
National Park Service
U.S. Department of the Interior



Bering Land Bridge National Preserve
Alaska

Bering Land Bridge National Preserve Guided Sport Hunting Concessions Environmental Assessment November 2012



Comments on this environmental assessment (EA) may be submitted during the 30-day open comment period via the national planning web site at <http://parkplanning.nps.gov>.

Comments may also be submitted in writing to:

Jeanette Pomrenke, Superintendent
Bering Land Bridge National Preserve
P.O. Box 220
Nome, Alaska 99762

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Contact Name and Information:

Bud Rice
Environmental Resources
NPS Alaska Regional Office
240 West 5th Avenue
Anchorage, AK 99501
907-644-3530
Fax 907-644-3814
Bud_Rice@nps.gov

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Acronyms and Abbreviations

ADCCED	Alaska Department of Commerce, Community and Economic Development
ADF&G	Alaska Department of Fish and Game
ANCSA	Alaska Native Claims Conservation Act
ANILCA	Alaska National Interest Lands Conservation Act
BELA	Bering Land Bridge National Preserve
BLM	Bureau of Land Management
BOG	Alaska Board of Game
CFR	Code of Federal Regulations
DLP	Defense of life and property (killing of bears)
DM	Drawing Moose
EA	Environmental Assessment
EGA	Exclusive Guide Area
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
GMU	Game Management Unit
GUA	State Guide Use Area
NEPA	National Environmental Policy Act
NPRB	National Pacific Research Board
NPS	National Park Service
PL	Public Law
RMP	Regional Management Plan
WACH	Western Arctic Caribou Herd

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1.0 PURPOSE AND NEED FOR ACTION

1.1 Purpose of and Need for Action

The National Park Service (NPS) is considering soliciting proposals for guided sport hunting in the Bering Land Bridge National Preserve (BELA) (Figure 1). Guided hunting occurred in the area before and after the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), but ceased within the preserve by the mid-1980s. Sport hunting is allowed in the Preserve under Federal and non-conflicting State laws and regulations, pursuant to ANILCA Sections 203 and 1313 and implementing regulations at 36 CFR Part 13.40(d). Subsequent efforts to revive the activities were met with opposition by local rural residents relying on subsistence resources. Some wildlife populations in the area have increased (e.g. caribou and muskoxen) so that a few local residents have requested authorization to guide hunting in the Preserve.

