the issues for the plan.

A second newsletter was distributed in September 2010, and public meetings were set up in both Anchorage and Fairbanks the following month. A total of 17 people participated in the public scoping process at these meetings. In November, public meetings were held in Resident Zone Communities of Bettles/ Evansville and Anaktuvuk Pass. The remainder of the public meetings in Resident Zone Communities were delayed until January and February 2011 due to the unusually rainy periods in November and December. Those meetings were held in Allakaket, Alatna, Kobuk, and Shungnak. The meeting in Nuiqsut was cancelled due to travel restrictions. A total of 24 people attended meetings in Resident Zone Communities. Comments came from a wide range of stakeholders, including local residents and subsistence users, corporations, organizations, and agencies with economic or recreational interests in the park, as well as from private citizens who

have visited in the past. Primary topics and issues on which comments were received include the level of visitor opportunities, solitude and quietness, subsistence use, proposal of new designated wilderness, and the importance of preserving Gates of the Arctic National Park and Preserve as the "ultimate wilderness park." All comments were considered and incorporated into the issues for the plan.

In October 2011, a third newsletter was distributed to interested individuals, the Resident Zone Communities, and others. This newsletter informed the public of the results from the previous scoping period. Although no formal comment period was held, the opening letter from park Superintendent Greg Dudgeon noted that comments on this draft plan effort are always welcome and important throughout the planning process.

CONSULTATION WITH OTHER AGENCIES, OFFICIALS, AND INDIVIDUALS

During the preparation of this plan, the members of the planning team met and consulted with various entities regarding the general management plan amendment, as follows:

Section 7 Consultation

The Endangered Species Act of 1973, as amended, requires in section 7(a)(2) that each federal agency, in consultation with the Secretary of the Interior, ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. During the preparation of this document NPS staff has coordinated informally with the USFWS Ecological Services Office in Fairbanks. Based on the USFWS Alaska Region endangered species consultation website map (http://alaska.fws.gov/fisheries/endangered/pdf/Consultation_guide_31010.pdf) no federally listed species are present in the park, therefore formal section 7 consultation with the U.S. Fish and Wildlife Service is not necessary.

Section 106 Consultation

Agencies that have direct or indirect jurisdiction over historic properties are required by section 106 of the National Historic Preservation Act to take into account the effect of any undertaking on properties eligible for listing in the National Register of Historic Places. To meet the requirements of 36 CFR 800, the National Park Service initiated consultation with the Alaska state historic preservation office as part of state review of this document.

ANILCA Consultation

Throughout the planning process, the National Park Service has consulted with the State of Alaska regarding ANILCA considerations. A draft of the policy document was sent to Sally Gilbert, ANILCA program coordinator, on May 17, 2011. A follow-up meeting to discuss comments was held on June 16, 2011, with eight NPS employees and five state employees. In January 2012, state employees received a draft of the General Management Plan Amendment and were invited to comment.

Right-of-Way Consultation

ANILCA included a provision for a right-of way for surface transportation across the Kobuk Unit of the preserve under section 201(4)(b-e). Whether such a right-of-way will be exercised remains uncertain. Park staff and the National Park Service have already begun

consultation on potential routes with the Alaska Department of Transportation and Public Safety.

CONSULTATION WITH VILLAGE TRIBAL COUNCILS

Consultation also took place with village tribal councils of the Resident Zone Communities:

- Alatna Traditional Council
- Allakaket Traditional Council
- Bettles Community
- Evansville Tribal Council
- Kobuk Traditional Council
- Native Village of Nuiqsut
- Native Village of Shungnak
- Naqsragmiut Tribal Council
- Wiseman Community

INVOLVEMENT OF OTHER FEDERAL AND STATE AGENCIES, REGIONAL AND LOCAL GOVERNMENTS, AND PARTNER ORGANIZATIONS

NPS staff communicated on occasion with representatives of federal and state agencies and regional and local governments (as appropriate) on topics of mutual interest and concern, such as operating the park, preserving park resources, and making the park safe and enjoyable for visitors. The National Park Service informed these groups of the draft plan and indicated that discussion topics and planning issues were welcomed. These agencies/organizations included:

Federal Government Agencies

- USDI Fish and Wildlife Service, Arctic National Wildlife Refuge
- USDI, Bureau of Land Management, Northern Field Office

Members of Congress

- U.S. Senator Mark Begich
- U.S. Senator Lisa Murkowski
- U.S. Representative Donald Young

Local Communities and Local Governments

- City of Anaktuvuk Pass
- City of Bettles
- City of Fairbanks
- City of Shungnak
- Fairbanks Northstar Borough

Nongovernment Organizations and Businesses

- Alaska Outdoor Council
- Alaska State Snowmobile Association
- Arctic Slope Regional Corporation
- Bettles Lodge
- Brooks Range Aviation
- Coyote Air
- Gates of the Arctic Subsistence Resource Commission
- Iniakuk Lake Wilderness Lodge
- NANA Regional Corporation
- National Park Conservation Association
- Northern Alaska Environmental Center

- NovaGold Resources, Inc.
- Resource Development Council of Alaska
- Sierra Club Alaska
- Western Arctic Caribou Herd Working Group
- The Wilderness Society

LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS RECEIVING A COPY OF THIS DOCUMENT

FEDERAL AGENCIES

USDI, Bureau of Land Management, Northern Field Office
USDI Fish and Wildlife Service, Arctic National Wildlife Refuge
USDI Fish and Wildlife Service, Ecological Services, Fairbanks
USDI Fish and Wildlife Service, Kanuti National Wildlife Refuge

Village Tribal Councils / Native Corporations

Alatna Village Traditional Council
Arctic Slope Regional Corporation
Bettles Community
Doyon Incorporated
Evansville Tribal Council
Kobuk Traditional Council
Kuukpik Corporation
NANA Regional Corporation
Native Village of Nuiqsut
Native Village of Shungnak
Naqsragmiut Tribal Council
Nunamiut Corporation
Village Council of Allakaket
Wiseman Community

STATE OFFICIALS, SENATORS, AND REPRESENTATIVES

State of Alaska Governor Sean Parnell
U.S. Senator Mark Begich
U.S. Senator Lisa Murkowski
U.S. Representative Donald Young

STATE AGENCIES AND COMMISSIONS

Ryan Anderson, Alaska State Department of Transportation
Stan Leaphart, Citizens Advisory Commission on Federal Areas
Susan Magee, ANILCA Project Coordinator State of Alaska

REGIONAL AND LOCAL GOVERNMENTS

City of Anaktuvuk Pass
City of Alatna
City of Allakaket
City of Bettles
City of Fairbanks
City of Kobuk
City of Nuiqsut
City of Shungnak
Mayors Office, Arctic Slope Borough
Mayors Office, Fairbanks Northstar Borough
Mayors Office, Northwest Arctic Borough
Wiseman Community

ORGANIZATIONS, BUSINESSES, AND UNIVERSITIES

Libraries

Rasmusson Library
Noel Wein Library

Newspapers and Magazines

Anchorage Daily News
Arctic Sounder
Fairbanks Daily Newsminer

Gates of the Arctic National Park and Preserve Subsistence Resource Commission Members

Pollock Simon, Chair
Jack Reakoff, Co-Chair

Western Arctic Caribou Herd Working Group

Vern Cleveland, Chair
Phil Driver, Co-Chair

Nongovernment Organizations and Businesses

Alaska Miners Association
Alaska Outdoor Council
Alaska State Snowmobile Association
Alaska Trappers Association
Alaska Travel Industry Association
Bettles Lodge
Brooks Range Aviation
Coyote Air
Iniakuk Lake Wilderness Lodge
Iñupiat Community of Arctic Slope
Interior Regional Advisory Council
Maniilaq Association
National Park Conservation Association
Northern Alaska Environmental Center
Northern Regional Advisory Council
NovaGold Resources, Inc.
Resource Development Council of Alaska
Sierra Club Alaska
Tanana Chiefs Conference
The Wilderness Society

Appendixes, References, Preparers and Consultants, and Index

APPENDIX A: ANILCA SECTION 810(A) SUBSISTENCE EVALUATION AND FINDING

I. Introduction

Title VIII, section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) requires Federal agencies having jurisdiction over lands in Alaska to evaluate the potential impacts of proposed actions on subsistence uses and needs. This analysis evaluates the potential restrictions to ANILCA Title VIII subsistence uses and needs that could result should the National Park Service (NPS) allow the implementation of proposed management alternatives within the General Management Plan Amendment Environmental Assessment for Gates of the Arctic National Park and Preserve.

The purpose of the General Management Plan / Environmental Assessment is to update and revise the 1986 *General Management Plan / Land Protection / Wilderness Suitability Review* document. The National Park Service is granted broad statutory authority under various acts of Congress to manage and regulate activities in areas of the National Park System (16 USC 1a-2(h), 3, and 3120).

II. The Evaluation Process

Section 810(a) of ANILCA states:

> *In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands . . . 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 public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other 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 would involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps would be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.*

Gates of the Arctic National Park, containing approximately 7,052,000 acres of public lands and Gates of the Arctic National Preserve, containing approximately 900,000 acres of federal lands, was created by ANILCA, section 201(4)(a) for the following purposes:

The park and preserve shall be managed for the following purposes, among others: To maintain the wild and undeveloped character of the area, including opportunities for visitors to experience solitude, and the natural environmental integrity and scenic beauty of the mountains, forelands, rivers, lakes, and other natural features; to provide continued opportunities, including reasonable access, for mountain climbing, mountaineering, and other wilderness recreational activities, and to protect habitat for and the populations of, fish and wildlife, including, but not limited to, caribou, grizzly bears, Dall sheep moose, wolves, and raptorial birds. Subsistence uses by local residents shall be permitted in the park, where such uses are traditional, in accordance with the provisions of Title VIII.

GENERAL ADMINISTRATION

Among other general administrative provisions, section 203 of ANILCA states, "Subsistence uses by local residents shall be allowed in national preserves and, where specifically permitted by this Act, in national monuments and parks."

ADMINISTRATION OF NATIONAL PRESERVES

Section 1313of ANILCA states, "A National Preserve in Alaska shall be administered and managed as a unit of the national park system in the same manner as a national park except as otherwise provided in this Act and except that the taking of fish and wildlife for sport purposes and subsistence uses, and trapping shall be allowed in a national preserve under applicable State and Federal law and regulation."

III. Proposed Action on Federal Lands

The potential for significant restriction 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(a)).

The purpose of the General Management Plan Amendment / Environmental Assessment is to update and revise the 1986 general management plan and wilderness study. The revised comprehensive plan will provide management direction during the next 15 to 20 years. The document is being prepared in response to the increasing level and diversity of activities in the park, resource management and protection needs, and requests for activities and facilities not anticipated or addressed in the 1986 general management plan.

The proposed action alternatives provide a spectrum of management opportunities related to cultural and resource protection, visitor use, scientific research, administrative and commercial services.

Chapter II of the plan describes in detail the three alternatives. At the end of the chapter, there are tables that summarize the key differences among the alternatives. Alternative A, the no-action alternative, presents a continuation of current NPS management direction and provides a comparison to the two action alternatives, B and C.

All of the alternatives protect the opportunity for NPS federally qualified subsistence users to continue traditional subsistence uses within Gates of the Arctic National Park and Preserve.

The following is a brief summary of the proposed alternatives considered in the plan:

Alternative A – No-action Alternative

For these reasons the National Park Service identifies alternative A as the no-action alternative.

This alternative is used to measure the effectiveness of the status quo to the action alternatives. The National Park Service would continue the present management direction for Gates of the Arctic, guided by the 1986 general management plan. The National Park Service would continue to maintain the wild and undeveloped character of the area, provide continued opportunities for wilderness recreation activities, protect park resources and values, and provide continued opportunities for subsistence uses by NPS federally qualified subsistence users. There would be no new management areas, infrastructure facilities, wilderness studies, or designations as described in the draft EIS.

Alternative B – (NPS Preferred Alternative and Environmentally Preferable Alternative)

Alternative B causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources (40 CFR 1505.2 Q6a). Under alternative B, the National Park Service would:

- not plan to build any new infrastructure and facilities within the park and preserve
- not establish a formal visitor use permit or reservation system
- require guides to bring visitors to ranger stations to receive NPS visitor orientation training
- require guides and air taxi operators to submit their park and preserve advertising literature to the NPS for approval
- require guides and air taxi operators to report client statistical information (e.g., size or parties, destinations and length of stay)
- not authorize new guide assignments of lands or exclusive use of structures on national preserve or park lands to support guided hunting activities or support services
- implement a formal system of indicators and standards for determining wilderness character. These NPS lands would be monitored to ensure that wilderness opportunities and natural systems in the park remain undiminished into the future
- not plan to build new roads or trails in the park and preserve but may reconsider for health and safety reasons
- not designate any visitor access points such as trailheads or entrance stations or campsites in the park or preserve

- limit camping groups near Arrigetch Peaks to no more than three groups at a time
- develop a cabin management plan for the remaining cabins standing in the park and preserve
- not allow hooved pack animals on national preserve or national park lands

Alternative C – (Environmentally Preferable Alternative)

Alternative C causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources (40 CFR 1505.2 Q6a). Alternative C proposes to use increased funding and special outreach programs to increase public awareness of subsistence activities in the national park and preserve.

Alternative C would:

- implement the use of zoning standards, indicators and wilderness study recommendations to guide NPS management
- increase park base funding to ensure that visitor services, NPS management activities and new infrastructure and facilities could be developed. Proposed actions are expected to enhance visitor opportunities while protecting cultural, natural and historical resources
- establish no formal permit or reservation system except in situations where visitors are seeking to use hooved pack animals. Any permits issued would be limited to three pack animals per person or group
- require all guides except those certified under the Guardian of Gates program to bring visitors to one of the ranger stations for orientation training
- backcountry user party size requirements would be established for backpack (10 persons max) and river trips (10 persons max)

IV. Affected Environment

Subsistence uses, as defined by ANILCA, section 810, means "The customary and traditional use by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, 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 collecting berries, edible plants, and wood or other materials.

Gates of the Arctic National Park and Preserve is north of the Arctic Circle and is bisected by the central Brooks Range running east-west. Significant parts of the park extend north and south of the Continental Divide. Gates of the Arctic National Park and Preserve contains

7,523,897 acres in the park and 948,608 acres in the preserve. Approximately 7,154,000 acres are in wilderness status. About 201,713 acres are not in federal ownership. Of those acres, 16, 532 are under application by the State of Alaska, Doyon Limited Regional Corporation, Arctic Slope Regional Corporation, and Nunamiut Corporation. There are a number of Native allotments, lode and placer mining claims. The federal subsistence regulations apply only on federal public lands. Regional and Village Native Corporation lands and Native allotments are considered private lands and are under state management authority for purposes of taking fish and wildlife.

The landscape of Gates of the Arctic National Park and Preserve is a rough rectangle straddling the east and central Brooks Range. It is bounded on the east by the Middle Fork of the Koyukuk River and the oil pipeline and the Haul Road, which provides access to this area of the park. It is bounded on the north by the Arctic Foothills, including the discontinuous Castle Mountain Unit, and the North Slope of Alaska. The western boundary is roughly at the Baird Mountains and Noatak National Preserve. The southern boundary is uneven, extending north of the upper Kobuk River in the west and just east of Wild Lake in the east.

The largest physiographic zone of the park and preserve is the central Brooks Range. The mountains in the Brooks Range are east-west trending and rise to heights of 7,000 feet to 8,000 feet in the north and 4,000 feet to 6,000 feet in the south. These ridges had been regular travel routes in aboriginal times. The Brooks Range mountains have been a significant barrier to animal and plant, and human movement. The fauna and vegetation of Gates of the Arctic National Park and Preserve show great variation due to its large area. There is both an arctic and a subarctic ecological zone. The major contrast in vegetation is between the forested boreal areas and the tundra zones.

Nomadic peoples have used and occupied the area for thousands of years, following caribou herds and traveling to regional trading areas to meet with other Native groups. These people were from at least three distinct Alaska Native cultures: Koyukon Athabascan Indians, Kuuvanmiit Eskimo, and Nunamiut Eskimo. Archeological sites found today trace their history and use, and may give clues to the earliest human inhabitants of northern Alaska. The variety of known archeological sites within the national park and preserve includes seasonal villages, long- and short-term camps, hunting and butchering locales, caribou fences, lookout sites, fish camps, trapping camps, and resource harvesting locations such as birch bark gathering. Local rural residents still depend upon resources in the park to sustain a subsistence way of life.

Hunting, fishing, trapping, and gathering remain a vital part of a subsistence way of life for local residents that continues to evolve in this region. Major subsistence resources include sheefish, lake trout, grayling, arctic char, fur bearers, waterfowl, black and brown bears, moose, wolves, Dall sheep, muskox, and caribou. Occasionally subsistence users will make special trips into specific areas such as the Kobuk River to fish for sheefish or into large lakes looking for char and lake trout. Winter trapping efforts concentrate on the harvest of lynx, wolverine, wolves, marten and fox. These and other subsistence activities occur throughout the year and are usually concentrated in the northern and eastern portions of the park and preserve.

ANILCA and National Park Service regulations authorize subsistence use of resources in Gates of the Arctic National Park and Preserve (codified in 36 CFR part 13, subparts A, B, and C). ANILCA provides a preference for local rural residents over other consumptive users should a shortage of subsistence resources occur and allocation of harvest becomes necessary.
In the Gates of the Arctic National Preserve, an NPS federally qualified subsistence user is a local rural resident who has a Customary & Traditional use determination for any wildlife species as determined by the Federal Subsistence Board (see 50 CFR 100.24).

For purposes of taking fish and wildlife in Gates of the Arctic National Park, a NPS federally qualified subsistence user is a local rural resident who resides in the park resident zone or has obtained a subsistence permit from the superintendent pursuant to 36 CFR Part 13.440. In addition, the subsistence user must have a positive customary & traditional use determination for the wildlife species.

It was the intent of Congress to limit eligibility for subsistence activities within Gates of the Arctic National Park to local rural residents who have a personal or family history of use of park resources. It was also the intent of Congress that the National Park Service should manage eligibility by identifying eligible communities to the greatest extent possible, rather than basing eligibility upon an individual permit system. Through NPS rulemaking in 1981, 10 communities near Gates of the Arctic National Park were designated as Subsistence Resident Zone Communities for the park. Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles\Evansville, Hughes, Kobuk, Nuiqsut, Shungnak, and Wiseman were identified as communities with a significant concentration of subsistence users who have customarily and traditionally utilized park resources.

The use of airplanes for the purposes of taking fish and wildlife for ANILCA Title VIII subsistence purposes is allowed in the national preserve, but not in the national park.

Comprehensive descriptions of the affected ANILCA Title VIII subsistence environment within Gates of the Arctic National Park and Preserve can be found in chapter 3.0 of the environmental assessment and in:

- "1996 General Management and Land Protection Plans" for Gates of the Arctic National Park and Preserve. See online at : http://www.nps.gov/gaar/index.htm

- Federal Subsistence Management Regulations, Office of Subsistence Management, Fish and Wildlife Service, see online at: http://alaska.fws.gov/asm/home.html

- National Park Service *Management Policies 2006*. Information and Publications (see online at: http://ww.nps.gov/policy)

- Alaska Subsistence, NPS Management History, NPS 2002

- Code of Federal Regulations, Part 13 National Park System Units in Alaska

- Alaska Department of Fish and Game General, Subsistence, Commercial Uses of Alaska's Wildlife Regulations, Information and Publications. See online at: http://www.adfg.alaska.gov/index.cfm?adfg=home.main

The National Park Service 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.

V. Subsistence Uses and Needs Evaluation

Potential Impacts to Subsistence Users

To determine the potential impacts on existing subsistence activities for the proposed action, three evaluation criteria were analyzed relative to existing subsistence resources.