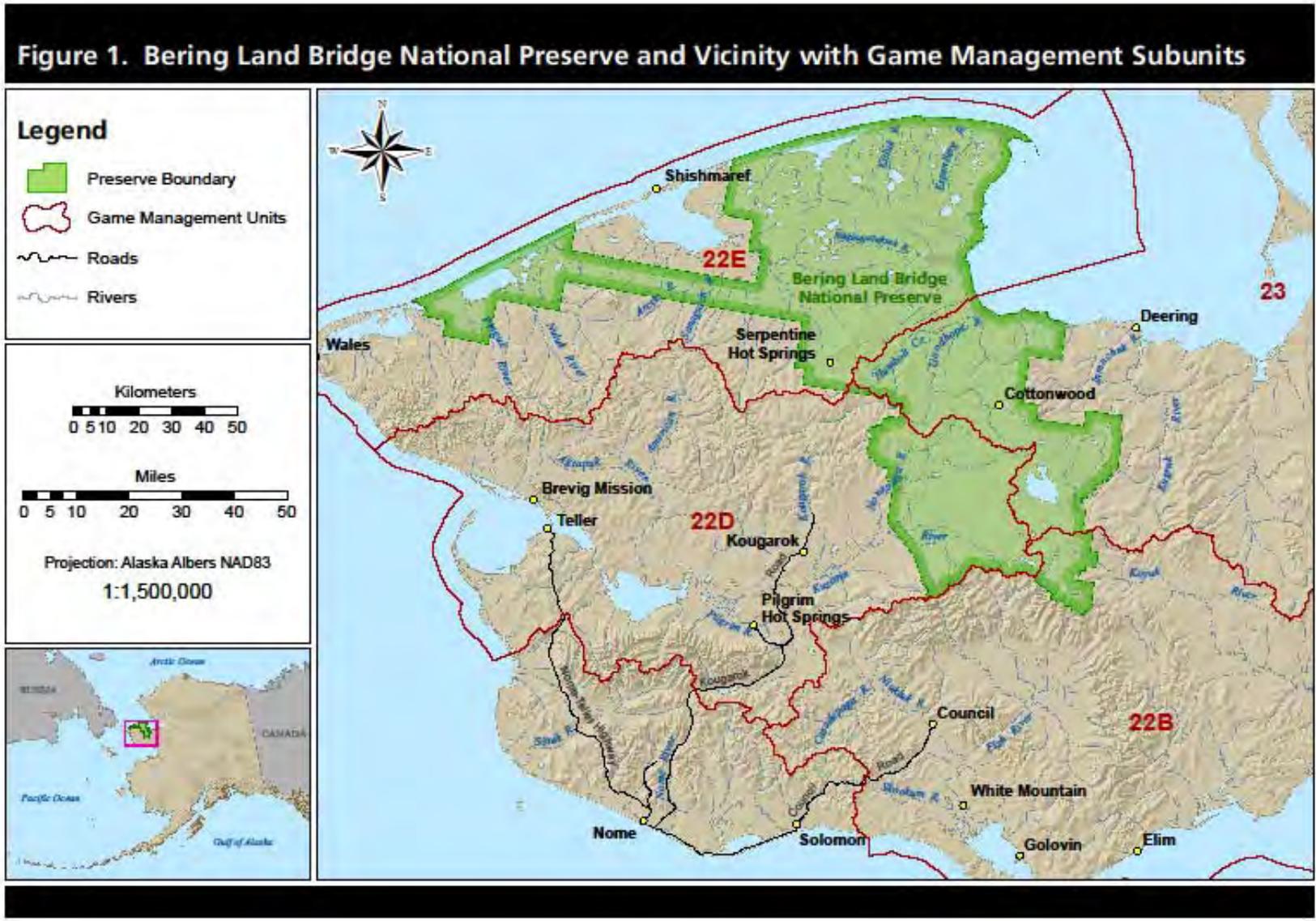
Guided sport hunting services are considered to be an appropriate and necessary means to provide hunting opportunities for both Alaska resident and nonresident hunters within Alaska National Preserves. These services are subject to the provisions of the NPS Concessions Management Improvement Act of 1998 (PL 105-391) and other applicable laws and regulations. Alaska state law requires nonresident brown bear hunters to be either accompanied by a licensed guide or a close relative over 19 years old who is an Alaska resident (see AS 16.05.407). A nonresident alien (foreign citizen) must have a licensed guide to hunt any big game species¹ (AS 16.05.408). Although Alaska residents may hunt brown bears in the Preserve without a guide, they may choose to hunt in the Preserve with a guide.

The purpose of the action is to determine whether to offer commercial guided hunting opportunities in BELA, and the frequency and area in which they could occur. Changing conditions in wildlife populations and subsistence use patterns, and requests for new economic opportunities in the region have prompted the NPS to consider this action. If a decision is made to proceed with authorizing guided sport hunting in BELA, a concessions prospectus would be issued to competitively award the contracts.

This environmental assessment (EA) analyzes the proposed action and alternatives and their impacts on the environment. Environmental considerations include effects on subsistence uses, economic opportunity, recreation uses, wildlife populations, and cultural resources. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1508.9).

¹ *Big game includes black bear, brown/grizzly bear, bison, caribou, Dall sheep, Sitka black-tailed deer, elk, mountain goat, moose, muskox, wolf, and wolverine.*

Figure 1. Bering Land Bridge National Preserve and Vicinity with Game Management Subunits



1.2 Background

1.2.1 Park Purpose and Significance

BELA was established from public lands in 1980 by ANILCA in section 201(2), which states BELA,

shall be managed for the following purposes, among others: To protect and interpret examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geologic processes; to protect habitat for internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves; subject to such reasonable regulations as the Secretary may prescribe, to continue reindeer grazing use, including necessary facilities and equipment, within the areas which on January 1, 1976, were subject to reindeer grazing permits, in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area. The Secretary shall permit the continuation of customary patterns and modes of travel during periods of adequate snow cover within a one-hundred-foot right-of-way along either side of an existing route from Deering to the Taylor Highway, subject to such reasonable regulations as the Secretary may promulgate to assure that such travel is consistent with the foregoing purposes.

All NPS lands in BELA are open to subsistence uses and to sport hunting pursuant to ANILCA Sections 203 and 1313, unless restricted by federal or state regulation.

The BELA General Management Plan (NPS 1988) made several statements regarding management of the area and the potential for sport hunting in the area:

- BELA shall be managed as a national park except to also allow subsistence uses, reindeer herding, fishing, trapping, and sport hunting;
- Cooperate with affected organizations and landowners regarding the management of the preserve to ensure that actions are mutually beneficial to the degree possible;
- Use local expertise where possible to help manage Preserve resources;
- Though most hunting now is for subsistence purposes, some sport hunting of moose takes place in the Preserve, and a muskox season may be established in the future;
- If guided hunting operations are developed, hunting within the Preserve could increase;
- Sport fishing guides and air taxi operators are authorized to operate within the Preserve, but reported use is very limited;
- Fixed-wing aircraft may be landed and operated on lands and waters within the Preserve;
- Most sport hunting in the Preserve is for trophy-sized game with most hunters coming from outside the Seward Peninsula.

- Commercial operators are required to obtain a permit, contract, or other written agreement before operating within the Preserve.

The BELA Foundation Statement (NPS 2009) contains the following significance statements, which may have bearing on the proposed guided hunting:

1. BELA protects and provides opportunities for the study of paleontological, archeological, and biological resources that reveal a record of migration across the land bridge between Asia and North America;
2. BELA protects and interprets, in collaboration with Alaska Natives, thousands of years of use and occupation by the Inupiaq people and their continuing subsistence way of life;
3. BELA protects natural resources and native habitats that provide the opportunity for local rural Alaska residents to engage in customary and traditional subsistence uses;
4. BELA protects the integrity of the Serpentine Hot Springs, its natural setting, and its cultural and spiritual significance.
5. BELA protects reindeer herding habitat to ensure the continued opportunity for reindeer herding by Alaska Natives.

1.2.2 Laws, Regulations, and Policies

The hunting guide prospectus would be issued in accordance with the National Park Service Concessions Management Improvement Act of 1998 (PL 105-391) and 36 CFR Part 51. The prospectus would be issued to attract the widest possible interest from qualified applicants in establishing, operating, and maintaining the hunting guide services, and to inform all interested parties of the requirements and conditions under which the operations may be conducted. Applicants must be currently licensed as registered guides under Alaska Statute (AS) 08.54.610 or be in the process of renewing a registered guide license.

Concessions management policies are described in NPS Management Policies Section 10.2 (NPS 2006) and Director’s Order #48A. A decision to authorize the hunting guide concession(s) would be based on a determination that the services are:

- Consistent with enabling legislation;
- Complementary to the unit’s mission and visitor services objectives;
- Necessary and appropriate for the public use and enjoyment of the unit;
- Incorporates sustainable principles and practices; and
- Will not cause unacceptable impacts.

In addition to sections 203 and 1313, ANILCA Section 101 (b) states in part, “It is the intent of Congress ... 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 ...” ANILCA Section 802 further specifies, “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; ... and (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” ANILCA Section 815 states: “Nothing in this title shall be construed as (1) ... permitting the level of subsistence uses of fish and wildlife within a conservation system unit to be inconsistent with the conservation of *healthy* populations ... of fish and wildlife.” (Emphases added.) Furthermore, 50 CFR § 100.4 Definitions states:

Conservation of healthy populations of fish and wildlife means the maintenance of fish and wildlife resources and their habitats in a condition that assures stable and continuing natural populations and species mix of plants and animals in relation to their ecosystem, including the recognition that local rural residents engaged in subsistence uses may be a natural part of that ecosystem; minimizes the likelihood of irreversible or long-term adverse effects upon such populations and species; ensures the maximum practicable diversity of options for the future; and recognizes that the policies and legal authorities of the managing agencies will determine the nature and degree of management programs affecting ecological relationships, population dynamics, and the manipulation of the components of the ecosystem.