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in number, (b) redistribution of subsistence resources, or (c) habitat losses
- what effect 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:

(a) Reduction in Numbers:

The proposed actions to implement various alternatives are not expected to cause a significant decline of wildlife species in the affected areas.

(b) Redistribution of Resources:

The proposed actions are not expected to cause a significant displacement of subsistence resources in the affected areas.

(c) Habitat Loss:

The proposed actions are expected to be beneficial for maintaining preferred habitat for key subsistence resources within the affected areas. Proposed actions are expected to provide a positive effect on distribution, densities and availability of subsistence resources.

The proposed actions are not expected to have adverse effects on subsistence resources and habitat, as well as subsistence users. The National Park Service would work closely with subsistence users to minimize impacts to subsistence resources in the affected area.

2. Restriction of Access:

The proposed actions are not expected to significantly restrict current subsistence use patterns. Access for Title VIII subsistence uses within NPS areas is permitted according to federal and state law and regulations.

3. Increase in Competition:

The proposed actions are not expected to significantly restrict or increase competition for ANILCA Title VIII subsistence resources on federal public lands within the affected area.

VI. Availability of Other Lands

The proposed actions are consistent with NPS mandates in NPS areas in Alaska.

VII. Alternatives Considered

No other alternatives were identified that would reduce or eliminate the use of NPS public lands needed for subsistence purposes.

VIII. Findings

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

APPENDIX B: MINIMUM REQUIREMENTS DECISION GUIDE

Appendix B describes the process used by Gates of the Arctic National Park and Preserve staff in making decisions on proposed management actions that affect wilderness. The park has worksheets as well, which are not included in this appendix, but are available at the park headquarters.

The minimum requirements decision guide is subject to change. The guide may change as conditions warrant and as the park staff learns more about the wilderness and wilderness management.

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ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKSHEET INSTRUCTIONS

Introduction

The Minimum Requirements Decision Guide 2004 (MRDG) is a result of interagency collaboration to bring an appropriate level of consistency to administrative decisions in units of the National Wilderness Preservation System. The worksheet process is designed to assist Superintendents, wilderness managers and project leads in collaborative evaluations in order to make appropriate decisions for wilderness. These instructions refer to completing the MRDG *Worksheets*. YUCH and GAAR refer to these forms as the *Minimum Requirement-Minimum Tool Analysis*.

Please refer to unit enabling legislation, NPS guidance in NPS *Management Policies 2006*, Director's Order 41 and National Wilderness Steering Committee guidance documents in completing this analysis. Use of this process assumes a familiarity with these laws and policies as well as applicable provisions of the Alaska National Interest Lands Conservation Act of 1980

The MRDG is derived from section 4(c) of the Wilderness Act and involves two sequential steps. ***Step 1*** determines whether action (proposed project or activity) is a) ***necessary*** *for administering the area as wilderness* ***and b) does not pose significant impacts. Both*** elements should be affirmatively met in order to proceed. If an action is found to be necessary, then ***Step 2*** provides guidance for determining ***how the action is to be***

undertaken in order to cause the least amount of impact to wilderness resources, character and purposes.

Step 1: Determine if it is <u>necessary</u> to take action.

Description: Briefly describe the situation that may prompt action. This is not a description of a possible method or tool, but rather the situation that prompts the possible need for action. This step should not be used to justify use of motorized equipment or mechanical transport, or to approve placement of a structure, facility, or temporary road.

Correct Examples of description	Incorrect examples of description
An administrative cabin is deteriorating….	Need to restore the administrative cabin
A request is received for access into a valid, existing mining claim…..	Need to build a temporary road for mining claim access.
Blown down trees are blocking trails….	Need to use chainsaws to clear the blown down trees
Lack of information on a wildlife species…..	Need to land a helicopter to survey population
Fire alters wildlife habitat…..	Need to re-seed area to maintain wildlife habitat
User conflict complaints between stock users and hikers…	Need to survey visitors about user conflicts or close trail to one type of use
A trail bridge has washed out…..	Need to replace the washed out bridge, using mules for supplies
Riverbank erosion is destabilizing a pioneer cabin listed on the National Historic Register…..	Need to sling-load rock gabions to stop erosion
Lack of information on air quality in class I wilderness airshed…..	Need to set up air quality monitoring station in wilderness
Invasive species present…..	Need to use motorized sprayer to treat invasives

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

Are there valid existing rights or is there a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that <u>allows</u> consideration of action involving section 4(c) uses? Cite law and section.

Legislation subsequent to the Wilderness Act can have a powerful affect on reinterpreting some elements of the original act including section 4 (c) exceptions. Specific authorizations under ANILCA or other legislation must be considered and addressed in the minimum requirement-minimum tools process where applicable.

If there is special provision language (e.g., maintenance of dams and water storage facilities with motorized equipment and mechanical transport, control of fire, insects and disease, access to private lands, etc.), whether in the Wilderness Act of 1964 or subsequent designation legislation, some actions may be required that would otherwise be prohibited. The exact reference to the legislation is needed in this box. Examples include:

Existence of public use cabins and subsistence use and access in Wilderness (Alaska National Interest Lands Conservation Act of 1980, P.L. 96-487, Sec. 1315(c)).

Use of motorboats of ten horsepower or less in the Okefenokee Wilderness (Wilderness Act of 1964, P.L. 88-577, Sec. 4(d)(1); Okefenokee Wilderness Act of 1974, P.L. 93-430, Sec.2).

Some Valid Existing Rights or the provisions of special legislation may be satisfied by an option outside wilderness. Such possibilities should always be explored.

B. Describe Requirements of Other Legislation

Do other laws require action?

Laws not directly concerned with wilderness (such as the Endangered Species Act or National Historic Preservation Act) may influence the need for actions in Wilderness. In some instances, the administrator is asked to satisfy the requirements of at least two laws. For example:

Recovery of an endangered species dependent on wilderness ecosystems (Endangered Species Act).

Treatment of site listed on the National Register of Historic Places (National Historic Preservation Act).

Apparent conflicts between the Wilderness Act and other legislation may require innovative approaches. It is the treatment methods and means of access that are often incompatible and are dealt with in Step 2.

C. Describe Other Guidance

Does taking action conform to and implement relevant standards and guidelines and direction contained in agency policy, unit and wilderness management plans, species recovery plans, tribal government agreements, or state, local government, or interagency agreements?

Review guidance for conformance and carefully consider the context of the guidance, plan or agreement. Plans developed using a NEPA analysis are decisions that provide stronger guidance than plans developed with less public or interdisciplinary involvement. Examples include:

A programmatic decision to treat invasive weeds has already been addressed in a unit level plan that included wilderness. No decision was made regarding the method of treatment.

The need for bridges, fords, or in-stream structures has been addressed in a fish species recovery plan. The plan does not dictate the type of structure, method of construction, or tools required.

Even if relevant programmatic decisions have already been made that satisfy Step 1 of a Minimum Requirements analysis, both Step 1 and Step 2 should be completed to determine the minimum tool or method.

D. Describe Options Outside of Wilderness

Can this situation be resolved by action outside of wilderness?

Examples that might be explored include:

Putting up nest boxes outside wilderness boundaries.

Surveying visitors about user conflicts at the trailhead or visitor center, rather than on the trail or at their wilderness campsite
Locating trail destination and distance signs can be located at trailheads outside wilderness (unless already determined by agency policy).
Locating monitoring or other administrative structures outside wilderness.

E. Wilderness Character

How would action contribute to the preservation of wilderness character, as described by the components listed below?

Section 2(a) of the Wilderness Act directs us to manage wilderness areas for the preservation of their wilderness character. Similar direction is repeated in section 4(b). It is recommended that particular attention is paid to the general guidance in the Wilderness Act, as outlined in the boxes on Page 2 of the

Overview and to agency policy. In addition, at least four major components of wilderness character are mentioned in section 2(c) of the Wilderness Act. These are:

"**Untrammeled**" – Wilderness is ideally unhindered and free from modern human control or manipulation.
"**Undeveloped**" – Wilderness has minimal evidence of modern human occupation or modification.
"**Natural**" – Wilderness ecological and evolutionary systems are substantially free from the effects of modern civilization.
"**Outstanding opportunities for solitude or a primitive and unconfined type of recreation**" – Wilderness provides opportunities for people to experience natural sights and sounds, solitude, freedom, risk, and the physical and emotional challenges of self-discovery and self-reliance.

This list of wilderness character components is not comprehensive. **Other** components can be defined that are of particular importance and reflect the character of your wilderness. An example of an action altering wilderness character is:

Taking management action to control invasive weeds might increase naturalness, while at the same time, greater manipulation of the wilderness decreases the untrammeled character of the area; the presence of employees and use of equipment to control invasive weeds may decrease visitor's opportunities for solitude in certain sections of this wilderness.

F. Describe Effects to the Public Purposes of Wilderness

How would action support the public purposes for wilderness (as stated in section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Identify which of these public purposes would be degraded or enhanced by administrative action. For example:

If a main trail bridge is not replaced, it may affect recreation since the stream is otherwise impassable most of the year.
A secondary trail bridge makes travel easier for only a short time of year, and therefore not replacing it may not significantly impact recreation.
Scientific activities may be accomplished by limited visits to the area by researchers instead of a research installation.

Step 1 Decision: Is it <u>necessary</u> to take action? Evaluate the responses made to all questions in Step 1 and determine whether there is a need to proceed to Step 2. If the responses indicate potential adverse impacts from taking action, document whether there is sufficient reason to proceed to Step 2.

Step 2: Determine the minimum tool.

Description of Alternative Actions

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

The description of alternatives and effects varies by the complexity of the action. Identify and describe a full range of feasible alternatives, including necessary mitigation measures that represent the various actions, and the methods and tools that could be used. Include a "No Action" alternative to allow for a comprehensive comparison of effects. Complete a form for each alternative action being considered.

Compare the potential effects of each alternative on wilderness character by describing the effects of implementation using the criteria below. This list is not all-inclusive, and other criteria which address the special features or unique character of each wilderness should be developed as needed. Use the criteria for comparing the effects of each applicable phase of the action including design, construction, management, removal, or restoration.

Alternative Comparison Criteria

Briefly describe as applicable

Biological and Physical Resource

Describe the potential for protection, impairment, or restoration of natural conditions (air, water, soil, wildlife, fish, plants, etc.) including endangered, threatened, or rare species, natural biological diversity, and self-regulating ecosystems.

Discuss effects related to protecting natural conditions within the regional landscape (i.e. insects, disease, or non-native species).

Social and Experiential Resource

Identify how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or impaired.

Describe the effects on wilderness character that will be noticeable to the visitor.

Heritage and Cultural Resource

Describe any effects on protection or management of historic, pre-historic, listed or eligible items, sites, structures, or landscapes.

Identify any trend in wilderness management decisions that could be cumulative and cause impairment of wilderness character over time.

Explain how the alternative helps provide a contrast between wilderness and other areas where humans and their work dominate the landscape.

Determine if there will be effects that will prevent the wilderness from remaining unimpaired for the future use and enjoyment as wilderness.

Special Provisions

Explain how the special provisions and rights (grazing, mining, water developments, access to non-federal land, etc.) identified in the Wilderness Act (sections 4 and 5) or subsequent legislation (such as provisions of ANILCA), are managed to minimize degradation of wilderness character.

Safety of Visitors, Personnel, and Contractors and Work Methods

Describe any safety concerns associated with implementing the alternative on agency personnel, volunteers, and/or contractors.

Identify any potential public safety hazards resulting from implementation of the alternatives.

Discuss use of primitive and traditional skills and tools.

Economic and Time Constraints

Describe the costs and the amount of time it will take for implementation of the alternative.

Explain how each alternative satisfies any significant timing requirements or identified need for urgency.

Additional Wilderness-specific Comparison Criteria

Identify any other decision factors that are relevant to the unique characteristics and special features of this wilderness.

Step 2 Decision: What is the Minimum Tool?

Select the alternative that represents the minimum requirements necessary to administer the area as wilderness.

Describe the rationale for selecting it.

Describe management requirements for minimizing effects including location, timing, frequency of action, design standards, etc. List any maintenance, monitoring, or reporting requirements. To aid in tracking and reporting the number and type of authorizations, check the box for each section 4(c) use that is included in the selected alternative.

Approvals

The superintendent or designee has the authority to approve section 4(c) uses and sign the document. Review by the project lead or NPS program lead or ID Team member is often useful.

APPENDIX C: DESIRED CONDITIONS AND MANAGEMENT STRATEGIES

This appendix contains desired conditions for resources and management goals for program areas for Gates of the Arctic National Park and Preserve. These conditions and strategies guide actions taken by NPS staff on such topics as natural and cultural resource management, visitor use management, and other management strategies. Each topic discussed below in table format has three key parts: (a) desired conditions for that topic, (b) a list of law or policy sources, and (c) broad management strategies that may be used to achieve those desired conditions.

Desired conditions articulate the ideal conditions the National Park Service is striving to attain. The term "desired conditions" is used interchangeably with goals. Desired conditions provide guidance for fulfilling the purpose of the park and for protecting its fundamental resources and values. Those desired conditions related to the park foundation statement are listed according to the fundamental resources and other important values.

The strategies describe actions that could be used by the National Park Service (and/or its partners) to achieve the desired conditions. Many of these strategies are already being implemented. Those not already being implemented are consistent with NPS policy, are not believed to be controversial, and require no analysis and documentation under the National Environmental Policy Act of 1969 (or analysis and documentation would be completed separately from this GMP Amendment. This is not an exhaustive list of management strategies. As new ideas, technologies, and opportunities arise, they would be considered if they further support the desired conditions.

DESIRED CONDITIONS: WILDERNESS	
Description	**Policy/Laws/ANILCA**
These desired conditions cover designated and eligible wilderness in the park (i.e., wilderness designated by Congress through law, areas that have met the NPS initial screening assessment to see if they meet the minimum criteria for inclusion in the national wilderness preservation system, and areas that do not qualify for immediate wilderness designation due to temporary nonconforming or incompatible conditions).	▪ Wilderness Act of 1964 ▪ ANILCA ▪ NPS *Management Policies 2006* ▪ Director's Order 41:*Wilderness Preservation and Management*
Desired Condition/Goals	
Fundamental Resources and Values	
Wilderness Character ▪ Natural processes, native species, and the interrelationships among them are protected, maintained, and/or restored to the greatest extent possible, while providing opportunities for their enjoyment as wilderness. ▪ Cultural resources, such as archeological resources, cultural landscapes, and historic structures, within wilderness are protected and maintained using methods consistent with preservation of wilderness character and values. **Diverse Arctic Ecosystems** ▪ The National Park Service protects intact, undisturbed arctic ecosystems. The park's biotic communities are protected from impacts due to human activities, while ensuring that visitors have ample opportunity to visit and enjoy these ecosystems. **Science in Wilderness** ▪ Scientific research and monitoring are conducted using methods consistent with preservation of wilderness character and values, and provide guidance for managing wilderness resources and understanding global change. **Unique Geological Features** ▪ Geological processes resulting in mountains and alpine landforms, including two national natural landmarks, contribute to the wild nature and undeveloped character of the park. **Contiguous Wilderness** ▪ The park is managed as the centerpiece of 21,000,000 acres of designated wilderness in the Brooks Range.	
Other Important Resources and Values	
▪ Park operations are coordinated in the park to manage and protect natural and cultural resources in wilderness and preserve wilderness character. ▪ Park users, park staff, adjacent landowners, local and regional groups, communities, and agencies understand the values and significance of the park's wilderness.	
Strategies	
▪ Wilderness management will continue to be based on the minimum requirement concept, allowing only those actions necessary and appropriate for administration of the area as wilderness and that do not cause a significant impact to wilderness resources and character. Implementation of such actions is accomplished using techniques and types of equipment necessary to ensure that impacts on wilderness resources and character are minimized. (See appendix B for a description of the minimum requirement process followed at the park.) ▪ Managers considering the use of aircraft or other motorized equipment or mechanical transportation within the wilderness area must consider impacts to the character, aesthetics, and traditions of wilderness before considering the costs and efficiency of the equipment. Administrative use of motorized equipment or mechanical transport will be authorized only if the superintendent determines it is the minimum requirement needed to achieve the purposes of the area as wilderness, or it is needed in an emergency situation involving the health or safety of persons actually within the area. ▪ In evaluating environmental impacts, the National Park Service will take into account wilderness character and values, including the primeval character and influence of the wilderness, the preservation of natural conditions (including the lack of human-made noise), assurances that there will be outstanding opportunities for solitude, the provision of a primitive and unconfined type of recreational experience, and the preservation and use of wilderness in an unimpaired condition. ▪ The environmental impacts of public-use activities will be monitored, and prompt action will be taken to address known or potential problems. NPS staff will take appropriate action to limit visitor impacts on resources. If resource impacts or demands for use exceed established thresholds or capacities, NPS staff may limit or redirect use.	

DESIRED CONDITIONS: WILDERNESS
▪ Research related to the wilderness ecosystem, key natural resources, and visitor experience will be encouraged when consistent with NPS responsibilities to preserve and manage wilderness. ▪ The park frame work for evaluating scientific proposals will continue to be followed. ▪ A frame work for making decisions on commercial services in wilderness will be established. ▪ The elements of wilderness character will be regularly monitored in the park.

DESIRED CONDITIONS: WILDERNESS EXPERIENCE / VISITOR USE AND EXPERIENCE	
Description	**Policy/Laws/ANILCA**
This desired condition focuses on nonconsumptive recreational use in wilderness and nonwilderness areas, including backpacking, mountaineering, rafting, scenery and wildlife viewing, photography, and camping. (See also the commercial services, sport fishing and hunting, and information and education desired conditions.)	▪ NPS Organic Act ▪ National Park System General Authorities Act ▪ Wilderness Act of 1964 ▪ Rehabilitation Act of 1973, section 504 ▪ Americans with Disabilities Act, section 507 ▪ NPS *Management Policies 2006* ▪ Director's Order 42: *Accessibility for Visitors with Disabilities in NPS Programs, Facilities, and Services*
Desired Condition/Goals	
Fundamental Resources and Values	
▪ Present and future visitors enjoy the unique qualities offered in wilderness, including the experiences of solitude, remoteness, risk, challenge, self-sufficiency, discovery, and observation of an untrammeled ecosystem. The values of wilderness are understood by the public (through education in wilderness ethics and use) and by park staff (through learning management skills) so that both will promote and preserve these values. **Wilderness Character** ▪ The untrammeled, natural, and undeveloped qualities of an arctic, mountainous landscape is protected. **Opportunity for Solitude** ▪ The remote character of the park enhances the feeling of being the first person in the area, allows freedom from societal constraints, and provides opportunities for self-discovery, renewal, and freedom. **Wilderness Dependent Species** ▪ Visitors can experience intact ecosystems for wilderness-dependent wildlife species, such as grizzly bears, caribou, wolves, sheep, and raptorial birds. **Wilderness Recreation** ▪ Visitors have the opportunity to challenge themselves in settings without modern conveniences. This often requires self-reliance, a relatively high degree of physical exertion, a moderate to high degree of challenge and adventure, and the application of outdoor skills. ▪ Visitors have opportunities for a challenging wilderness experience in a vast landscape. **Natural Soundscapes** ▪ Opportunities for profound quiet are provided, where soundscapes are dominated by natural sounds (see also the "Soundscapes" topic discussed in this section). **Scenic Landscapes** ▪ Visitors have the opportunity to experience the gaunt beauty and pristine landscapes, which evoke the spiritual, intangible essence of a timeless arctic wilderness, and inspires a sense of discovery.	
Other Important Resources and Values	
▪ To the extent reasonable, park programs, services, and facilities are accessible to and usable by all people, including those with disabilities.	

DESIRED CONDITIONS: WILDERNESS EXPERIENCE / VISITOR USE AND EXPERIENCE
Strategies
▪ An educational/interpretive program will be offered for visitors, park staff, park neighbors, and others that enhances the appreciation of wilderness resources and informs and familiarizes people regarding acceptable and unacceptable uses and activities, wilderness ethics, and how to minimize impacts on wilderness. ▪ The park staff will foster Leave-No-Trace best practices and an appreciation for wilderness stewardship. ▪ All park programs will be evaluated on a regular basis to ensure they are, to the extent reasonable, universally accessible to people with disabilities. Information on the types of access and activities that are suitable for people with disabilities, and the basic skills needed, will be made available upon request. ▪ NPS staff will not modify the wilderness area to eliminate risks associated with wilderness, but instead, will strive to provide users with appropriate information about possible risks. ▪ Visitor surveys will be conducted periodically to determine visitor satisfaction with NPS management actions, and the experiences they are having. ▪ To meet the requirements of the 1978 National Parks and Recreation Act and NPS *Management Policies 2006*, NPS staff will continue to monitor visitor comments on issues such as crowding, and will monitor for resource impacts caused by visitors. Should any of the trends increase to levels unacceptable to managers; NPS staff will consider what actions to take. (Additional information on wilderness character / user capacity can be found in chapter two.) ▪ Information and technical assistance related to the accommodation of visitors with disabilities will be provided to commercial operators, and at least one operator will be sought to provide special services for the disabled. ▪ Where essential for certain groups or activities, proposed group sizes or length of stay requirements may be slightly extended by advance written permission if it can be demonstrated that the group will not impair solitude, conflict with other users, or cause resource impacts. ▪ All recreational visitors will be encouraged to register voluntarily for the purpose of giving and receiving information. Visitors will be asked to avoid areas and actions that would be disruptive to private landowners and subsistence users. Visitors will also be asked the size of their parties and where and how long they will be in the park, and to provide information on the conditions of the park.

DESIRED CONDITIONS: WILD AND SCENIC RIVERS	
Description	**Policy/Laws/ANILCA**
These desired conditions and strategies apply to the six designated wild and scenic rivers in the park: the Alatna, John, Kobuk, Noatak, North Fork of the Koyukuk, and the Tinayguk rivers. Under the Wild and Scenic Rivers Act, the water quality, free-flowing character, and outstandingly remarkable values of all of these rivers must be protected, and, where possible, enhanced.	▪ Wild and Scenic Rivers Act (16 USC 1276[d][1]) ▪ ANILCA (section 601) ▪ NPS *Management Policies 2006* ▪ *"Department of the Interior and Department of Agriculture Interagency guidelines for Eligibility, Classification, and Management of River Areas" (1982)*
Desired Condition/Goals	
Fundamental Resources & Values*	
<u>Traditional and Historic Routes</u> ▪ Park wild and scenic rivers continue to preserve traditional and historic routes of trade and transportation throughout the central Brooks Range. **<u>Recreational Opportunities</u>** ▪ Park wild and scenic rivers continue to provide unparalleled scenic and recreational opportunities. **<u>Populations of Fish and Wildlife</u>** ▪ Natural populations of fish and wildlife and their river habitat are protected and maintained in the free flowing wild and scenic rivers of the park. **<u>Pristine Water</u>** ▪ High water quality is maintained in the six designated wild and scenic rivers. **<u>Geologic Processes</u>** ▪ A variety of geologic features and processes continue to occur illustrating the natural history of the Brooks Range.	
Other Important Resources and Values*	
▪ The park wild and scenic rivers have been and continue to be focal points for human settlement, transportation, and resource procurement for at least 10,000 years. Most of the known archeological resources within the park are adjacent to these waterways and have exceptional cultural value to local communities.	
Strategies	
▪ NPS staff will monitor use on these rivers and if impacts are evident, develop more detailed management plans. ▪ User capacities for the wild and scenic rivers will be determined, which determine the quantity and mixture of recreation and other public uses that can be permitted without adverse impacts on the resource values of the river area(s). ▪ Federal reserved water rights will be asserted, as necessary, to ensure water flows continue to protect water quality and flow-dependent outstandingly remarkable values. (See NPS 2014b for the rivers' outstandingly remarkable value statements.) ▪ Park staff will continue to manage the Noatak and Kobuk rivers in coordination with the Noatak National Preserve and Kobuk Valley National Park. ▪ Section 7(a) determinations under the Wild and Scenic Rivers Act will be prepared on any proposed activities affecting the bed or banks of the wild and scenic rivers.	

*Per the Wild and Scenic Rivers Act, the fundamental and other important resources and values included here are considered to be wild and scenic river values (i.e., free-flowing condition, water quality, and outstandingly remarkable values).

DESIRED CONDITIONS: VEGETATION	
Description	**Policy/Laws/ANILCA**
Two major vegetation types occur in the park and preserve—taiga (boreal forest) and tundra. Alpine and moist tundra are the most extensive vegetation types. Additionally, nonnative species are considered in this discussion (see wildlife topic for a description of nonnative species).	▪ NPS *Management Policies 2006* ▪ NPS Natural Resource Management Reference Manual 77 ▪ The Endangered Species Act of 1973, as amended ▪ Executive Order 13112, "Invasive Species" ▪ Alaska Region Invasive Plant Management Plan Environmental Assessment
Desired Condition/Goals	
▪ The park provides naturally evolving examples of plant communities, encompassing flowering plants, ferns, mosses, lichens, etc. ▪ The natural diversity, dynamics, and ecological integrity of the native plant mosaic are maintained as part of the complete ecosystem. ▪ The full range of genetic types of native plant populations is protected by minimizing human interference with evolving genetic diversity. ▪ The long-term viability of native plant communities is maintained, including age-structures, abundance, density, and distributions within normal ranges. ▪ Adequate data are available to determine the presence and abundance of any nonnative species in the park and in potential infestation source areas. ▪ Park ecosystems are free of nonnative species.	
Strategies	
▪ The existing baseline inventory of plants in the park will be maintained. Data will continue to be collected on species distributions and abundance. The distribution and condition of selected species that indicate ecosystem condition and diversity will be regularly monitored. ▪ The effects of activities in the park, including hiking, camping, snowmachines, and subsistence harvests, may be monitored for their effects on park native vegetation. ▪ To protect vegetation and natural cycles, visitors will be encouraged to carry stoves and adequate fuel throughout the park. ▪ Working with other state and federal agencies, local communities, and private landowners, NPS staff will, as feasible, inventory and monitor for the presence of nonnative plants on park lands and potential infestation source areas outside the park. If nonnative species are found, their distribution and condition will be monitored. ▪ Nonnative plant species will be managed in accordance with the Alaska Region Invasive Plant Management Plan. ▪ NPS staff will develop and implement visitor education programs to avoid introduction of nonnative species. ▪ Native species with local sources will be used in all revegetation programs. ▪ Park management actions will be implemented in a manner that minimizes the potential for introduction of nonnative species. ▪ If a native plant species is extirpated, the species would be restored in the park when specific criteria are met regarding habitat availability, safety, genetic type, and reason for extirpation. ▪ Park staff will work in cooperation with agencies, local communities, and other adjacent landowners on nonnative species control.	

DESIRED CONDITIONS: WATER RESOURCES	
Description	**Policy/Laws/ANILCA**
This topic covers surface water and groundwater flowing in streams and rivers, floodplains and wetlands including shorelands, and submerged lands, management of the water column, water rights, and water quality. ANILCA (section101 and 201), and 16 USC 1a-2(h) and 1c direct the National Park Service to manage all waters within the boundaries of Gates of the Arctic. The State of Alaska has authority to manage water based on the Submerged Lands Act of 1953, the Alaska Statehood Act of 1958, and the state constitution. Thus, water in the park is managed by both the state and the National Park Service. Within Gates of the Arctic National Park and Preserve, beds of waters that are navigable (for purposes of title navigability) are owned by the State of Alaska, and the beds of waters that are nonnavigable are owned by the adjoining upland landowner. At this time, no judicial determinations of navigability have been made of waters within Gates of the Arctic National Park and Preserve.	▪ Clean Water Act ▪ ANILCA (101 and 201) ▪ Submerged Lands Act of 1953 ▪ Alaska Statehood Act of 1958 ▪ Rivers and Harbors Act ▪ Executive Order 11514 "Protection and Enhancement of Environmental Quality" ▪ Executive Order 12088, "Federal Compliance with Pollution Control Standards" ▪ NPS *Management Policies 2006* ▪ NPS Natural Resource Management Reference Manual 77 ▪ 36 CFR 1.2(a) ▪ Title 16 and other state statutes that apply ▪ Executive Order 11990,"Protection of Wetlands" ▪ Director's Order 77-1:*Wetland Protection* ▪ NPS "Procedural Manual 77-1: Wetland Protection ▪ Executive Order 11988,"Floodplain Management" ▪ Director's Order 77-2:*Floodplain Management* ▪ National Flood Insurance Program (44 CFR 60)
Desired Condition/Goals	
▪ Gates of the Arctic National Park and Preserve water quality, quantity, distribution, and timing reflects natural conditions and supports the natural diversity and abundance of native plant and animal communities characteristic of unimpaired boreal forest and arctic ecosystems. The natural character of park and preserve watersheds, floodplains, wetlands, waterways, and submerged lands are intact and maintain the water quality, quantity, distribution, and timing of the park. ▪ Natural river processes are allowed, insofar as possible, to shape and control wilderness ecosystems. Management intervention is only undertaken to the extent necessary to correct the impacts of human use, and influences originating outside of wilderness boundaries, using the minimum requirement concept. ▪ Surface water and groundwater are protected. The highest state and federal water quality classifications are maintained for all waters within the park and for all waters flowing into the park. Park water resources meet or exceed all federal and state water quality standards for temperature, bacteria, total dissolved solids, dissolved oxygen, turbidity, toxic substances, acidity, and nutrients. ▪ Pollution prevention and protection of water quality to meet the needs of aquatic organisms are priorities. ▪ The water is free of human-induced pollutants. ▪ To the extent possible, long- and short-term adverse impacts associated with the destruction or modification of wetlands are avoided. ▪ Shoreline areas that provide spawning, feeding, and rearing habitats for fish and that support rare aquatic plant species are protected.	
Strategies	
▪ Systematic surveys of park watersheds will be conducted to complete inventories on the major aquatic ecosystems. The condition of aquatic ecosystems within the park will be monitored and the distinct functions they perform will be identified. ▪ Park staff will continue to monitor water quality, quantity, distribution, and timing on major lakes, rivers, streams, wetlands and floodplains and other water bodies that receive increased amounts of use or are otherwise of concern. ▪ The National Park Service will work with the Alaska Department of Environmental Conservation and the Environmental Protection Agency to achieve the above desired conditions and ensure compliance with state and federal standards. ▪ The National Park Service will seek to participate in regional plans for development that might affect the water quality of the park. ▪ To the extent possible, discharges associated with park operations and visitor use will be minimized through the use of best management practices and use of appropriate equipment. Sustainable practices and pollution prevention measures will be used in park operations. The use of clean fuels will be promoted for use by the park, visitors, and communities. ▪ NPS staff will continue to educate and promote greater public understanding of the importance of water quality to the park. Information regarding water quality and related values, including threats of water pollution to park resources, will be provided	

DESIRED CONDITIONS: WATER RESOURCES
to park visitors and regional residents. Public support will be encouraged in protecting park watersheds, wetlands, and floodplains. ▪ The National Park Service will pursue cooperative agreements with the state for the management of lands under navigable water bodies (shore lands). ▪ The National Park Service will work with the state on a case-by-case basis to resolve issues concerning the use of waterways where management conflicts arise. Cooperative agreements for the management of uses on the water will be pursued if a case-by-case resolution of management issues proves unacceptable to the National Park Service and the state. ▪ NPS staff will promote water conservation, including the activities of concessioners, visitors, and park neighbors. ▪ Limits will be established for fuel caches to support administrative activities and commercial operations inside the park. ▪ For waters in the park, or affecting park resources, the National Park Service will work with appropriate agencies and partners to determine minimum flow needs. ▪ NPS staff will minimize the use of pesticides, fertilizers, and other chemicals, and manage them according to NPS policy and federal regulations. ▪ Floodplains will be studied and monitored to determine their values and importance, and identify any threats. ▪ Information will be provided to visitors regarding river processes and natural flooding regimes. ▪ NPS staff will participate in collaborative planning efforts with adjacent land managers and engage in cooperative conservation strategies to protect and restore wetlands adjacent to park boundaries.

DESIRED CONDITIONS: AIR QUALITY	
Description	**Policy/Laws/ANILCA**
The park and preserve is classified as a class II airshed under provisions of the Clean Air Act amendments (42 USC 7401 et seq.). This air quality classification is the second-most stringent and is designed to protect the majority of the country from air quality degradation.	▪ Clean Air Act ▪ NPS *Management Policies 2006* ▪ NPS Natural Resource Management Reference Manual 77 ▪ Wilderness Act
Desired Condition/Goals	
▪ The highest attainable air quality levels and visibility standards are maintained. Ozone, and atmospheric deposition are stabilized or improved. ▪ Scenic views of the landscape are protected from visibility degradation for the enjoyment of current and future visitors. ▪ Visitors understand what affects air quality and how they contribute to it.	
Strategies	
▪ The National Park Service, through the Air Resources Division, monitors air quality to establish current conditions and to assess long-term trends of air pollutants, using resultant data to ensure desired conditions are met. ▪ Park staff will continue to work with the Arctic Vital Signs Network, which monitors the air quality over arctic parks. Issues such as arctic haze, caused by transport of air pollutants and local air pollution, are monitored as to how they affect air quality and deposition inside the park. ▪ To the extent possible, emissions associated with park operations and visitor use will be minimized through timing and the use of feasible and affordable best management practices and appropriate equipment. Sustainable practices and pollution prevention measures will be used in park operations. The use of clean fuels will be promoted for use by the park, visitors, and communities. Best available practices and technologies will be used to provide healthful indoor air quality. ▪ NPS staff will continue to implement the air quality monitoring program as part of the inventory and monitoring plan, air quality station in Bettles. Vegetation, such as moss, will also be monitored for the deposition of air pollutants. ▪ NPS staff will continue to educate and promote greater public understanding of the importance of air quality to the park. Information regarding air quality and related values, including threats of air pollution to park resources, will be provided to park visitors and regional residents. The park staff helps visitors to understand that some natural processes such as fire can have a negative impact on air quality. ▪ NPS staff will review permit applications for new air pollution sources that could affect the park.	

DESIRED CONDITIONS: SOUNDSCAPES	
Description	**Policy/Laws/ANILCA**
Soundscapes include both natural and human components. Natural soundscapes include all naturally occurring sounds such as waves on the shoreline, running water, bird calls, wind blowing through trees, or thunder. It also includes "natural quiet" that occurs in the absence of natural or human-caused sound.	▪ NPS *Management Policies 2006* ▪ Director's Order 47: *Soundscape Preservation and Noise Management* ▪ Federal Aviation Regulation
Desired Condition/Goals	
▪ Profound quiet, where soundscapes are dominated by natural sounds, is preserved. ▪ Noise from management or recreational uses is minimized to provide a high-quality visitor experience and protect biological resources and processes that involve natural sounds (for example, species that use sound to attract mates, protect territories, locate prey, navigate, or avoid predators). ▪ Noise-generating activities that could adversely affect park wildlife populations are prevented or minimized to the greatest extent possible. Ecological interactions that depend on or are affected by sound are protected.	
Strategies	
▪ Park staff will inventory and monitor soundscape disturbances. The staff will develop a report on baseline trends of soundscape disturbances. ▪ An inventory of natural sounds in the park will be maintained and, as feasible, key locations for maintaining natural quiet will be monitored. ▪ NPS staff will consider and use best technologies and methods to minimize noise when procuring or using equipment. ▪ NPS staff will work with partners to mitigate and encourage noise reduction. ▪ NPS staff provides interpretive programs and materials to help visitors understand the role of natural sounds and the value of natural quiet. Visitors will be encouraged to avoid unnecessary noise.	

DESIRED CONDITIONS: GEOLOGIC FEATURES AND PROCESSES	
Description	**Policy/Laws/ANILCA**
Geologic features include rocks and minerals, dramatic or unusual rock outcrops and formations, geothermal systems, caves and karst systems, and landscapes (e.g., canyons and arches in erosional landscapes, and dunes, moraines, and terraces in depositional landscapes). (See also soils and paleontological resources). Geologic processes are natural and chemical forces that shape the earth over time, including wind and water erosion and sedimentation, glaciation, shoreline processes, and seismic and volcanic activity.	▪ NPS *Management Policies 2006* ▪ NPS Natural Resource Management Reference Manual 77
Desired Condition/Goals	
▪ Park geologic resources are preserved and protected as integral components of park natural systems, and allowed to function in as natural a condition as possible. ▪ To the extent possible, the unnatural erosion, physical removal, or alteration of geologic features and processes are prevented. ▪ The National Park Service seeks to understand the effects of geological process and climate change on cultural, paleontological, and other park resources.	
Strategies	
▪ Monitoring and research programs assess conditions and trends in park geologic processes and resources, particularly those that are both important to the park's ecosystem and management, and subject to human influence (e.g., glaciers, groundwater chemistry, surficial deposits, stream flow, river and stream channel morphology, sediment load, slope failures, and erosion). ▪ Park staff will continue to inventory geologic resources through the NPS Geological Resources Division. ▪ NPS staff will partner with the U.S. Geological Survey and others to identify, address, and monitor geologic processes. ▪ The geologic history of the park will be updated using current theory and techniques. ▪ Geologic interpretations for educational media will be updated. ▪ NPS staff will identify interpretive themes or other opportunities for interpreting the notable geologic events or processes that are preserved, exposed, or occur in the park.	

DESIRED CONDITIONS: PALEONTOLOGICAL RESOURCES	
Description	**Policy/Laws/ANILCA**
Paleontological resources include fossilized remains of vertebrate and invertebrate organisms, trace fossils, and plant fossils. In Gates of the Arctic, these resources include fossils of invertebrates, such as shells, and corals, and Pleistocene large mammals, such as mammoth and bison.	▪ NPS Organic Act ▪ Preservation of American Antiquities, 43 CFR 3 ▪ NPS Management Policies 2006 ▪ NPS Natural Resource Management Reference Manual 77 ▪ Paleontological Resources Preservation Act of 2009
Desired Condition/Goals	
▪ The National Park Service has as full an understanding as possible of paleontological resources in the park. ▪ Consistent with park purposes and wilderness requirements, opportunities are provided for public education, interpretation, and scientific research regarding paleontological resources of the park.	
Strategies	
▪ Plans will be developed to inventory, monitor, and determine the scientific and educational use of paleontological resources in the park. ▪ Efforts to inventory fossil deposits and paleontological materials will continue. Identified paleontological resources will be cataloged and assessed to determine their extent and scientific significance, and to ensure that these nonrenewable resources are not lost. ▪ Park staff may issue permits to qualified researchers for collecting paleontological resources. ▪ NPS staff will educate the public about the value of paleontological resources and the laws relevant to their protection. ▪ A variety of methods may be followed to protect resources, such as data recording, stabilization in the field, and placement of specimens in a museum collection. ▪ Research involving disturbance or collections of these resources will require a permit, in accordance with regulations concerning the Paleontological Resources Preservation Act of 2009. NPS staff will take appropriate action to prevent damage to and unauthorized collection of paleontological resources. ▪ Interpretive and educational programs will be developed to educate visitors and the public about paleontology. Fossils will be prepared, exhibited, and stored according to NPS museum standards.	