Pursuant to ANILCA Section 1110(a) and implementing regulations at 43 CFR Part 36.11 access for hunting would be allowed with fixed-wing aircraft, motorboats, snowmobiles when there is adequate snow cover, and non-motorized surface travel. Pursuant to 36 CFR Part 13.702 the use of off-road vehicles in BELA is only allowed for reindeer herding where needed.

Section 1313 of 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.

Consistent with the provisions for closure to subsistence uses described in Section 816 of ANILCA, Section 1313 states, “... 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.”

ANILCA Section 1314(a) states: “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 public lands except as may be provided in title VIII of this Act....” Section 1314(c) adds: “The taking of fish and wildlife in all conservation system units ... shall be carried out in accordance with the provisions of this Act and other applicable State and Federal law.”

The NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. The 2001 NPS Management Policies uses the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park is established and managed, including the Organic Act’s fundamental purpose and any additional purposes as stated in the park’s establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to

ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The evaluation of whether impacts of a proposed action would lead to an impairment of park resources and values will be included in the decision document for this environmental assessment. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

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

1.2.3 Relationship of Proposal to Other Planning Projects

Several planning efforts are recently completed and ongoing for BELA, and this hunting guides' concession plan EA takes into account those other plans to assure the end results would be coordinated. The NPS recently completed the Serpentine Hot Springs Transportation Access Report (NPS 2011), which articulates important uses and methods of access to and from the Hot Springs. This plan discusses winter trail access by snowmobile and the potential for an improved air strip landing. Annual winter and summer season visits average about 1,150 each. The Access Report will feed directly into the proposed Serpentine Hot Springs Area Master Plan. This plan will focus on the hot springs facilities and the tors area for about a five-mile radius around the springs. It will also include winter access trails and their maintenance from various villages to the hot springs. Lastly, BELA is completing an EA on reindeer exclosures to determine range conditions without reindeer and caribou grazing pressures. This information would be used to determine reindeer herd sizes and locations. The current Western Arctic Caribou Herd has overtaken most of the reindeer herds on the Seward Peninsula, but because caribou herd sizes in Alaska are known to fluctuate and migration routes change over time, it is possible future reindeer herding operations will once again become more viable. For the Serpentine Hot Springs area, local communities do not want competition for resources and impacts to these resources from guided hunting.

1.3 Issues

BELA Superintendent Pomrenke and Subsistence Manager Adkisson have met with local communities to discuss the prospect of guided hunting in BELA. In general these communities have no objection to limited opportunities for guided hunting employment so long as important subsistence resources in the area are not depleted. Shishmaref residents expressed concern that guided hunting not be allowed for caribou or moose near their village, but they thought take of brown bears or muskoxen might be acceptable if carefully managed. Deering residents likewise oppose guided hunting for moose, caribou and even muskoxen. They are struggling to obtain adequate subsistence resources near their village due to competition with non-local hunters. Discussions with Wales, Brevig Mission and Teller are ongoing. From these discussions and internal scoping, the NPS has identified several issues.

1.3.1 Issues Selected for Detailed Analysis

Subsistence

Subsistence activities by local rural residents are an important allowable uses of BELA, and guided sport hunting could compete for resources needed by local rural residents for subsistence.

Local Employment

The issuance of guided hunting concessions could provide employment and business opportunities for a few Alaska residents including local people. Some community residents would like to have an opportunity to guide hunters in the Preserve. Others may be concerned that guided sport hunting could conflict with reindeer herding.

Wildlife Populations

BELA is managed to protect habitat for, and healthy populations of wildlife and to provide for subsistence and sport hunting. Populations and distributions of caribou, moose, brown bears, and muskoxen as a result of potential guided sport hunting are an issue.

Recreation Uses

Recreation uses such as hunting without guides, fishing, hiking, and enjoyment of hot springs, could be affected by guided hunting in BELA. Conversely, non-resident hunters are required to have guides for certain species in Alaska, such as brown bear, and their recreational opportunity could be adversely affected by resident sport hunters without guides.

Cultural Resources

Guide camps and use areas could adversely affect sensitive cultural resource sites in BELA, such as archeological and historical sites, cemeteries, and historical sites.

1.3.2 Issues Dismissed From Detailed Analysis

Wetlands Protection

Wetlands would not be affected from this project because no facilities or improvements would be authorized within the Preserve.