DESIRED CONDITIONS: CULTURAL RESOURCES	
Description	**Policy/Laws/ANILCA**
The National Park Service protects and manages cultural resources in its custody through effective research, planning, and stewardship. Cultural resources include archeological resources, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections.	**General Cultural Resource Policies & Laws** ▪ National Historic Preservation Act of 1966 ▪ American Religious Freedom Act ▪ Native American Graves Protection and Repatriation Act ▪ NPS *Management Policies 2006* ▪ Director's Order 28: *Cultural Resource Management* ▪ National Register of Historic Places ▪ Advisory Council on Historic Preservation's implementing regulations regarding the "Protection of Historic Properties" (36 CFR 800)
Archeological Resources Archeological resources are material remains or physical evidence of past human life or activities that are of archeological interest, including the record of the effects of human activities on the environment. An archeological resource is capable of revealing scientific or humanistic information through archeological research.	**Policies/Laws – Archeological Resources** ▪ Archeological and Historic Preservation Act ▪ Archeological Resources Protection Act ▪ Antiquities Act ▪ Native American Graves Protection and Repatriation Act ▪ National Historic Preservation Act of 1966 ▪ *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* ▪ 36 CFR Part 79 – Curation of Federally-Owned and Administered Archaeological Collections ▪ 43 CFR Part 7 – Protection of Archaeological Resources
Museum Collections Museum collections comprise physical objects and documents representing the natural, cultural, and historic foundations of the park and surrounding region. These collections can include gifts and donations, but are primarily the result of scientific research in the park and serve as a record of the unique character of the park as well as a resource for future research into the various aspects of that character. They include historic and prehistoric archeological specimens, natural history specimens representing biology, geology and paleontology, and an extensive archive tracing the history, formation, and management of the park.	**Policies/Laws – Museum Collections** ▪ Archeological and Historic Preservation Act ▪ Archeological Resources Protection Act ▪ Native American Graves Protection and Repatriation Act ▪ NPS *Management Policies 2006* ▪ Director's Order 24 - "NPS Museum Collections Management" ▪ Director's Order 28 - "Cultural Resource Management Guideline" ▪ 36 CFR Part 79 – Curation of Federally-Owned and Administered Archaeological Collections ▪ NPS *Museum Handbook*, Parts I, II, and III
Ethnographic Resources Ethnographic resources are the park's cultural and natural features that have significance to traditionally associated peoples—contemporary park neighbors and ethnic or occupational communities that have been associated with a park for two or more generations (40 years), and whose interests in the park's resources began before the park's establishment. Ethnographic resources include the culturally defined environment such as place names and the storied landscape, as well as the traditional cultural practices that support a subsistence way of life.	**Policies/Laws – Ethnographic Resources** ▪ National Historic Preservation Act of 1966 ▪ American Indian Religious Freedom Act ▪ ANILCA ▪ Executive Order 13007 on American Indian Sacred Sites ▪ Presidential Memorandum of April 29, 1994, on government-to-government relations with tribal governments ▪ Executive Order 13084, "Consultation and Coordination with Indian Tribal Governments" ▪ Executive Order 13175, "Consultation and Coordination With Indian Tribal Governments" ▪ 43 CFR Part 10

DESIRED CONDITIONS: CULTURAL RESOURCES	
Cultural Landscapes NPS *Management Policies 2006* define cultural landscape as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or esthetic values. "Cultural landscapes are geographic areas that have meaning for people. Within cultural landscapes, people have been, and in many cases still are, modifying, interacting with, and giving human meaning to the land.	**Policy/Laws – Cultural Landscapes** ▪ National Historic Preservation Act of 1966 ▪ *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*
Desired Condition/Goals	
Fundamental Resources and Values	
Archeological Resources ▪ The National Park Service has current and accurate information about the range of cultural resources present in the park, and the significance, distribution, condition and vulnerability of these resources. ▪ Remains of camps, villages, and hunting activities that document human responses to changing environments since the end of the last ice age are protected and preserved. ▪ Archeological resources are preserved in good condition as possible. ▪ The public understands and values archeological resources and the information they provide about human history within the park. ▪ The best available knowledge is used to manage the park's archeological resources, using the cooperative conservation and civic engagement of Alaska Natives whose ancestors lived in the park. **Museum Collections** ▪ The artifacts, specimens, and records that represent evidence of the area's residents, past and present, are preserved. ▪ All objects and records are completely inventoried, documented, cataloged, organized for efficient access, and stored so as to ensure their long-term preservation. ▪ Complete, current, and accurate accession and catalog records are maintained in digital form with secure back-up procedures in operation. ▪ Park staff facilitate the appropriate use of museum collections and data by external researchers, NPS staff, and the public. The museum collections are accessible for education, research, and interpretation. **Ethnographic Resources** ▪ The knowledge of local indigenous history and culture is preserved. ▪ Present-day peoples whose cultural practices and identities were, and often still are, closely associated with the park's cultural and natural resources, are identified. ▪ The history and traditions of central Brooks Range explorers, gold miners, fur trappers, subsistence users, and wilderness enthusiasts are preserved. ▪ The integrity of traditional cultural properties is preserved and protected. ▪ The National Park Service recognizes that the Alaska Native relationship to the lands in the park have endured for thousands of years, and park staff continue to work with Alaska Natives to ensure that sites of traditional importance are preserved and protected. ▪ The National Park Service tries to strengthen the ability of traditional and indigenous peoples to perpetuate their culture and to enrich the park with a deeper sense of place and applicable traditional knowledge held by associated groups. ▪ Managers have as full an understanding of park ethnographic resources as possible, including a comprehension of the range of resources that could be in the park. ▪ All ethnographic resources in the park determined to be of significance, including resources determined eligible for listing or listed in the national register, are protected. ▪ To the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, access to and ceremonial use of sacred sites by religious practitioners is accommodated and adverse effects to the physical integrity of these sacred sites are avoided. ▪ There is a thorough record of oral and cultural histories and vanishing languages and dialects. ▪ A current and complete record and/or database of all known ethnographic resources and research records in digital and physical form is maintained for use in management, public understanding, and educational outreach.	

DESIRED CONDITIONS: CULTURAL RESOURCES

Other Important Resources and Values

Cultural Landscapes

- The management of cultural landscapes focuses on preserving the physical attributes, biotic systems, and use when that use contributes to historical significance.
- If the National Park Service decides to pursue treatment of a cultural landscape, it uses sound preservation practices to maintain long-term historic features and materials.
- NPS staff interprets the cultural landscapes and shares information about them with the public.

Strategies

General Strategies

- The National Park Service will assemble a thorough inventory of park cultural resources, including cultural landscapes, and attempt to understand the types, distribution, and age of resources and sites in the park and the historic themes they represent. The inventory will continue to be updated, and the trend in condition of cultural resources will be tracked.
- Research on cultural resources to maintain the character and integrity of the historic, archeological, and/or ethnographic resources will be supported.
- NPS staff will work cooperatively with the Alaska state historic preservation officer in identifying, proposing, protecting, and maintaining cultural resources in the park, including cultural landscapes, archeological resources, and ethnographic resources. NPS staff will consult with the Alaska state historic preservation officer about federal undertakings that may affect historic properties.
- Park staff will collaborate with resident zone communities, Alaska Natives, the state historic preservation officer, and other stakeholders to manage cultural resources. NPS staff will consult with Native and non-Native resident zone communities, tribal organizations, and local rural residents before taking actions that affect resources of significance to local residents. The consultations will be open and candid so that all interested parties may evaluate for themselves the potential impact of relevant proposals.
- Potentially sensitive natural and cultural resources and traditional cultural properties will be identified, recorded, and evaluated through consultation with tribal organizations, resident zone communities, and qualified Alaska rural residents.
- NPS staff will engage in an active and robust program of resource inventory, assessment, and monitoring using park cultural resources staff and university partners.
- All documents, records, maps, and photographs derived from cultural resource projects will be curated in the collections repository at the Fairbanks Administrative Center or another suitable federal repository.
- NPS staff will systematically monitor at-risk cultural sites and plan appropriate treatment measures necessary for their preservation.
- Cultural resources will be protected through public education and law enforcement.
- If disturbance of significant resources is unavoidable, formal consultation will be conducted with the state historic preservation officer and the Advisory Council on Historic Preservation, and with tribal organizations, resident zone communities, and qualified Alaska rural residents, as appropriate.

Archeological Resources Strategies

- Archeological sites will be identified and inventoried, and their significance determined and documented.
- Park staff will communicate regularly with resident zone communities and solicit input used to prioritize and plan archeological investigations. The results of recently completed work will be communicated to resident zone communities through face-to-face meetings and presentations, publications, Web pages, and other media.
- Programmatic plans of action with Alaska Native groups will be developed regarding the inadvertent discoveries of human remains following guidance of the Native American Graves Protection and Repatriation Act.
- Site location and survey coverage data in the NPS-Alaska regional office permanent geographic information system data set will be updated annually.
- A conservative approach will be followed with regard to excavation: research that involves excavating or collecting resources will only be allowed if it is essential to understanding anthropological or historical information, the visitor's understanding of the area, or if the site is threatened with loss. NPS staff will review all permit applications.

Museum Collections

- Park collections will continue to be housed in the Fairbanks Administrative Center Museum Curation Facility to provide protection for current collections and for future collection expansion. This is the default repository for all park collections and archival documentation, and is staffed by appropriately trained personnel dedicated to the management of the museum program.
- Formal agreements and loans will be maintained with partner repositories to ensure preservation of and access to park

DESIRED CONDITIONS: CULTURAL RESOURCES

collections not stored at the Fairbanks Administrative Center.

- Park staff will be made aware of collections policies/obligations and appropriately curate their documents and collections. This includes archives and records as well as resource documentation.
- A museum program will be developed and implemented in accordance with NPS standards to guide the protection, conservation, and use of museum collections. As part of this program, a complete set of up-to-date management and planning documents (scope of collections statement, collections management plan, integrated pest management plan, housekeeping plan, emergency operations plan) will be written or updated and serve to guide the program and associated staff.
- External researchers will be informed of collections policies and are asked to follow them closely.
- Outreach and education efforts will be made and exhibits will be prepared so the public is aware of what collections the park has and why they are preserved (i.e., their value).
- Collections facilities will be upgraded and expanded when necessary to implement recommendations outlined in the collection management plan, as necessary.
- Specially trained staff, partners, and cooperators/contractors will be employed to accession and catalog objects and records in accordance with the park museum program following standards in the NPS *Museum Handbook*.
- The park's permit coordinator will develop park-specific instructions for NPS staff and external researchers to effectively communicate permit procedures, policies, and conditions for timely cataloging and processing museum collections, and ensure projects that generate collections appropriately fund cataloging efforts.
- Information management tools (e.g., Web catalog) and access procedures will be improved to promote intellectual and physical access to the resources in park archives and museum collections.
- NPS staff will continue outreach efforts to provide access to and give tours of the collections. Interpretive and public education materials related to museum collections will be developed, such as print publications, Web and live exhibits, and public presentations.
- NPS staff will partner with local resident zone communities, such as Anaktuvuk Pass, Bettles, and Wiseman, which have expressed interest in developing local museums. The National Park Service will actively participate in the planning and development of any facilities, and provided these facilities offer adequate protection, may lend artifacts and specimens for display.
- Partnerships will be developed with other organizations (e.g., Simon Paneak Museum, Morris Thompson Center, University of Alaska Museum) to share resources and to promote and provide opportunities for research, education, and interpretation of park collections.
- Museum collections and museum management work will be incorporated in educational and outreach programs. Under direct guidance by museum-dedicated staff, students/interns will be involved in museum management work.

Ethnographic Resources Strategies

- The park staff will collaborate with residents, elders, and pioneers to gather and preserve knowledge of local indigenous history and culture, oral and cultural histories, and vanishing languages and dialects.
- NPS managers will continue to identify and evaluate ethnographic resources in the park through research conducted by professional cultural anthropologists and meeting approved NPS standards. As funding and programming priorities allow, research will be directed toward the preparation of reports and studies that inform NPS management, planning efforts, and decision making.
- Through the active participation of local Native Alaskan groups, sacred resources within the park and its general vicinity will be identified and protected. To the extent possible, visitor and management activities will be scheduled to avoid conflicts with ceremonial or shrine activities.
- All ethnographic resources will be treated as eligible for listing in the National Register of Historic Places pending a formal determination by the National Park Service and the state historic preservation officer. Any formal nomination would be made only with the full support and consensus of Native organizations, local residents, and other stakeholders.
- The National Park Service will continue to support and expand the collection of park and environs documentary and oral history in cooperation with government, Native, and private organizations. Collected data and research reports will be available at park headquarters.
- Alaska Natives linked by ties of culture to ethnically identifiable human remains, sacred objects, objects of cultural patrimony, and associated funerary objects will be consulted when such items may be disturbed or are encountered on park lands. The state historic preservation officer will also be consulted.
- NPS interpretive activities will sensitively incorporate measures to enhance understanding of traditional Athabascan, Kuuvanmiit, and Nunamiut (Athabascan) history and culture.
- If existing place names on U.S. Geological Survey maps are considered for change, the National Park Service will request changing the names of important traditional features to Native names.
- The identities of community consultants and information about sacred and other culturally sensitive places and practices are kept confidential if disclosure would result in significant invasion of privacy or risk harm to historic resources, or would impede

DESIRED CONDITIONS: CULTURAL RESOURCES

traditional religious use, or when research agreements or other circumstances warrant.
- NPS general regulations on access to and use of natural and cultural resources in the area will be applied in an informed and balanced manner that is consistent with park purposes, does not unreasonably interfere with the use of traditional areas or sacred resources, and does not result in the degradation of area resources.
- NPS staff will be encouraged to learn about the culture and history of individuals residing throughout the area.
- The employment of local Native and non- Alaska Natives on the park staff will continue to be encouraged to improve communications and working relationships and encourage cultural diversity in the workplace.

Cultural Landscapes Strategies
- Park staff will continue to identify cultural landscapes for the nationwide cultural landscapes inventory system.
- Cultural landscape preservation will be emphasized as a critical component of the park's ongoing maintenance and resource protection programs.
- The NPS will complete cultural landscape reports for the Agiak Lake Caribou Hunting Landscape and the Itkillik Lake Archeological District.
- The National Park Service will decide whether to allow contemporary use of a cultural landscape based on a determination on whether it will adversely affect the landscape characteristics.

ADMINISTRATIVE GOALS: FIRE MANAGEMENT	
Description	**Policy/Laws/ANILCA**
Fire management consists of a program of activities designed to meet management objectives for protection of resource values, life, and property and, where appropriate, for using naturally ignited and human-ignited wildland fires as management tools.	▪ NPS *Management Policies 2006* ▪ Director's Order 18 and Reference Manual 18 *Wildland Fire Management* ▪ DM 620, Chapter 2 1998 ▪ Alaska Interagency Fire Management Plan 1998 ▪ Alaska Master Cooperative Wildland Fire Management Agreement, 2010. ▪ Alaska Native Claims Settlement Act ▪ Fire Management Plan for Gates of the Arctic National Park and Preserve 2003
Desired Condition/Goals	
▪ Wildfires continue to occur in the park with a minimal amount of suppression action. Natural fire regimes are maintained or restored. ▪ Fires are suppressed only if they pose a threat to human lives or private property, or if they threaten a fire management unit with a higher protection option. ▪ Park fire management programs are designed specifically to meet park resource management objectives—including allowing fire to perform its natural role as much as practicable—and ensure that firefighter and public safety are not compromised. ▪ The best available technology and scientific information are used to manage fire within the park, to conduct routine monitoring to determine if objectives are met, and to evaluate and improve the fire management program. ▪ Fire processes in fire dependent/adapted vegetation communities are managed to promote healthy, functional ecosystems. Vegetation succession reflects the natural range of variability.	
Strategies	
▪ NPS staff will maintain a current fire management plan to reflect the most recent wildland fire policy, planning, and the body of knowledge on fire effect within the park's ecosystems. ▪ Fire suppression is conducted according to guidance provided by the interagency fire management plan, the Gates of the Arctic fire management plan, and agency administrator. ▪ If and when wildland fires are actively managed they will be effectively managed, considering resource values to be protected and firefighter and public safety, using the full range of strategic and tactical operations as described in an approved fire management plan. ▪ Cooperative agreements for fire suppression will be maintained with appropriate federal, Native Alaskan, state, and local agencies and organizations. ▪ Wildland fire incidents will be managed in accordance with accepted interagency standards and the achievement of maximum efficiency through interagency coordination and cooperation. ▪ All wildfires in the park will be monitored according to the minimum required monitoring levels in NPS Reference Manual-18 or higher levels, as determine by the fire management officer and agency administrator. ▪ Hazard fuel reduction efforts may be conducted to protect structures and cultural resources where appropriate and necessary. ▪ Prescribed fires may be conducted in cooperation with landowners and the Alaska Fire Service to protect values at risk. Prescribed fires may be pile burning debris from manual treatment or larger scale broadcast burns. (Any prescribed fire larger than 4,000 acres requires additional NEPA analysis.) ▪ During natural or prescribed ignitions, fire management operations are specifically designed to protect and/or enhance cultural resource integrity, scientific research potential, and interpretive value. ▪ Fire management staff will collaborate with appropriate resource management staff to seek information and technical expertise for the purpose of identifying cultural resource preservation and protection needs. ▪ NPS staff will communicate with and educate visitors and the public on the role of fire, its importance in Alaska, the inevitability of smoke impacts in the short term, and the long-term ecosystem benefits. ▪ Research and monitoring of naturally occurring fire, including plant and animal communities that are potentially affected by fire, may be permitted. Results will help NPS staff manage the wild and undeveloped character of the area, including plant and animal communities that are fire-adapted or fire-dependent. Long-term monitoring of burn severity, successional pathways, and active layer consumption are key to interpreting climate change effects on wildland fire in Gates of the Arctic National Park and Preserve.	

ADMINISTRATIVE GOALS: SUBSISTENCE USE	
Description	**Policy/Laws/ANILCA**
Subsistence uses 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, tools, or transportation; for the making and selling of handicraft articles out of nonedible 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" (ANILCA, section 803). The Gates of the Arctic National Park and Preserve Subsistence Management Plan contains information and guidance about NPS subsistence management policies and regulations affecting eligibility, access, hunting, fishing, the harvest of wood, plants, and berries. The alternatives presented in the environmental assessment are not expected to restrict ANILCA, Title VIII subsistence uses in Gates of the Arctic National Park and Preserve. On July 1990, the Federal Subsistence Management Program began managing wildlife resources on federal public lands and waters following a court decision that found the State of Alaska out of compliance with ANILCA, Title VIII subsistence provisions. ANILCA requires that rural residents have a priority over other users to take fish and wildlife on federal public land and waters. ANILCA Title VIII subsistence harvest of fish and wildlife is allowed in Gates of the Arctic National Park and Preserve by NPS-qualified subsistence users subject to federal regulations. Nonrural residents of Alaska and non-Alaska residents may take fish and wildlife in the national preserve under federal and nonconflicting State of Alaska regulations.	▪ ANILCA, Title VIII ▪ 36 CFR Part 13 ▪ 50 CFR Part 100 ▪ "Subsistence. Alaska Strategic Plan 2009 to 2014" ▪ *Gates of the Arctic National Park and Preserve Subsistence Management Plan* (last updated spring 2007)
Desired Condition/Goals	
Fundamental Resources and Values	
<u>Caribou Migration Range</u> ▪ The park protects the unimpeded movement of the three arctic caribou herds (Western Arctic caribou herd, the Central Arctic caribou herd, and the Teshekpuk caribou herd). **<u>Subsistence Resources</u>** ▪ The park protects a wide variety of wildlife, fish and plants that provide the fundamental base for ANILCA Title VIII subsistence uses. ▪ Continued consumptive uses of fish and wildlife populations, and the collection of plant materials and berries within the park do not disrupt the natural balance. Natural resources used for subsistence are maintained at healthy population levels in the preserve and natural and healthy population levels in the park. ▪ Nonwasteful subsistence uses of fish and wildlife and other renewable resources continue to be the priority on public lands over the taking of fish and wildlife for other purposes. These restrictions would occur when necessary to ensure the continued viability of fish and wildlife populations. **<u>Habitats</u>** ▪ The park and preserve protect a range of habitats that support a diversity of plants, fish, and wildlife. **<u>Cultural Knowledge</u>** ▪ The park staff preserves the subsistence way of life by working collaboratively with local residents to document traditional cultural knowledge and contemporary adaptations.	

ADMINISTRATIVE GOALS: SUBSISTENCE USE

Resident Zone Communities

The park preserves subsistence opportunities for resident zone communities representing Alaska's diverse cultural heritage and others who qualify for subsistence use of park resources. The park is also one of the few places in the national park system where one has the opportunity to establish residency and practice contemporary subsistence (also see the resident zone community topic later in this section).

Anaktuvuk Pass

- The park provides access for the opportunity for continuation of customary and traditional activities (subsistence) by the residents of Anaktuvuk Pass.

Spiritual and Cultural Landscape

- The park protects the opportunity for local residents to continue their traditional cultural and spiritual practices and values.

Other Important Resources and Values

- Opportunities for subsistence uses by local rural residents will continue to be allowed. Local rural residents who have customarily and traditionally engaged in subsistence uses of the park continue to be eligible to engage in those activities.
- Conflicts between subsistence users and other park users are avoided. If conflicts occur, the National Park Service seeks to resolve all situations in ways that allow all valid uses to continue.
- All park visitors have an understanding and appreciation of subsistence use and its importance for local rural residents.

Strategies

- The Gates of the Arctic National Park and Preserve Subsistence Resource Commission will continue to meet biannually to discuss issues of subsistence management on parklands, and to provide subsistence management plan recommendations to the Secretary of the Interior pursuant to section 808 of ANILCA.
- NPS staff will work closely and collaboratively with qualified subsistence users on subsistence management, and continue to rely on the Subsistence Resource Commission for hunting plan recommendations.
- NPS staff will continue to work closely and cooperatively with the Subsistence Resource Commission and other local stakeholders on issues relating to management of park and preserve resources for continued subsistence opportunity.
- NPS staff will work to have a clear understanding of the commission's needs, such as annual subsistence harvest needs, and will have clearly established rules to ensure a subsistence priority over sport or recreational uses.
- Neither habitat manipulation nor control of other species will be undertaken for the purpose of maintaining subsistence uses within the park and preserve.
- Pursuant to section 811 of ANILCA, subsistence use of snowmobiles, motorboats, and other means of surface transportation traditionally employed will be allowed, subject to reasonable regulation.
- If any of the recommendations of the commission, which are accepted by the Secretary of the Interior, are in conflict with components of park planning documents, these planning documents will be amended or revised to incorporate the commission's recommendations.
- To minimize conflicts with subsistence users, visitors will be encouraged to register at visitor contact stations where they will be given information about subsistence users and asked to avoid critical times and places of subsistence activities. Air taxi operators and others operating fixed-wing aircraft will be requested to avoid flying below a specified altitude and to avoid subsistence use areas at critical times. NPS staff will similarly adhere to these standards and will not allow unnecessary or disruptive helicopter use.
- Conflicts between subsistence users and nonconsumptive users, such as hikers and boaters, will be addressed on a case-by-case basis.
- Local communities will be regularly consulted to develop cooperative strategies to monitor subsistence harvest and needs.
- The park staff will collaborate with community members in Anaktuvuk Pass on issues such as access and the protection and interpretation of natural and cultural resources.
- Studies will continue to be conducted to identify general subsistence use areas, primary resource sites, and subsistence customs and traditions.
- NPS staff will develop interpretive and educational programs highlighting subsistence and living cultures in the park, and promoting understanding of subsistence issues.

ADMINISTRATIVE GOALS: RESIDENT ZONE COMMUNITIES	
Description	**Policy/Laws/ANILCA**
Resident zone communities, which are a fundamental resource and value for Gates of the Arctic, are communities where significant concentrations of qualified local residents have been identified who have customarily and traditionally engaged in subsistence uses of the park. Individuals in these communities are collectively allowed to continue to engage in subsistence uses of the park without permits. These communities include Alatna, Allakaket, Ambler, Anaktuvuk Pass, Bettles/Evansville, Hughes, Kobuk, Nuiqsut, Shungnak, and Wiseman. (See also the subsistence use desired condition.)	▪ NPS *Management Policies 2006* ▪ Director's Order 75A: *Civic Engagement and Public Involvement* ▪ ANILCA (section1301 [b][8]) ▪ Executive Order 13007 ▪ Memorandum of understanding between the villages, state troopers, the parks, and others
Desired Condition/Goals	
▪ The National Park Service continues to maintain good relationships with the resident zone communities. NPS staff and local residents maintain a high level of trust and goodwill. Local residents feel they have an important stake in the park. NPS managers are familiar with local issues and concerns. ▪ Park staff work with these communities to achieve cooperative conservation between boundaries as well as cooperative planning efforts. ▪ Park staff help to minimize user conflicts that may arise in resident zone communities. ▪ Park visitors understand and respect the unique connection the communities have with Gates of the Arctic.	
Strategies	
▪ Opportunities for local residents to participate in park programs will be supported. ▪ NPS staff will continue to regularly communicate and meet with local communities to identify problems and concerns facing the communities and the park, and actions that can be taken to address these problems and concerns. Local residents will continue to be kept informed of planning and other actions in the park that could affect the communities. Likewise, NPS managers will seek relationships with local residents that will keep NPS managers informed about their activities that may affect the park. NPS staff will continue to work with local government law enforcement, emergency services, and community education programs. ▪ Where possible the National Park Service will establish formal partnerships that protect resources, open other funding streams, and benefit others. ▪ NPS staff will participate in planning efforts in the region including addressing comments and concerns in advance and participating in public forums. ▪ The park staff will educate and inform visitors how to be a guest in resident zone communities.	

ADMINISTRATIVE GOALS: SPORT HUNTING, FISHING, AND TRAPPING	
Description	**Policy/Laws/ANILCA**
Sport hunting, fishing and trapping are all activities allowed in Gates of the Arctic National Park and Preserve; however, hunting and trapping are allowed in the national preserve under nonconflicting federal and state regulations. (See also the desired conditions for commercial services.)	▪ ANILCA ▪ NPS *Management Policies 2006* ▪ 36 CFR Part 2 section 2 ▪ Title 5, Alaska Administrative Code and Title 16 of Alaska Statutes
Desired Condition/Goals	
▪ Habitats and ecological processes to support natural populations of harvested species are protected and preserved. ▪ Public opportunities continue to be available for fishing, hunting, and trapping in the preserve, provided that harvesting does not unacceptably impact the preserve's resources, natural processes, or subsistence uses. ▪ Healthy populations of harvested species in the preserve are protected and preserved. ▪ Harvests from sport fishing, hunting, and trapping is consistent with the maintenance of healthy populations of fish and wildlife in the park and preserve.	
Strategies	
▪ NPS staff will continue to work with the Alaska Department of Fish and Game and the Division of Wildlife Protection in monitoring fish and wildlife populations and with enforcing federal and nonconflicting state regulations to ensure that harvest levels do not adversely affect the park's populations. ▪ All hunting guides will continue to report seasonal take of wildlife in the preserve. ▪ In consultation with the State of Alaska and other federal cooperators, park fishing regulations, and preserve and State of Alaska general/recreational hunting regulations will be reviewed annually and revised as necessary to protect Native populations. ▪ Working with the Alaska State Troopers Division of Wildlife Protection, NPS staff will continue to enforce fish and game regulations, and detect and investigate fishing and hunting violations. ▪ Aquatic habitat of the park and preserve will be protected to maintain natural, self-sustaining, aquatic populations. The introduction of eggs, fry, or brood stocks, and the alteration of natural aquatic habitat will not be allowed. Artificial stocking of fish in park and preserve waters will be considered only if necessary to reestablish species extirpated by human activities. ▪ Selected samples of lakes and streams will be studied to establish baseline data on fish populations, ecology, age, growth, production, and harvest in consultation with the Alaska Department of Fish and Game. If the research indicates that management is warranted, seasons and bag limits specific to species or areas will be recommended to the Alaska Board of Fisheries.	

ADMINISTRATIVE GOALS: COMMERCIAL SERVICES	
Description	**Policy/Laws/ANILCA**
In general, any service made available for a fee or charge to any persons visiting the park is considered a commercial service.	▪ ANILCA ▪ National Park Service Concessions Management and Improvement Act of 1998 ▪ The Wilderness Act of 1964 ▪ NPS *Management Policies 2006* ▪ NPS Interim Guidelines for Commercial Use Authorizations ▪ 36 CFR 51.3
Desired Condition/Goals	
▪ Commercial service operators provide high-quality services for visitors. ▪ Commercial service operations are consistent to the highest practicable degree with the preservation and conservation of resources and values of the park. ▪ Commercial service operators and the National Park Service partner to demonstrate and practice sound environmental management and stewardship. There is open communication with commercial entities. Positive relations are maintained to foster and enhance wilderness appreciation and environmental stewardship.	
Strategies	
▪ All commercial service providers will continue to be required to meet specific minimum requirements to obtain a CUA or concession contract. These include but are not limited to: current general liability, aircraft, and watercraft insurance, a current State of Alaska business license, current hunting guide certifications and licensing, and appropriate FAA certifications. They will continue to be required to comply with all applicable state and federal regulations. ▪ The National Park Service will annually evaluate concession contract holders to ensure high quality visitor services are being provided. Meetings or other regular communications will occur so the NPS can provide information to CUA Holders, receive feedback, and good relationships between commercial service providers and NPS staff can be maintained. ▪ CUA holders will continue to be required to provide information to clients concerning safety and environmental ethics, adherence to best practices, pay day-use fees, and to submit annual activity reports to document visitor use. ▪ NPS staff will continue to value all types of visitor use as well as subsistence use. The National Park Service will proactively communicate with visitors, commercial operators, and subsistence users to ensure conflicts do not arise ▪ Concession contracts will be used to provide for necessary and appropriate visitor services that enhance public enjoyment and safety and protect park resources. When the NPS solicits offers from qualified operators for concession contracts; the focus will be on ensuring high quality services and protecting park resources as outlined in 36 CFR 51.5. ▪ The National Park Service will continue to administer guided hunting concession contracts in the preserve. No permanent facilities or land assignments for facilities would occur under these concession contracts. ▪ The NPS would like to encourage and provide for a wide variety of visitor experiences and opportunities. These include visitor services that facilitate both guided and unguided trips into the park and preserve through a variety of methods of transport.	

ADMINISTRATIVE GOALS: INFORMATION AND EDUCATION	
Description	**Policy/Laws/ANILCA**
This topic refers to all interpretation and outreach efforts, including but not limited to, personal services, formal and informal programs, and media and other electronic products.	▪ NPS Organic Act ▪ National Park System General Authorities Act ▪ NPS *Management Policies 2006*

Desired Condition/Goals

- Interpretive and educational services/programs at the park facilitate intellectual and emotional connections between visitors and park resources, foster understanding of park resources and resource stewardship, and build a local and national constituency.
- Interpretive and outreach programs inspire a diverse group of visitors, students, and others to care about and protect the park.
- Students, visitors, and the public are aware of, understand, and appreciate arctic ecosystems, natural and cultural resources, and wilderness character and experiences in the park.
- Pre-trip information is available for visitors to plan a rewarding trip.

Strategies

- Outreach programs will be provided for schools, Native corporations, and community organizations. Web-based education will also be provided.
- Park staff will prepare a long range interpretive plan with emphasis on providing information, orientation, and interpretive services in the most effective manner possible.
- Distance and e-learning opportunities will be provided to inform and educate the public about the park and its resources and values. Podcasts will be prepared on topics of interest, and a Facebook website will be maintained.
- NPS staff will stay informed of changing visitor demographics and preferences to effectively tailor programs for visitors. Interpretive media will be developed to support park purposes, significance, interpretive themes, and fundamental resources and values.
- NPS staff will provide basic pre-trip planning information and orientation for park visitors through the park's website and other media. NPS staff will work with local communities and other entities to provide services outside park boundaries, where appropriate.
- Information will be provided to visitors about bears and bear behavior, and portable bear-proof food storage containers (bear barrels) will be available for use through private vendors or on loan through the National Park Service, as available. These containers may be required for travel in certain areas.
- In an effort to provide visitors with the opportunity to challenge themselves in a wilderness setting, which requires self-reliance and discovery on their part, visitors will be encouraged to obtain information on their own. When responding to questions, park staff will encourage visitors to find their own routes to promote a sense of freedom and self-discovery while considering visitor safety and environmental travel considerations. Park staff will provide general information about the full range of opportunities, routes, heavily used areas, access, field conditions, wildlife, commercial operators, and opportunities for disabled visitors. For specific route selection, access, and detailed resource information, visitors will be encouraged to explore maps and other sources of information. People who inquire about activities not available in the park will be informed of what is available in other conservation system units.
- NPS staff will continue to provide backcountry orientations, which include information on regulations; minimum impact techniques; park boundaries; subsistence use; protection of natural, cultural, archeological, and wilderness resources; safety (e.g., traveling and camping in bear country, weather, crossing streams, flood hazards); general terrain conditions; and general access.
- NPS staff will cooperate and coordinate with partners, other governmental agencies, educational institutions, and other organizations to enrich interpretive and educational opportunities locally, regionally, and nationally. The focus will be on improving the general understanding of park natural and cultural resources, biodiversity, the protection of resources and natural processes, research, stewardship, wilderness, park values, and recreational and visitor opportunities.
- The principal theme of interpretation will be Gates of the Arctic wilderness. Audiovisual programs concerning wilderness character may be developed for presentation at visitor contact stations, headquarters, schools, and other public facilities. Exhibits and displays containing basic information on topics described for the park brochure may be installed at visitor contact stations and headquarters.
- Research documents, legislation, natural and cultural history references, planning documents, and other relevant informational materials are available to the public at park headquarters. The memorial Hans van der Laan Brooks Range collection will continue to be available to the public at the University of Alaska-Anchorage.

ADMINISTRATIVE GOALS: INFORMATION AND EDUCATION
▪ Anyone developing a publication or program on the park will continue to be encouraged to be sensitive to the potential impacts of publicity by providing information about the purpose and the values of the park, its resource problems, and recommendations to minimize adverse effects. ▪ NPS staff will notify organizations, communities, and the media about what NPS administrative and management activities will be occurring in specific locations within the park so that interested or affected persons can plan accordingly or notify park staff of any potential conflicts. ▪ NPS staff will continue to regularly update plans and prioritize actions needed to serve visitors and provide effective interpretation. The long range interpretive plan will continue to be regularly updated. ▪ An education strategy plan, which outlines goals and actions for providing curriculum and place-based education programs, will be developed and implemented. ▪ Efforts will continue to educate staff, visitors, and the public about park interpretive/education programs. ▪ NPS staff will continue to educate, interpret, and inform the public about the significance and uniqueness of park resources; conservation; ecologically sound practices; and the laws, rules, and regulations developed to protect park resources and provide for their safe use. ▪ NPS staff will collaborate with other conservation entities to provide a broad range of educational opportunities. ▪ The National Park Service will develop subsistence uses and cultural interpretation outreach programs for Gates of the Arctic National Park and Preserve.

ADMINISTRATIVE GOALS: AMBLER MINING DISTRICT ACCESS CORRIDOR	
Description	**Policy/Laws/ANILCA**
ANILCA section 201(4)(b) allows access for surface transportation purposes across the Western (Kobuk River) Unit of Gates of the Arctic National Preserve. Before ANILCA, the likelihood of rich mineral deposits in the Ambler Mining District was identified. Congress, in considering the establishment of Gates of the Arctic National Park and Preserve, recognized that a transportation corridor to the Ambler Mining District might come from the east. The upper Kobuk River area was included in Gates of the Arctic, but Congress also made allowances for a transportation corridor across that portion of the new park. Gates of the Arctic National Park and Preserve is instructed by ANILCA to prepare for the Secretary of the Interior an "…environmental and economic analysis …for… determining the most desirable route for the Right-of-Way and terms and conditions which may be required for issuance of that right-of-way."	▪ ANILCA Section 201(4)(b), Title VIII ▪ NPS Organic Act ▪ National Historic Preservation Act, Section 106 ▪ Endangered Species Act, Section 7 ▪ Federal Land Policy and Management Act (FLPMA) ▪ Wild and Scenic Rivers Act ▪ Executive Order 11990, "Protection of Wetlands" ▪ Executive Order 11988, "Floodplain Management" ▪ 43 CFR Part 36 (Transportation and Utility Systems in and Across, and Access into, Conservation System Units in Alaska) ▪ Applicable parts of Director's Orders 53 (Special Park uses. §10 and 12) and 87D (Non-NPS roads) ▪ NPS *Management Policies 2006* ▪ DOI 2011 Tribal Consultation Policy ▪ DOI 2011 ANCSA Corporation Consultation Policy
Desired Condition/Goals	
▪ Compliance with all applicable laws (including other parts of ANILCA, section 106, Native American Consultation, Endangered Species Act, Floodplains and Wetlands, Wilderness, Wild and Scenic Rivers Act). ▪ Collaborative working relationships with federal partner agencies (Department of Transportation, U.S. Army Corps of Engineers, Bureau of Land Management, Bureau of Indian Affairs, and U.S. Coast Guard for bridges over navigable waters), the State of Alaska (ANILCA Implementation Program, Transportation, Alaska Department of Natural Resources, Alaska Department of Fish and Game, Alaska Department of Environment), AIDEA, state/congressional representatives. ▪ The design of the right-of-way is context-sensitive and incorporates appropriate terms and conditions for successful on-the-ground activities and long-term administration. ▪ To the extent possible, the corridor is compatible with the management directions in the GMP Amendment. ▪ Minimize impacts on resources (including subsistence resources), visitor experience, park management/operations (including construction, maintenance, and use of the corridor). ▪ Minimize impacts on subsistence users and resident zone communities (including construction, maintenance, and use of the corridor). ▪ If visitor or administrative facilities are built as a consequence of the road, they meet all conditions in NPS *Management Policies 2006* (e.g., accessibility), achieve NPS sustainability goals and require minimal upkeep/staff.	
Strategies	
▪ Proactively collaborate and communicate with federal agency partners, other governmental and community stakeholders, AIDEA, and other Alaska conservation units. ▪ Provide regular, clear communication throughout the entire process with the general public, affected villages, and involved interest groups. ▪ Engage in early and regular government to government consultation with federally recognized tribal governments. ▪ Consult with ANCSA corporations. ▪ Plan prudently for resource management, law enforcement, and other administrative demands associated with the road. ▪ Focus research efforts and desired outcomes during the early phases of right-of-way evaluation, which will result in meaningful support for a decision on the right-of-way and contribute to the terms and conditions for constructing, operating, and maintaining an industrial road within a national park. ▪ Establish a meaningful and achievable monitoring program to ensure continued protection of resources throughout the creation and life of the road. ▪ Ongoing planning—guidance for future/ongoing planning efforts, during and after right-of-way development.	

ADMINISTRATIVE GOALS: UTILITIES AND COMMUNICATION FACILITIES	
Description	**Policy/Laws/ANILCA**
With the exception of Anaktuvuk Pass, there are no utilities or communication facilities within the park. Existing NPS radio repeaters are outside park lands and service a small area of the park.	▪ ANILCA ▪ Telecommunications Act of 1996 ▪ Wilderness Act of 1964 ▪ NPS *Management Policies 2006*
Desired Condition/Goals	
▪ Park resources for public enjoyment are not denigrated by nonconforming uses. No telecommunication facilities or utilities are built in the park, and towers built to facilitate NPS or other agency communication are the bare minimum, unobtrusive, and limited to developed areas of the park such as Anaktuvuk Pass. If they are determined to be necessary, utility lines will be placed with minimum impact to park resources. ▪ No new nonconforming use or rights-of-way are permitted through the park without specific statutory authority and approval by the director of the National Park Service or his/her representative, and uses are permitted only if there is no practicable alternative to such use of NPS lands. ▪ Park operations will employ the best available technology for communications while not allowing permanent facilities or resource degradation. Considerations should be made in the event of incidents and emergencies for temporary communication systems—for example: temporary repeaters for major incidents such as search and rescue and fire.	
Strategies	
▪ If necessary, and there are no other options, new utilities and communications infrastructure will be placed outside the wilderness area, along other established corridors. NPS staff will work with service companies, local communities, and the public to locate new telecommunication structures and utility lines outside the wilderness area so there is a minimal effect on park resources in nonwilderness areas. For extension into undisturbed areas in nonwilderness areas, routes will be selected that minimize impacts on the park's natural, cultural, and visual resources.	