Floodplain Management

Floodplains would not be affected by guided sport hunting operations because no facilities or improvements would be authorized within the Preserve.

Threatened and Endangered Species

Guided sport hunting would only be allowed for species that could sustain hunting pressures. Threatened and endangered species in the area such as polar bears and spectacled and Steller's Eiders would not be hunted or adversely affected. Appendix A contains correspondence from the U.S Fish and Wildlife Service (FWS) concurring with this statement.

Wilderness

Though none of BELA is designated wilderness, most of it is eligible for wilderness designation (NPS 1988). Nevertheless, notwithstanding any other Act or section of ANILCA, Section 1110(a) of the Act allows the use of airplanes, snowmobiles, and motorboats in conservation system units established by the Act. The BELA GMP (pages 107-108) indicates no temporary

facilities other than tents have been used on Preserve lands and are not needed in the future, therefore, no long-term facilities or structures would be authorized within the Preserve for guided sport hunting.

Socially or Economically Disadvantaged Populations

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” requires federal agencies to incorporate environmental justice into their missions by identifying and addressing high and adverse human health or environmental effects in their programs and policies on minorities and low-income populations and communities. None of the actions in any of the alternatives would result in adverse impacts on any minority or low-income population or community.

Climate Change

Secretarial Order 3226 directs federal agencies to ensure that climate change impacts are considered in connection with departmental planning and decision making. The 2006 NPS Management Policies direct the operation and management of facilities, vehicles, and equipment in a manner to minimize the consumption of energy, water, and nonrenewable fuels. The implementation of guided hunting in the Preserve would not be expected to affect climate change; therefore this topic was dismissed from further analysis in this Environmental Assessment.

2.0 ALTERNATIVES

2.1 Introduction

This chapter describes a reasonable range of alternatives, which include the no action alternative and action alternatives with variations in the distribution of guide use areas and the species authorized to be hunted. Identification of the maximum number of authorized guides and the range of total number of clients per guide or guide use area are suggested in the action alternatives and may be adjusted annually by the Superintendent depending on wildlife populations and their distributions.

The NPS held meetings on this and other issues in Shishmaref, with Deering over the telephone, and in Nome and Kotzebue at various meetings, including Federal Subsistence and Regional Advisory Board meetings for Game Management Units 22 and 23. The alternatives were developed and selected based on comments from communities, the Alaska Department of Fish and Game (ADF&G), area guides, and internal NPS discussions. The alternatives needed to be reasonable in terms of business options and opportunities without producing unacceptable competition for important subsistence resources identified by Preserve-affiliated communities.

2.2 Alternative A – No Hunting Guide Concessions Authorized (No Action)

The No Action Alternative would not authorize new hunting guides' concessions within BELA. Subsistence and sport hunting would continue as in the past. Sport hunting access would continue to be by private parties with their own transportation or with licensed air taxi operators and big game transporters. This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the action alternatives.

2.3 Elements Common to All Action Alternatives

The following elements would be included in concessions under the following action alternatives.

- Guided hunting operations would avoid areas near the Serpentine Hot Springs special management area. This includes establishing guide camps; shooting; and processing game. The Serpentine Hot Springs area has been identified as significant in the Preserve's GMP, Foundation Statement, and ongoing Development Concept Plan for spiritual, recreational, and healing activities. Facilities at Serpentine Hot Springs (landing strip, bathhouse, and bunkhouse, and outhouse) are not to be used by guided hunting parties. The area closed to guided hunting operations would be inside Guide Use Area 22-01 and would vary by alternative as described below.
- Guided hunting parties are not to use safety cabins throughout the Preserve for bases of hunting operations. These shelter cabins are only to be used in case of emergencies (see Figure 2.1 for locations of shelter cabins and other installations in the Preserve).
- Guides would be allowed to guide for all species their clients would be legally able to hunt under current State hunting regulations, except as closed to non-subsistence uses by the Federal Subsistence Board or as further limited in accordance with the Superintendent's annual operating plan for concessions, in consultation with ADFG as needed.

- The Superintendent may adjust client limits and limit uses in an annual operating plan based on pertinent information.