ADMINISTRATIVE GOALS: CLIMATE CHANGE	
Description	**Policy/Laws/ANILCA**
Climate change refers to any substantial changes in average climatic conditions, climatic variability, or duration lasting for an extended period of time. There is increasing evidence from scientific and traditional knowledge that climate is rapidly changing in Alaska. Global circulation models indicate that northern Alaska is one of the areas of the world that is warming the fastest. Precipitation is also predicted to increase, but there is less certainty regarding this projection. There are two issues to consider with respect to climate change: (1) what is the contribution of NPS actions to climate change, and (2) what are the anticipated effects of climate change on park resources and visitors?	▪ NPS Organic Act ▪ Executive Order 13423 (includes requirements for energy and water conservation measures) ▪ Department of the Interior Secretarial Order 3226 (ensure that climate change impacts be taken into account in connection with departmental planning and decision making) ▪ NPS *Management Policies 2006* (including sections on environmental leadership [1.8], sustainable energy design [9.1.1.6], and energy management [9.1.7]) ▪ Executive Order 13514 (sets requirements for federal greenhouse gas emissions) ▪ NPS Environmental Quality Division *draft* Guidance on Considering Climate Change in NEPA ▪ Alaska Region Climate Change Response Strategy 2010–2014 ▪ National Park Service Climate Change Response Strategy (NPS 2010b)
Desired Condition/Goals	
▪ The park staff lead efforts to address climate change, reducing its greenhouse gas emissions, and increasing its use of renewable energy and other sustainable practices. ▪ Using the best available science, park staff proactively monitors, plan, mitigate, communicate, and adapt to the effects of climate change on cultural and natural resources and visitor services. ▪ Education and interpretive programs help visitors understand climate change impacts in the park, Alaska, and beyond, and how they can respond to climate change. ▪ Park staff promotes innovation, best practices, and adaptive management to respond to the challenges of climate change and its effects on park resources and the visitor experience.	
Strategies	
▪ NPS staff will inventory and monitor key natural and cultural resources and visitor amenities that are at risk from climate change. Baseline resource conditions will be established, natural variations identified, and changes monitored. ▪ Key resources in management zones/areas will be identified that may require different management responses to climate change impacts. ▪ NPS staff will collaborate with partners to identify and monitor climate change effects in the park and apply accurate and relevant science to management and policy decisions. ▪ NPS staff will contribute to the scientific understanding of climate change and its effects. ▪ Partnerships will be formed with other resource management entities to maintain regional habitat connectivity and refugia that allow species dependent on park resources to better adapt to changing conditions. NPS staff will use best management practices to reduce human-caused stresses (e.g., park operations and visitor-related disturbances) that hinder the ability of species or ecosystems to withstand the impacts of climate change. ▪ Adaptive management will be used to minimize risks to park resources. ▪ Feasible and actionable scenarios of climate change effects will be developed and a flexible frame work will be created for dealing with impacts. ▪ NPS staff will use the dynamic environment of the central Brooks Range as a teaching opportunity about climate change. Visitors (both site visitors and Web visitors) will be educated about climate change and related research at the park and on climate change impacts on the resources they are enjoying. Through leadership and education, visitors will be inspired to action and response. ▪ The park will become a member of the Climate Friendly Parks program, measuring park-based greenhouse emissions, developing sustainable strategies to mitigate these emissions and adapt to climate change impacts, educating the public about	

ADMINISTRATIVE GOALS: CLIMATE CHANGE
these efforts and developing future action plans. ▪ The National Park Service will develop a climate change study model to monitor and determine impacts on subsistence uses and wildlife resources within Gates of the Arctic National Park and Preserve.

ADMINISTRATIVE GOALS: SUSTAINABILITY	
Description	**Policy/Laws/ANILCA**
Sustainability can be defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable practices and principles are those choices, decisions, actions, and ethics that will best achieve ecological/ biological integrity; protect qualities and functions of air, water, soil, and other aspects of the natural environment; and preserve human cultures. Sustainable practices allow for use and enjoyment by the current generation, while ensuring that future generations will have the same opportunities. Sustainable practices consider local and global consequences to minimize the short- and long-term environmental impacts of human actions and developments through resource conservation, recycling, waste minimization, and the use of energy-efficient and ecologically responsible materials and techniques. (See also the climate change desired condition.)	▪ Energy Policy and Conservation Act of 2005 ▪ Energy Independence and Security Act of 2007 ▪ Executive Order 13423 (strengthens federal environmental, energy and transportation management) ▪ Executive Order 13514 (sets requirements for federal greenhouse gas emissions, water conservation, building performance, and other sustainable practices) ▪ NPS *Management Policies 2006* ▪ NPS Green Parks Plan (NPS 2012d) ▪ NPS *Guiding Principles of Sustainable Design* (1993) ▪ Leadership in Energy & Environmental Design (LEED)
Desired Condition/Goals	
▪ The park is a leader in the application of sustainable design and construction. ▪ The park is a leader in sustainable practices. All park developments and operations are sustainable to the maximum degree possible and practical. All decisions regarding park operations, planning, facilities management, and development in the park, from the initial concept through design and construction, reflects principles of resource conservation. ▪ NPS and commercial service operations are harmonious with park resources, compatible with natural processes, aesthetically pleasing, functional, as accessible as possible to all segments of the population, energy efficient, and cost effective.	
Strategies	
▪ Sustainability principles have been developed and are followed for interpretation, natural resources, cultural resources, site design, building design, energy management, water supply, waste prevention, and facility maintenance and operations. ▪ NPS staff will work with experts both inside and outside the National Park Service to make the park's facilities and programs sustainable. Partnerships will be sought to implement sustainable practices in and near the park. NPS staff will work with stakeholders, commercial use providers, and business partners to augment NPS environmental leadership and sustainability efforts. ▪ NPS staff will strive to achieve operation efficiency in the arctic environment, for example, considering alternative energy sources, design/footprint, materials, standard operating procedures and staffing plans, and operational schedules. In addition, operational decisions will be based on sound fiscal, operational, and environmental practices. ▪ NPS staff will support and encourage the service of suppliers and contractors that follow sustainable practices. ▪ Energy-efficient practices and renewable energy sources will be implemented wherever possible. State-of-the-art systems will be sought for conserving water, using energy conservation technologies, and using renewable energy sources whenever possible. ▪ The National Park Service will strive to identify, fund, and implement technologies that will substantially reduce energy consumption, and is dedicated to identifying more energy-efficient practices and viable renewable energy sources wherever possible. If feasible and practical, vehicles and boats will be converted to low emission, alternative fuels, such as hybrid electric, biodiesel, or propane, and the number or size of vehicles or boats will be reduced if possible. ▪ Biodegradable, nontoxic, and durable materials will be used for park operations whenever possible. The reduction, use, and	

ADMINISTRATIVE GOALS: SUSTAINABILITY
recycling of materials will be promoted, while materials that are nondurable or environmentally harmful are avoided as much as possible. ▪ If new developments are built or existing facilities are modified, the designs and construction will be consistent with Guiding Principles of Sustainable Design (NPS 1993), LEED, or other similar guidelines where practical and consistent with operations and structures in an arctic environment. ▪ The availability of existing or planned facilities in nearby communities and on adjacent lands, as well as the possibility of joint facilities with other agencies, will be considered when deciding whether to pursue new developments in or outside the park. ▪ Park interpretive programs will address sustainable and non-sustainable practices. Visitors will be educated on the principles of environmental leadership and sustainability through exhibits, media, and printed material. ▪ NPS employees will be educated to have a comprehensive understanding of their relationship to environmental leadership and sustainability. ▪ Partners and commercial service operators will be encouraged to provide or use environmentally sustainable elements in providing transportation and other services to visitors. ▪ NPS managers will measure and track environmental compliance and performance. Audits will ensure environmental compliance, emphasize best management practices, and educate employees at all levels about environmental management responsibilities. Periodic carbon footprint audits will be conducted.

APPENDIX D: SCIENTIFIC NAMES OF SPECIES

Appendix D. Scientific Names of Species Referenced in the Text

Common Name	Scientific Name
Vegetation	
alder	*Alnus incana*
balsam poplar	*Populus balsamifera*
bearberry	*Arctostaphylos uva-ursi*
black spruce	*Picea mariana*
blueberry	*Vaccinium uliginosum*
common dandelion	*Taraxacum officinale*
cottongrass	*Eriophorum spp.*
cranberry	*Vaccinium vitis-idaea*
dryas	*Dryas spp.*
dwarf birch	*Betula nana*
dwarf fireweed	*Epilobium latifolium*
Hedysarum	Hedysarum spp.
horsetail	*Equisetum spp.*
Labrador tea	*Ledum spp.*
moss campion	*Silene acaulis*
paper birch	Betula papyrifera
prickly rose	*Rosa acicularis*
quaking aspen	*Populus tremuloides*
reindeer lichen	*Cladina spp.*
saxifrage	*Saxifraga spp.*
white spruce	*Picea glauca*
willow	*Salix spp.*
Birds	
American pipit	*Anthus rubescens*
American wigeon	*Anas americana*
Arctic peregrine falcon	*Falco peregrinus*
Arctic tern	*Sterna paradisaea*
bald eagle	*Haliaeetus leucocephalus*
boreal owl	*Aegolius funereus*
common goldeneye	Bucephala clangula
common snipe	*Gallinago gallinago*
golden eagle	*Aquila chrysaetos*
goldeneye	*Bucephala clangula*
great gray owl	*Strix nebulosa*
great horned owl	*Bubo virginianus*
Greater scaup	Aythya marila

Appendix D. Scientific Names of Species Referenced in the Text

Common Name	Scientific Name
grey-cheeked thrush	*Catharus minimus*
gyrfalcon	*Falco rusticolus*
horned lark	*Eremophila alpestris*
hoary redpoll	*Carduelis hornemanni*
kestrel	*Falco sparverius*
lapland longspur	*Calcarius lapponicus*
long-tailed jaeger	*Stercorarius longicaudus*
merlin	*Falco columbarius*
northern goshawk	*Accipiter gentilis*
northern harrier	*Circus cyaneus*
northern hawk-owl	*Surnia ulula*
parasitic jaeger	*Stercorarius parasiticus*
red-breasted merganser	*Mergus serrator*
red-tailed hawk	*Buteo jamaicensis*
rock ptarmigan	*Lagopus mutus*
rough-legged hawk	*Buteo lagopus*
semipalmated plover	*Charadrius semipalmatus*
sharp-shinned hawk	*Accipiter striatus*
short-eared owl	*Asio flammeus*
Smith's longspur	*Calcarius pictus*
snowy owl	*Nyctea scandiaca*
solitary sandpiper	*Tringa solitaria*
spruce grouse	*Dendragapus canadensis*
surf scoter	*Melanitta perspicillata*
upland sandpiper	*Bartramia longicauda*
wandering tattler	*Heteroscelus incanus*
whimbrel	*Numenius phaeopus*
willow ptarmigan	*Lagopus lagopus*
yellowlegs	*Tringa spp.*
Fish	
Alaska blackfish	*Dallia pectoralis*
arctic char	*Salvelinus alpinus*
arctic grayling	*Thymallus arcticus*
burbot	*Lota lota*
chum salmon	*Oncorhynchus keta*
cisco	*Coregonus sardinella*
Dolly Varden	*Salvelinus malma*
lake trout	*Salvelinus namaycush*
longnose sucker	*Catostomus catostomus*
ninespine stickleback	*Pungitius pungitius*

Appendix D. Scientific Names of Species Referenced in the Text

Common Name	Scientific Name
northern pike	*Esox lucius*
sheefish	*Stenodus leucichthys*
slimy sculpin	*Cottus cognatus*
whitefish	*Coregonus spp.*
Mammals	
Alaska marmot	*Marmota broweri*
American marten	*Martes americana*
Arctic ground squirrel	*Spermophilus parryii*
barren ground shrew	*Sorex ugyunak*
beaver	*Castor canadensis*
black bear	*Ursus americanus*
brown bear	*Ursus arctos*
caribou	*Rangifer tarandus*
cinereus shrew	*Sorex cinereus*
collared lemming	*Dicrostonyx groenlandicus*
coyote	*Canis latrans*
Dall sheep	*Ovis dalli*
ermine	*Mustela erminea*
least weasel	*Mustela nivalis*
little brown bat	*Myotis lucifugus*
lynx	*Lynx canadensis*
meadow vole	*Microtus pennsylvanicus*
mink	*Mustela vison*
montane shrew	*Sorex monticolus*
moose	*Alces alces*
muskox	*Ovibos moschatus*
muskrat	*Ondatra zibethicus*
porcupine	*Erethizon dorsatum*
pygmy shrew	*Sorex hoyi*
red fox	*Vulpes vulpes*
red squirrel	*Tamiasciurus hudsonicus*
river otter	*Lontra canadensis*
snowshoe hare	*Lepus americanus*
tiny shrew	*Sorex yukonicus*
tundra shrew	*Sorex tundrensis*
vole	*Microtus* sp.
wolf	*Canis lupus*
wolverine	*Gulo gulo*
Amphibians	
wood frog	*Rana sylvanica*

APPENDIX E: LEGISLATION

Appendix E includes selected excerpts from ANILCA that are most relevant for the day to day management of Gates of the Arctic National Park and Preserve.

An Act

To provide for the designation and conservation of certain public lands in the State Dec. 2, 1980 of Alaska, including the designation of units of the National Park, National [H.R. 39] Wildlife Refuge, National Forest, National Wild and Scenic Rivers, and National Wilderness Preservation Systems, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. This Act may be cited as the "Alaska National Interest Lands Conservation Act".

* * * * * * *

TITLE I—PURPOSES, DEFINITIONS, AND MAPS

PURPOSES

SEC. 101. (a) In order to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values, the units described in the following titles are hereby established.

(b) It is the intent of Congress in this Act to preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems; to protect the resources related to subsistence needs; to protect and preserve historic and archeological sites, rivers, and lands, and to preserve wilderness resource values and related recreational opportunities including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wildlands and on free-flowing rivers; and to maintain opportunities for scientific research and undisturbed ecosystems.

(c) It is further the intent and purpose of this Act consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for which each conservation system unit is established, designated, or expanded by or pursuant to this Act, to provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so.

* * * * * * *

TITLE II—NATIONAL PARK SYSTEM

ESTABLISHMENT OF NEW AREAS

SEC. 201. The following areas are hereby established as units of the National Park System and shall be administered by the Secretary under the laws governing the administration of such lands and under the provisions of this Act:

(4)(a) Gates of the Arctic National Park, containing approximately seven million fifty-two thousand acres of public lands, Gates of the Arctic National Preserve, containing approximately nine hundred thousand acres of Federal lands, as generally depicted on map numbered GAAR-90,011, and dated July 1980. The park and preserve shall be managed for the following purposes, among others: To maintain the wild and undeveloped character of the area, including opportunities for visitors to experience solitude, and the natural environmental integrity and scenic beauty of the mountains, forelands, rivers, lakes, and other natural features; to provide continued opportunities, including reasonable access, for mountain climbing, mountaineering, and other wilderness recreational activities; and to protect habitat for and the populations of, fish and wildlife, including, but not limited to, caribou, grizzly bears, Dall's sheep, moose, wolves, and raptorial birds. Subsistence uses by local residents shall be permitted in the park, where such uses are traditional, in accordance with the provisions of title VIII.

(b) Congress finds that there is a need for access for surface transportation purposes across the Western Unit (Kobuk River) of the Gates of the Arctic National Preserve (from the Ambler Mining District to the Alaska Pipeline Haul Road) and the Secretary shall permit such access in accordance with the provisions of this subsection.

(c) Upon the filing of an application pursuant to section 1104 (b), and (c) of this Act for a right-of-way across the Western Unit (Kobuk River) of the preserve, including the Kobuk Wild and Scenic River, the Secretary shall give notice in the Federal Register of a thirty-day period for other applicants to apply for access.

(d) The Secretary and the Secretary of Transportation shall jointly prepare an environmental and economic analysis solely for the purpose of determining the most desirable route for the right-of-way and terms and conditions which may be required for the issuance of that right-of-way. This analysis shall be completed within one year and the draft thereof within nine months of the receipt of the application and shall be prepared in lieu of an environmental impact statement which would otherwise be required under section 102(2)(C) of the National Environmental Policy Act. Such analysis shall be deemed to satisfy all requirements of that Act and shall not be subject to judicial review. Such environmental and economic analysis shall be prepared in accordance with the procedural requirements of section 1104(e). The Secretaries in preparing the analysis shall consider the following—

(i) Alternative routes including the consideration of economically feasible and prudent alternative routes across the preserve which would result in fewer or less severe adverse impacts upon the preserve.

(ii) The environmental and social and economic impact of the right-of-way including impact upon wildlife, fish, and their habitat, and rural and traditional lifestyles including subsistence activities, and measures which should be instituted to avoid or minimize negative impacts and enhance positive impacts.

e) Within 60 days of the completion of the environmental and economic analysis, the Secretaries shall jointly agree upon a route for issuance of the right-of-way across the preserve. Such right-of-way shall be issued in accordance with the provisions of section 1107 of this Act.

* * * * * * *

GENERAL ADMINISTRATION

SEC. 203. Subject to valid existing rights, the Secretary shall administer the lands, waters, and interests therein added to existing areas or established by the foregoing sections of this title as new areas of the National Park System, pursuant to the provisions of the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented (16 U.S.C. 1 et seq.), and, as appropriate, under section 1313 and the other applicable provisions of this Act: Provided, however, That hunting shall be permitted in areas designated as national preserves under the provisions of this Act. Subsistence uses by local residents shall be allowed in national preserves and, where specifically permitted by this Act, in national monuments and parks.

* * * * * * *

TITLE VI—NATIONAL WILD AND SCENIC RIVERS SYSTEM

PART A—WILD AND SCENIC RIVERS WITHIN NATIONAL PARK SYSTEM ADDITIONS

SEC. 601. DESIGNATION.—Section 3(a) of the Wild and Scenic Rivers Act, as amended (16 U.S.C. 1274(a)), is further amended by adding the following new paragraphs:

"(26) ALATNA, ALASKA.—The main stem within the Gates of the Arctic National Park; to be administered by the Secretary of the Interior.

"(30) JOHN, ALASKA.—That portion of the river within the Gates of the Arctic National Park; to be administered by the Secretary of the Interior.

"(31) KOBUK, ALASKA.—That portion within the Gates of the Arctic National Park and Preserve; to be administered by the Secretary of the Interior.

"(33) NOATAK, ALASKA.—The river from its source in the Gates of the Arctic National Park to its confluence with the Kelly River in the Noatak National Preserve; to be administered by the Secretary of the Interior.

"(34) NORTH FORK OF THE KOYUKUK, ALASKA.—That portion within the Gates of the Arctic National Park; to be administered by the Secretary of the Interior.

"(36) TINAYGUK, ALASKA.—That portion within the Gates of the Arctic National Park; to be administered by the Secretary of the Interior.

* * * * * * *

ADMINISTRATIVE PROVISIONS

SEC. 605. (a) Rivers in paragraphs (25) through (37) in units of the National Park System, and (38) through (43) in units of the National Wildlife Refuge System are hereby classified and designated and shall be administered as wild rivers pursuant to the Wild and Scenic Rivers Act.

OTHER AMENDMENTS TO THE WILD AND SCENIC RIVERS ACT

SEC. 606. (a) The Wild and Scenic Rivers Act, as amended, is further amended by inserting the following after section 14 and redesignating sections 15 and 16 as sections 16 and 17, respectively:

"SEC. 15. Notwithstanding any other provision to the contrary in sections 3 and 9 of this Act, with respect to components of the National Wild and Scenic Rivers System in Alaska designated by paragraphs (38) through (50) of section 3(a) of this Act—

"(1) the boundary of each such river shall include an average of not more than six hundred and forty acres per mile on both sides of the river. Such boundary shall not include any lands owned by the State or a political subdivision of the State nor shall such boundary extend around any private lands adjoining the river in such manner as to surround or effectively surround such private lands; and

"(2) the withdrawal made by paragraph (iii) of section 9(a) shall apply to the minerals in Federal lands which constitute the bed or bank or are situated within one-half mile of the bank of any river designated a wild river by the Alaska National Interest Lands Conservation Act.".

(b) Section 9(b) of such Act is amended by adding the following at the end thereof: "Notwithstanding the foregoing provisions of this subsection or any other provision of this Act, all public lands which constitute the bed or bank, or are within an area extending two miles from the bank of the river channel on both sides of the river segments referred to in paragraphs (77) through (88) of section 5(a), are hereby withdrawn, subject to valid existing rights, from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto, during the periods specified in section 7(b) of this Act.".

(c) Section 8(b) of such Act is amended by adding the following at the end thereof: "Notwithstanding the foregoing provisions of this subsection or any other provision of this Act, subject only to valid existing rights, including valid Native selection rights under the Alaska Native Claims Settlement Act, all public lands which constitute the bed or bank, or are within an area extending two miles from the bank of the river channel on both sides of the river segments referred to in paragraphs (77) through (88) of section 5(a) are hereby withdrawn from entry, sale, State selection or other disposition under the public land laws of the United States for the periods specified in section 7(b) of this Act.".

* * * * * * *

TITLE VII—NATIONAL WILDERNESS PRESERVATION SYSTEM

DESIGNATION OF WILDERNESS WITHIN NATIONAL PARK SYSTEM

SEC. 701. In accordance with subsection 3(c) of the Wilderness Act (78 Stat. 892), the public lands within the boundaries depicted as "Proposed Wilderness" on the maps referred to in sections 201 and 202 of this Act are hereby designated as wilderness, with the nomenclature and approximate acreage as indicated below:

(2) Gates of the Arctic Wilderness of approximately seven million and fifty-two thousand acres;

* * * * * * *

TITLE VIII—SUBSISTENCE MANAGEMENT AND USE FINDINGS

SEC. 801. The Congress finds and declares that—

(1) the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives, on the public lands and by Alaska Natives on Native lands is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence;

(2) the situation in Alaska is unique in that, in most cases, no practical alternative means are available to replace the food supplies and other items gathered from fish and wildlife which supply rural residents dependent on subsistence uses;

(3) continuation of the opportunity for subsistence uses of

resources on public and other lands in Alaska is threatened by the increasing population of Alaska, with resultant pressure on subsistence resources, by sudden decline in the populations of some wildlife species which are crucial subsistence resources, by increased accessibility of remote areas containing subsistence resources, and by taking of fish and wildlife in a manner inconsistent with recognized principles of fish and wildlife management;

(4) in order to fulfill the policies and purposes of the Alaska Native Claims Settlement Act and as a matter of equity, it is necessary for the Congress to invoke its constitutional authority over Native affairs and its constitutional authority under the property clause and the commerce clause to protect and provide the opportunity for continued subsistence uses on the public lands by Native and non-Native rural residents; and

(5) the national interest in the proper regulation, protection, and conservation of fish and wildlife on the public lands in Alaska and the continuation of the opportunity for a subsistence way of life by residents of rural Alaska require that an administrative structure be established for the purpose of enabling rural residents who have personal knowledge of local conditions and requirements to have a meaningful role in the management of fish and wildlife and of subsistence uses on the public lands in Alaska.

* * * * * * *

POLICY

SEC. 802. It is hereby declared to be the policy of Congress that—
(1) consistent with sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands, consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for each unit established, designated, or expanded by or pursuant to titles II through VII of this Act, the purpose of this title is to provide the opportunity for rural residents engaged in a subsistence way of life to do so;

(2) nonwasteful subsistence uses of fish and wildlife and other renewable resources shall be the priority consumptive uses of all such resources on the public lands of Alaska when it is necessary to restrict taking in order to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population, the taking of such population for nonwasteful subsistence uses shall be given preference on the public lands over other consumptive uses; and

(3) except as otherwise provided by this Act or other Federal laws, Federal land managing agencies, in managing subsistence activities on the public lands and in protecting the continued viability of all wild renewable resources in Alaska, shall cooperate with adjacent landowners and land managers, including Native Corporations, appropriate State and Federal agencies, and other nations.

* * * * * * *

DEFINITIONS

SEC. 803. As used in this Act, the term "subsistence uses" 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, tools, or transportation; for the making and selling of handicraft articles out of nonedible 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. For the purposes of this section, the term—

(1) "family" means all persons related by blood, marriage, or adoption, or any person living within the household on a permanent basis; and

(2) "barter" means the exchange of fish or wildlife or their parts, taken for subsistence uses—
(A) for other fish or game or their parts; or

(B) for other food or for nonedible items other than money if the exchange is of a limited and noncommercial nature.

* * * * * * *

PREFERENCE FOR SUBSISTENCE USES

SEC. 804. Except as otherwise provided in this Act and other Federal laws, the taking on public lands of fish and wildlife for nonwasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:

(1) customary and direct dependence upon the populations as the mainstay of livelihood;
(2) local residency; and
(3) the availability of alternative resources.

* * * * * * *

COOPERATIVE AGREEMENTS

SEC. 809. The Secretary may enter into cooperative agreements or otherwise cooperate with other Federal agencies, the State, Native Corporations, other appropriate persons and organizations, and, acting through the Secretary of State, other nations to effectuate the purposes and policies of this title.

* * * * * * *

SUBSISTENCE AND LAND USE DECISIONS

SEC. 810. (a) In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions, the head of the Federal agency having primary jurisdiction over such lands or his designee 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 public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other 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 to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

(b) If the Secretary is required to prepare an environmental impact statement pursuant to section 102(2)(C) of the National Environmental Policy Act, he shall provide the notice and hearing and include the findings required by subsection (a) as part of such environmental impact statement.

* * * * * * *

ACCESS

SEC. 811. (a) The Secretary shall ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on the public lands.

(b) Notwithstanding any other provision of this Act or other law, the Secretary shall permit on the public lands appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation.

* * * * * * *

RESEARCH

SEC. 812. The Secretary, in cooperation with the State and other appropriate Federal agencies, shall undertake research on fish and wildlife and subsistence uses on the public lands; seek data from, consult with and make use of, the special knowledge of local residents engaged in subsistence uses; and make the results of such research available to the State, the local and regional councils established by the Secretary or State pursuant to section 805, and other appropriate persons and organizations.

* * * * * * *

LIMITATIONS, SAVINGS CLAUSES

SEC. 815. Nothing in this title shall be construed as—
(1) granting any property right in any fish or wildlife or other resource of the public lands or as permitting the level of subsistence uses of fish and wildlife within a conservation system unit to be inconsistent with the conservation of healthy populations, and within a national park or monument to be inconsistent with the conservation of natural and healthy populations, of fish and wildlife.

(3)authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on the public lands (other than national parks and park monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in section 816, to continue subsistence uses of such populations, or pursuant to other applicable law;

Aid in Fish Restoration Act (64 Stat. 430;16 U.S.C. 777777K), or any amendments to any one or more of such Acts.

* * * * * * *

CLOSURE TO SUBSISTENCE USES

SEC. 816. (b) Except as specifically provided otherwise by this section, nothing in this title is intended to enlarge or diminish the authority of the Secretary to designate areas where, and establish periods when, no taking of fish and wildlife shall be permitted on the public lands for reasons of public safety, administration, or to assure the continued viability of a particular fish or wildlife population. Notwithstanding any other provision of this Act or other law, the Secretary, after consultation with the State and adequate notice and public hearing, may temporarily close any public lands (including those within any conservation system unit), or any portion thereof, to subsistence uses of a particular fish or wildlife population only if necessary for reasons of public safety, administration, or to assure the continued viability of such population. If the Secretary determines that an emergency situation exists and that extraordinary measures must be taken for public safety or to assure the continued viability of a particular fish or wildlife population, the Secretary may immediately close the public lands, or any portion thereof, to the subsistence uses of such population and shall publish the reasons justifying the closure in the Federal Register. Such emergency closure shall be effective when made, shall not extend for a period exceeding sixty days, and may not subsequently be extended unless the Secretary affirmatively establishes, after notice and public hearing, that such closure should be extended.

* * * * * * *

ALASKA MINERAL RESOURCE ASSESSMENT PROGRAM

SEC. 1010. (a) MINERAL ASSESSMENTS.—The Secretary shall, to the full extent of his authority, assess the oil, gas, and other mineral potential on all public lands in the State of Alaska in order to expand the data base with respect to the mineral potential of such lands. The mineral assessment program may include, but shall not be limited to, techniques such as side-looking radar imagery and, on public lands other than such lands within the national park system, core and test drilling for geologic information, notwithstanding any restriction on such drilling under the Wilderness Act. For purposes of this Act, core and test drilling means the extraction by drilling of subsurface geologic samples in order to assess the metalliferous or other mineral values of geologic terrain, but shall not be construed as including exploratory drilling of oil and gas test wells. To the maximum extent practicable, the Secretary shall consult and exchange information with the State of Alaska regarding the responsibilities of the Secretary under this section and similar programs undertaken by the State. In order to carry out mineral assessments authorized under this or any other law, including but not limited to the National Uranium Resource Evaluation program, the Secretary shall allow for access

by air for assessment activities permitted in this subsection to all public lands involved in such study. He shall consult with the Secretary of Energy and heads of other Federal agencies carrying out such programs, to determine such reasonable requirements as may be necessary to protect the resources of such area, including fish and wildlife. Such requirements may provide that access will not occur during nesting, calving, spawning or such other times as fish and wildlife in the specific area may be especially vulnerable to such activities. The Secretary is authorized to enter into contracts with public or private entities to carry out all or any portion of the mineral assessment program. This section shall not apply to the lands described in section 1001 of this Act.

(b) REGULATIONS.—Activities carried out in conservation system units under subsection (a) shall be subject to regulations promulgated by the Secretary. Such regulations shall ensure that such activities are carried out in an environmentally sound manner—

(1)which does not result in lasting environmental impacts which appreciably alter the natural character of the units or biological or ecological systems in the units; and

(2)which is compatible with the purposes for which such units are established.

* * * * * * *

SPECIAL ACCESS AND ACCESS TO INHOLDINGS

SEC. 1110. (a) Notwithstanding any other provision of this Act or other law, the Secretary shall permit, on conservation system units national recreation areas, and national conservation areas, and those public lands designated as wilderness study, the use of snowmachines (during periods of adequate snow cover, or frozen river conditions in the case of wild and scenic rivers), motorboats, airplanes, and nonmotorized surface transportation methods for traditional activities (where such activities are permitted by this Act or other law) and for travel to and from villages and homesites. Such use shall be subject to reasonable regulations by the Secretary to protect the natural and other values of the conservation system units, national recreation areas, and national conservation areas, and shall not be prohibited unless, after notice and hearing in the vicinity of the affected unit or area, the Secretary finds that such use would be detrimental to the resource values of the unit or area. Nothing in this section shall be construed as prohibiting the use of other methods of transportation for such travel and activities on conservation system lands where such use is permitted by this Act or other law.

(b) Notwithstanding any other provisions of this Act or other law, in any case in which State owned or privately owned land, including subsurface rights of such owners underlying public lands, or a valid mining claim or other valid occupancy is within or is effectively surrounded by one or more conservation system units, national recreation areas, national conservation areas, or those public lands designated as wilderness study, the State or private owner or occupier shall be given by the Secretary such rights as may be necessary to assure adequate and feasible access for economic and other purposes to the concerned land by such State or private owner or occupier and their successors in interest. Such rights shall be subject to reasonable regulations issued by the Secretary to protect the natural and other values of such lands.

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TEMPORARY ACCESS

SEC. 1111. (a) IN GENERAL.—Notwithstanding any other provision of this Act or other law the Secretary shall authorize and permit temporary access by the State or a private landowner to or across any conservation system unit, national recreation area, national conservation area, the National Petroleum Reserve— Alaska or those public lands designated as wilderness study or

managed to maintain the wilderness character or potential thereof, in order to permit the State or private landowner access to its land for purposes of survey, geophysical, exploratory, or other temporary uses thereof whenever he determines such access will not result in permanent harm to the resources of such unit, area, Reserve or lands.

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TITLE XIII—ADMINISTRATIVE PROVISIONS

MANAGEMENT PLANS

SEC. 1301. (a) Within five years from the date of enactment of this Act, the Secretary shall develop and transmit to the appropriate Committees of the Congress a conservation and management plan for each of the units of the National Park System established or to which additions are made by this Act.

(b) NATIONAL PARK SERVICE PLAN REQUIREMENTS.—Each plan for a unit established, redesignated, or expanded by title II shall identify management practices which will carry out the policies of this Act and will accomplish the purposes for which the concerned National Park System unit was established or expanded and shall include at least the following:

(1) Maps indicating areas of particular importance as to wilderness, natural, historical, wildlife, cultural, archeological, paleontological, geological, recreational, and similar resources and also indicating the areas into which such unit will be divided for administrative purposes.

(2) A description of the programs and methods that will be employed to manage fish and wildlife resources and habitats, cultural, geological, recreational, and wilderness resources, and how each conservation system unit will contribute to overall resources management goals of that region. Such programs should include research, protection, restoration, development, and interpretation as appropriate.

(3) A description of any areas of potential or proposed development, indicating types of visitor services and facilities to be provided, the estimated costs of such services and facilities, and whether or not such services and facilities could and should be provided outside the boundaries of such unit.

(4) A plan for access to, and circulation within, such unit, indicating the type and location of transportation routes and facilities, if any.

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NAVIGATION AIDS AND OTHER FACILITIES

SEC. 1310. (a) EXISTING FACILITIES.—Within conservation system units established or expanded by this Act, reasonable access to, and operation and maintenance of, existing air and water navigation aids, communications sites and related facilities and existing facilities for weather, climate, and fisheries research and monitoring shall be permitted in accordance with the laws and regulations applicable to units of such systems, as appropriate. Reasonable access to and operation and maintenance of facilities for national defense purposes and related air and water navigation aids within or adjacent to such areas shall continue in accordance with the laws and regulations governing such facilities notwithstanding any other provision of this Act. Nothing in the Wilderness Act shall be deemed to prohibit such access, operation and maintenance within wilderness areas designated by this Act.

(b) NEW FACILITIES.—The establishment, operation, and maintenance within any conservation system unit of new air and water navigation aids and related facilities, facilities for national defense purposes, and related air and water navigation aids, and facilities for weather, climate, and fisheries research and monitoring shall be permitted but only (1) after consultation with the Secretary or the Secretary of Agriculture, as appropriate, by the head of the Federal department or agency undertaking such establishment, operation, or maintenance, and (2) in accordance with such terms and conditions as may be mutually agreed in order to minimize the adverse effects of such activities within such unit.

* * * * * * *

ADMINISTRATION OF NATIONAL PRESERVES

SEC. 1313. A National Preserve in Alaska shall be administered and managed as a unit of the National Park System in the same manner as a national park except as otherwise provided in this Act and except that the taking of fish and wildlife for sport purposes and subsistence uses, and trapping shall be allowed in a national preserve under applicable State and Federal law and regulation. Consistent with the provisions of section 816, within national preserves the Secretary may designate zones where and periods when no hunting, fishing, trapping, or entry may be permitted for reasons of public safety, administration, floral and faunal protection, or public use and enjoyment. Except in emergencies, any regulations prescribing such restrictions relating to hunting, fishing, or trapping shall be put into effect only after consultation with the appropriate State agency having responsibility over hunting, fishing, and trapping activities.

* * * * * * *

TAKING OF FISH AND WILDLIFE

SEC. 1314. (a) Nothing in this Act is intended to enlarge or diminish the responsibility and authority of the State of Alaska for management of fish and wildlife on the public lands except as may be provided in title VIII of this Act, or to amend the Alaska constitution.

(b) Except as specifically provided otherwise by this Act, nothing in this Act is intended to enlarge or diminish the responsibility and authority of the Secretary over the management of the public lands.

(c) The taking of fish and wildlife in all conservation system units, and in national conservation areas, national recreation areas, and national forests, shall be carried out in accordance with the provisions of this Act and other applicable State and Federal law. Those areas designated as national parks or national park system monuments in the State shall be closed to the taking of fish and wildlife, except that—

(1) notwithstanding any other provision of this Act, the Secretary shall administer those units of the National Park System, and those additions to existing units, established by this Act and which permit subsistence uses, to provide an opportunity for the continuance of such uses by local rural residents; and

(2) fishing shall be permitted by the Secretary in accordance with the provisions of this Act and other applicable State and Federal law.

* * * * * * *

WILDERNESS MANAGEMENT

SEC. 1315. (a) APPLICATION ONLY TO ALASKA.—The provisions of this section are enacted in recognition of the unique conditions in Alaska. Nothing in this section shall be construed to expand, diminish; or modify the provisions of the Wilderness Act or the application or interpretation of such provisions with respect to lands outside of Alaska.

* * * * * * *

ALLOWED USES

SEC. 1316. (a) On all public lands where the taking of fish and wildlife is permitted in accordance with the provisions of this Act or other applicable State and Federal law the Secretary shall permit, subject to reasonable regulation to insure compatibility, the continuance of existing uses, and the future establishment, and use, of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly and necessarily related to such activities. Such facilities and equipment shall be constructed, used, and maintained in a manner consistent with the protection of the area in which they are located. All new facilities shall be constructed of materials which blend with, and are compatible with, the immediately surrounding landscape. Upon termination of such activities and uses (but not upon regular or seasonal cessation), such structures or facilities shall, upon written request, be removed from the area by the permittee.

(b) Notwithstanding the foregoing provisions, the Secretary may determine, after adequate notice, that the establishment and use of such new facilities or equipment would constitute a significant expansion of existing facilities or uses which would be detrimental to the purposes for which the affected conservation system unit was established, including the wilderness character of any wilderness area within such unit, and may there upon deny such proposed use or establishment.

REFERENCES

ACIA
2004 *Impacts of a Warming Arctic: Arctic Climate Impact Assessment*. Cambridge University Press. Accessed at http://www.acia.uaf.edu.

Adams, Layne G.
1988 Dall sheep survey, Gates of the Arctic National Park and Preserve, Alaska, 1987. Natural Resources Survey and Inventory Report AR-88/15.National Park Service, 2525 Gambell Street, Anchorage, AK.

Adams, Layne G., R. O. Stephenson, B. W. Dale, and B. Shults
1989 Population ecology of wolves in Gates of the Arctic National Park and Preserve, Alaska – 1988 Progress Report. Natural Resources Progress Report AR-89/15. National Park Service, Alaska Regional Office, 2525 Gambell St., Anchorage, AK.

Adams, L., R. O. Stephenson, B. W. Dale, R. T. Ahgook, and D. J. Demma.
2008 "Population Dynamics and Harvest Characteristics of Wolves in the Central Brooks Range, Alaska." Wildlife Monographs 170:11-25.

Alaska Climate Research Center, Geophysical Institute
(2009) "Temperature Change in Alaska." Accessed online at http://climate.gi.alaska.edu/ClimTrends/Change/TempChange.html).

Alaska Department of Commerce, Community, and Economic Development
2011 Community Information Summaries. Ambler, Anaktuvuk Pass, Bettles, Kobuk, Shungnak, AK. Accessed online March 2010, June 2010, June 2011.

Alaska Department of Community and Economic Development
2001 "Local Government in Alaska." Prepared by Dan Bockhorst. February 2001. Accessed online at: http://commerce.alaska.gov/dcra/lbc/pubs/Local_Gov_AK.pdf.

Alaska Department of Fish and Game (ADF&G)
2009a Alaska's Largest Caribou Herd is Stable: Western Arctic Herd Numbers about 401,000. Accessed online on 09/27/2010 at http://www.wc.adfg.state.ak.us/index.cfm?adfg=wildlife_news.view_article&articles_id=467.

2009b ADF&G Reports Increase in Teshekpuk and Central Arctic Caribou Herds. Press release no. 09-10, April 13, 2009. Accessed on 09/27/2010 online at http://www.adfg.state.ak.us/news/2009/4-13-09_nr.php.

Alaska Department of Labor and Workforce Development
2011 Alaska Population Projections 2010–2034. February 2011. Prepared by the Alaska Department of Labor and Workforce Development, Research and Analysis Section. http://labor.alaska.gov/research/pop/projected/pub/popproj.pdf.

2011 Research and Analysis. Alaska Local and Regional Information. Workforce Info. Accessed online on March and August 2010 and June 2011, at: http://labor.alaska.gov/research/alari/.

2011 Research and Analysis. Quarterly Census of Employment and Wages. Accessed March 2010 and June 2011 online at: http://labor.alaska.gov/research/qcew/qcew.htm.

Alaska Department of Natural Resources
2010 *Dalton Highway Scenic Byway Corridor Partnership Plan.* Prepared by the Alaska Dept. of Transportation and Public Facilities, State Scenic Byways Program. Prepared by the Division of Parks and Outdoor Recreation, Interpretation and Education Unit. Available on the Internet at: dnr.alaska.gov/parks/plans/daltonhwyscenisbywaycorridor.pdf.

Alaska Department of Transportation and Public Facilities
2010 Dalton Highway Scenic Byway Corridor Partnership Plan. State Scenic Byways Program. March 2010. Prepared by: AK Department of Natural Resources, Division of Parks and Outdoor Recreation, Interpretation and Education Unit. March 2010.

Alaska Geographic
2011 About Us. Accessed online on June 2011 at: http://www.alaskageographic.org/category/18/about-us.

Ayres, Lee Anne
1986 The Movement Patterns and Foraging Ecology of Dall Sheep (*Ovisdallidalli*) in the Noatak National Preserve, Alaska. MS Thesis Univ. of California, Berkeley. 94p.

Ballard, Warren B., Lee Anne Ayres, Daniel J. Reed, Steven G. Fancy, and Kathryn E. Roney
1993 "Demography of Grizzly Bears in Relation to Hunting and Mining Development in Northwestern Alaska." Scientific Monograph NPS/NRARO/NRSM-93/23.U.S. Dept of the Interior, National Park Service.112 p.

Ballard, Warren B., Lee Ann Ayres, Kathryn E. Reed and Steven G. Fancy
1991 Demography of Noatak Grizzly Bears in Relation to Human Exploitation and Mining Development. ADF&G Division of Wildlife Conservation. Federal Aid in Wildlife Restoration Research Final Report. Projects W-22-5, W-22-6, W-23-1, W-23-2 & W-23-3 Study 4.20.

Barber V. A., G. P. Juday and B. P. Finney
2000 "Reduced growth of Alaskan white spruce in the twentieth century from temperature-induced drought stress." *Nature* 405: 668-673.

Bloom, A. A., P. I. Palmer, A. Fraser, D. S. Reay and C. Frankenberg
2010 Large-Scale Controls of Methanogenesis Inferred from Methane and Gravity Spaceborne Data. Science 327: 322-325.

Boreal Partners in Flight Working Group (PIF)
1999 Landbird Conservation Plan for Alaska. Biogeographic Regions. U.S. Fish and Wildlife Service, Anchorage, AK. 45pp. Accessed at http://www.partnersinflight.org/bcps/pifplans.htm.

Brubaker Rachel
1998 Progress Report 1998: Sheep Work in Gates of the Arctic National Park. Internal Report GAAR-98-005. National Park Service, 201 First Ave., Fairbanks, AK.

Brubaker, Rachel and Ken Whitten
1998 1996 Dall sheep (*Ovis dalli dalli*) survey, Gates of the Arctic National Park and Preserve, Alaska. Technical Report NPS/AR/NRTR-98/35. U.S. Dept. of the Interior. National Park Service – Alaska Region.

Bureau of Land Management (BLM)
2009 *Draft Dalton Highway Management Area Integrated Invasive Plant Strategic Plan. Alaska.* Available on the Internet at: http://www.agnewbeck .com/pages-portfolio/interior /akexotics.html.

Burns, C. E., K. M. Johnston and O. J. Schmitz
2003 Global climate change and mammalian species diversity in U.S. national parks. Proceedings of the National Academy of Sciences 100(20): 11474-11477.

Callaway, D.
2007 A changing climate: Consequences for Subsistence Communities. Alaska Park Science: Scientific Studies on Climate Change in Alaska's National Parks. Shaw, M (ed). Published by the Alaska Natural History Association.

Christensen, N. and L. Christensen
2009 The Arctic National Wildlife Visitor Study: The Characteristics, Experiences, and Preferences of Refuge Visitors. Prepared for the Aldo Leopold Wilderness Research Institute and the Arctic National Wildlife Refuge. Christensen Research, Missoula, MT.

Christensen, N. A. and A. E. Watson
2001 Gates of the Arctic Kobuk River Sport Hunter Study. Prepared for the National Park Service. Aldo Leopold Wilderness Research Institute, Missoula, MT.

Christian, P.
2003 Noatak Wilderness Baseline Study. On file at park headquarters.

Cole, D. N., and L. Yung
2010 *Beyond Naturalness. Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. Island Press. Washington, D.C.

Cole, D. N., L. Yung, E. S. Zavaleta, G. H. Aplet, F. S. Chapin III, D. M. Graber, E. S. Higgs, R. J. Hobbs, P. B. Landres, C. I. Millar, D. J. Parsons, J. M. Randall, N. L. Stephenson, K. A. Tonnessen, P. S. White, and S. Woodley.
2008 Naturalness and Beyond: Protected Area Stewardship in an era of Global Environmental Change." *George Wright Society Forum* 25(1): 36-56.

Council on Environmental Quality (CEQ)
1981 "Forty Most Asked Questions Concerning Council on Environmental Quality's National Environmental Policy Act Regulations," 1981. Accessed online at: http://ceq.hss.doe.gov /nepa/regs/40/40p1.htm.

Dale, B. W., L. G. Adams and R. T. Bowyer
1995 Winter Wolf Predation in a Multiple Ungulate Prey System, Gates of the Arctic National Park, Alaska. Pages 223–230 in Ecology and Conservation of Wolves in a Changing World. Carbyn, L.N., S.H. Fritts and D.R. Seip (eds). Published by Canadian Circumpolar Institute, University of Alberta, Edmonton, Alberta, Canada.

Danks, H. V.
1992 "Arctic Insects as Indicators of Environmental Change." *Arctic* 45:159-166.

Dau, Jim, Rachel Brubaker, and Lee Anne Ayres
1996 Upper Kobuk drainage moose census, November 1995. NPS and ADF&G Internal Report.

Fabry, V. J, B. A. Seibel, R. A. Feely, and J. C. Orr
2008 Impacts of Ocean Acidification on Marine Fauna and Ecosystem Processes. *ICES Journal of Marine Science* 65: 414–432.

Feely, R. A., C. L. Sabine, J. M. Hernandez-Ayon, D. Lanson, and B. Hales
2008 "Evidence for upwelling of corrosive "acidified" water onto the continental shelf." *Science* 320(5882): 1490–1492.

Ferreira, Samson L. and Dael Davenport
2011 *Cultural Landscape Inventory: Itkillik Lake Caribou Hunting Landscape*, (Anchorage, AK: NPS Alaska Cultural Landscapes Program, 2011).

Fresco, N.
2010 NPS Climate Change Planning in Alaska's National Parks. Summary of Scenarios Training Workshop. Powerpoint prepared for the National Park Service. Univ. of Alaska, Scenarios Network for Alaska Planning. Anchorage, AK.

Glaspell, B., A. Watson and N. Christensen
2002 Gates of the Arctic Recreation Visitor Study Phase 1. Prepared for the National Park Service. Aldo Leopold Wilderness Research Institute, Missoula, MT.

Goldsmith, Scott
2007 The Remote Rural Economy of Alaska. April 12, 2007. Institute of Social and Economic Research. University of Alaska Anchorage.

Griffith B., D. C. Douglas, D. E. Russell, R. G. White, T. R. McCabe, and K. R. Whitten
2001 Effects of recent climate warming on Caribou habitat and calf survival. Impacts of Climate Change on Wildlife, Royal Society for the Protection of Birds.

Griffith B., D. C. Douglas, N. E. Walsh, D. D. Young, T. R. McCabe, D. E. Russell, R. G. White, R. D. Cameron, and K. R. Whitten
2002 "The Porcupine Caribou Herd." Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries, U.S. Geological Survey, Biological Resources Division, Biological Science Report USGS/BRD BSR-2002-0001: 8-37.

Hatler, David, F.
1967 Some Aspects in the Ecology of the Black Bear (*Ursusamericanus*) in Interior Alaska. MS Thesis University of Alaska Fairbanks Alaska. 111p.

Jezierski, C., A. Schramm, and R. Loehman
2010 "Understanding the Science of Climate Change. Talking Points - Impacts to Alaska Boreal and Arctic." Natural Resource Report NPS/NRPC/NRR—2010/224. Fort Collins, CO.

Keyser, A. R., J. S. Kimball, R. R. Nemani and S. W. Running
2000 Simulating the effects of climate change on the carbon balance of North American high-latitude forests. Global Change Biology 6 (Suppl. 1): 185-195.

Knight, R. L. and D. N. Cole
1995 "Wildlife Responses to Recreationists." In: *Wildlife and Recreationists: Coexistence through Management and Research.* Edited by Knight, R.L. & K.J. Gutzwiller. Island Press, Washington, D.C.

Landres, P.
2002 "Wilderness Restoration: The Dilemma of Managing for Wilderness and Naturalness." Lecture given as part of the annual Wilderness Lecture Series, Univ. of Montana, Feb. 2002. Available at http://leopold /wilderness.net/htopics/restor.ht m.

2004 "Managing Wilderness in Designated Wilderness." *Frontiers in Ecology and the Environment* 2: 498-499. Available at http://leopold/wilderness .net/htopics/restor.htm

Marion, J. L. and J. Wimpey
2011 "Informal Trail Monitoring Protocols: Denali National Park and Preserve." Final Research Report. U.S. Geological Survey, Distributed by the Virginia Tech College of Natural Resources & Environment, Blacksburg, VA.

McKee, Paul
2002 Exotic Plants in Alaska National Parks, 2002 Field Season Report. Accessed online on 09/27/2010 at http://www.nps.gov/gaar/natures cience/upload/EXOTIC%20PLA NTS%20IN.pdf.

Monti, P. and E. E. MacKintosh
1979 "Effects of Camping on Surface Soil Properties in the Boreal Forest Region of Northwestern Ontario, Canada." *Soil Science Society of American Journal* 43: 1024-1029.

Moran, Edward H. and Timothy P. Brabets
2005 Water Quality and Ground Water/Surface-Water Interactions along the John River near Anaktuvuk Pass, Alaska, 2002–2003. U.S. Geological Survey, Scientific Investigations Report 2005–5229.

Mueter, F. J. and M. A. Litzow
2008 Sea ice retreat alters the biogeography of the Bering Sea continental shelf. Ecological Applications 18: 309-320.

National Park Service (NPS)
1986 *Gates of the Arctic National Park and Preserve General Management Plan / Land Protection Plan and Wilderness Suitability Review*. Alaska.

1992 *Final Legislative Environmental Impact Statement. All-Terrain Vehicles for Subsistence Use in Gates of the Arctic National Park and Preserve, Alaska.* Alaska Regional Office. Anchorage, AK.

1995a Report on Effects of Aircraft Overflights on the National Park System. U.S. Department of the Interior, National Park Service, Washington, D.C. 328 pp.

1995b "Human Impact Site Inventory. Summary of Data Report." Prepared by K. Shea.GAAR-95-002. On file at park headquarters.

1998 "Gates of the Arctic National Park and Preserve. Human Impact Site Inventories. Arrigetch Creek and Kuyuktuvuk Creek." Final Report. GAAR 97-07. On file at park headquarters.

2003a Gates of the Arctic National Park and Preserve Social Science Summary. On file at park headquarters.

2003b "Distribution of Muskoxen Determined by Incidental Observations and Aerial Surveys in Gates of the Arctic National Park and Preserve, Alaska: 1999-2002." Prepared by J. Lawler. Resource Report, NPS/AR/NR/NRTR-2003-41. Fairbanks, AK.

2003c "Distribution of Muskoxen Determined by Incidental Observations and Aerial Surveys in Gates of the Arctic National Park and Preserve, Alaska: 1999–2002." Project report. Prepared by J. Lawler. On file at park headquarters. Fairbanks, AK.

2004 "Issue: What Constitutes Appropriate Conservation and Restoration Activities in Wilderness?" National Wilderness Steering Committee Guidance White Paper Number 2. Available at http://wilderness.nps.gov/document/Guidance%20Paper%20%232.doc.

2005 *Denali National Park and Preserve. Revised Draft Backcountry Management Plan, General Management Plan Amendment, and Environmental Impact Statement.* Denali National Park, AK.

2006 NPS *Management Policies 2006.* Available at: http://www.nps.gov/policy/MP2006.pdf.

2009 "Gates of the Arctic National Park and Preserve Foundation Statement." Available at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

2010a Dalton Highway Visitor Access Portals. On file at park headquarters.

2010b "Alaska Region Climate Change Response Strategy." Anchorage, AK.

2010c *Climate Monitoring Program in Arctic Alaska Network (ARCN) National Park Service Units. Environmental Assessment.* Anchorage, AK.

2010d "Resource Brief: Dall's Sheep (*Ovas dalli*) in the Central and Western Brooks Range." K. Rattenbury. Accesed on the Internet on October 18, 2011 at: http://science.nature.nps.gov/im/units/arcn/index.cfm?rq=12&vsid=20.

2011 Public Use Statistics Office. Accessed August 2010 and June 2011 at: http://www.nature.nps.gov/stats/state.cfm?st=ak.

2011b "Dall's Sheep in Gates of the Arctic National Park and Preserve, Alaska. 2010 Survey Report." Prepared by K. L. Rattenbury and J.H. Schmidt. Natural Resource Data Series NPS/GAAR/NRDS-2011/198. On file at park headquarter, Fairbanks, AK.

2012a "Refining Measurements of Wilderness Area in Alaska National Parks. Gates of the Arctic National Park and Preserve." On file in the Alaska regional office, Anchorage, AK.

2012b "Gates of the Arctic Wilderness Character Narrative." Available at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

2012c 2012 Call to Action Plan, accessed January 2013. Available at http://www.nps.gov/calltoaction/.

2012d "Green Parks Plan." Available at http://www.nps.gov/greenparksplan/.

2013a Park Atlas for Gates of the Arctic National Park and Preserve. Available at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

2014a "Gates of the Arctic National Park and Preserve Land Protection Plan." Available at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

2014b "Gates of the Arctic Wild River Outstandingly Remarkable Value Statements." Available at http://www.nps.gov/gaar/parkmgmt/planning-portfolio.htm.

North Slope Borough

2005a North Slope Borough Comprehensive Plan: Issues, Goals, and Objectives/Policies. Adopted by the North Slope Borough Assembly. Ordinance 75-6-48. October 11, 2005.

2005b North Slope Borough. Background Report. Adopted by the North Slope Borough Assembly. Ordinance 75-6-48. October 11, 2005.

2011 North Slope Borough. Approved Budget. Fiscal Year 2010–2011. Expenditure/Revenue Summaries. Accessed Online at: June 2011. http://www.north-slope.org/information/budget/fy11/Sect%20A-Exp-RevSumm/Expenditure-Revenue Summaries_SectionA.pdf.

Northwest Arctic Borough Home Page

2010a Accessed Online on June 2010, at: http://www.nwabor.org

2010b Kobuk, Alaska Community Page. Accessed June 2010. http://www.nwabor.org/kobuk.html.

Pendergrast, D.

2001 Backcountry Visitor Use Report. On file at park headquarters.

Pfeiffer, N. and J. Lawler
2003 "History and Route Descriptions of Rock Climbs in the Arrigetch Peaks, Gates of the Arctic National Park and Preserve, Alaska." Available on the Internet at: http://www.nps.gov/gaar/naturescience/arrigetch-peaks-climbing-report.htm.

Riordan, B., D. Verbyla and A. D. McGuire
2006 "Shrinking Ponds in Subarctic Alaska Based on 1950-2002 Remotely Sensed Images." *Journal of Geophysical Research* 111:1-11.

Singer, Francis J.
1984 "Some Population Characteristics of Dall Sheep in Six Alaskan National Parks and Preserves." Internal Park Service Report. National Park Service, Aerial Dall sheep count, 1982, 1983, and 1984. Gates of the Arctic National Park and Preserve. Survey and Inventory Report AR-84-2. Anchorage, AK.

Stafford, J. M., G. Wendler, J. Curtis
2000 Temperature and precipitation of Alaska: 50 year trend analysis. Theoretical and Applied Climatology 67: 33-44.

Stynes, Daniel J.
2009 National *Park Visitor Spending and Payroll Impacts 2008*. Department of Community, Agriculture, Recreation and Resource Studies. Michigan State University. October 2009.

Tietz, K.
1996 "Standardized Trampling in Interior Alaska." M.S. Thesis, University of Alaska, Fairbanks, AK.

University of Idaho
2009 Gates of the Arctic National Park and Preserve 2009 visitor survey card data report. Prepared for the National Park Service. Report GAAR709.

URS Corporation (URS)
2011 "Gates of the Arctic National Park and Preserve Transportation Data and Visitor Projection Analysis." Report B2000105700. On file at park headquarters.

U.S. Census Bureau
2010 2009 Population Estimates; American Community Survey 2005–2009; Census 2000; 1990 Census. Accessed June 2010 and June 2011. http://www.census.gov/.

U.S. Department of the Interior (USDI)
2011 Payments in Lieu of Taxes. Accessed Online on June 2011, at: http://www.doi.gov/pilt/index.html.

U.S. Forest Service (USFS)
2008 *Keeping it Wild. An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System.* Prepared by P. Landres, C. Barns, J. G. Dennis, T. Devine, P. Geissler, C. S. McCasland, L. Merigliano, J. Seastrand, and R. Swain. General Technical Report RMRS GTR-212. Rocky Mountain Research Station, Fort Collins, CO.

Valdez, Raul and P. R. Krausman (eds)
1999 *Mountain Sheep of North America*. The University of Arizona Press. 353 p.

Vande Kamp, M. E., D. R. Johnson and R. E. Manning
2000 Application of Visitor Experience and Resource Protection (VERP) to Alaskan National Park Wilderness. Prepared for the National Park Service. Technical Report NPS/CCSOUW/NRTR-2001-01 NPS D 35.

Watson, A., N. Christensen, B. Glaspell, K. Kneeshaw, and A. Liljeblad
2003 Gates of the Arctic Recreation Visitor Study Phase 2. Prepared for the National Park Service. Aldo Leopold Wilderness Research Institute, Missoula, MT.

Wilson, Aaron, and Samson L. Ferreira
2007 *Cultural Landscape Inventory: Agiak Lake Caribou Hunting Landscape*, (Anchorage, AK: NPS Alaska Cultural Landscapes Program, 2007).

Yom-Tov, Y. and J. Yom-Tov
2005 Global warming, Bergmann's rule and body size in the masked shrew Sorexcinereus Kerr in Alaska. *Journal of Animal Ecology* 74(5): 803-808.

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

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