To be eligible to compete for a National Park Service contract to provide commercial big game guide services a guide must meet two State of Alaska requirements: 1) be professionally licensed with the state, and 2) be registered for the State Guide Use Area (GUA) that includes the NPS guide area in which he/she is seeking the contract. Under the current State system a guide can register for up to three guide use areas within the State, but there is no restriction on the number of guides who might apply for a specific area. The State is currently in the process of revising their system so that the number of guides using a specific area could potentially be greatly reduced. For example, the Alaska Department of Fish and Game (ADF&G) stated that the state may limit the number of guides operating in GUA 22-01 to a total of two guides.

2.4 Alternative B – License Up to 3 Hunting Guide Concessions for the Whole Preserve

The NPS would authorize up to three sport hunting guide concessions in the Preserve, who could have operations overlapping in areas pursuant to current State rules in any three of the four applicable Guide Use Areas; 22-01, 22-03, 22-06, and 23-07 (Figure 2.2). Hunting guide concessions would be limited to an average of 10 clients per year and no more than 14 clients in any one year with a maximum of 100 clients over the 10-year contract period. If three guides are authorized, this alternative could result in a maximum of up to 300 clients in 10 years. To minimize adverse effects to local subsistence communities, guide operations may be excluded from important subsistence use areas near local rural communities based on the ANILCA 810 findings (Appendix B). A four-mile radius of area of about 50.25 square miles (~32,150 acres) around the Serpentine Hot Springs bathhouse would be closed to guided hunting operations as described above in Section 2.3 (Figure 2.3). This alternative provides guided hunting concessions to share large portions of nearly 2.5 million acres and flexibility to pursue a variety of big game species to make a reasonable business venture.

2.5 Alternative C – License Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve (NPS Preferred Alternative)

The NPS would authorize up to three sport hunting guide concessions for separate guide areas in the Preserve (Figure 2.4). One guide concession would be assigned to any one GUA. An example might be: one guided hunting concession would be assigned to GUA 22-01, which covers the western half of the Preserve; the other two concession would be limited to the eastern half of the Preserve or GUAs 23-07, 22-03, and 22-06. Client limits would be set at 10 clients per year for GUA 22-01 and a total of 10 clients per year for the remaining GUAs (22-03, 22-06 and 23-07), with the number of clients in each of these three remaining GUAs set by the superintendent in each operating year plan. This example could result in a maximum of up to 200 clients in 10 years. An example of three NPS Guide Areas might be one NPS Guide Area covering the north western portion of the Preserve or GUA 22-01; a second NPS Guide Area might cover the southwestern portion of the preserve and include GUA 22-03; and a third NPS Guide Area might cover the eastern portion of the Preserve and include GUAs 23-07 and 22-06. Due to limits placed on the various Guide Areas (due to size and available wildlife populations), this would still result in a maximum of 200 clients over the 10-year contract life.

As in Alternative B, guide operations may be excluded from important subsistence use areas near local rural communities based on the ANILCA 810 findings (Appendix B). An area of about 44

square miles (28,150 acres) around the Serpentine Hot Springs bathhouse encompassing the upper reaches of Hot Springs Creek and Reindeer Creek watersheds would be closed to guided hunting operations as described above in Section 2.3 (Figure 2.5). This alternative provides space for each guided hunting concession without competition from other guides.

2.6 Environmentally Preferable Alternative

The No Action alternative would result in the least adverse impacts to the biological and physical resources of the Preserve, but economic opportunity for businesses and residents would be slightly limited. Nevertheless, the environmentally preferable alternative would be the no-action alternative.

2.7 Description of Alternatives and Actions Considered But Eliminated from Detailed Study

One alternative suggested issuance of a concession license for each of the four primary GUAs in BELA. Some of the GUAs are too small to be of serious consideration for individual hunting guide concessions. For this reason this alternative was eliminated from further detailed study.

Alternative B was originally described to allow up to 3 guides to share any guide use areas in the Preserve, but the Alaska Department of Fish and Game informed the NPS that the State is considering limiting guide access to two in any one GUA, based on wildlife populations in those areas. The NPS decided to change this alternative to meet potential State conditions in the future to avoid having to alter concession contracts in the middle of a 10-year contract period.

Another alternative included guided hunting concessions and eliminated commercial use authorizations for air taxi operations and big game transporters in the Preserve. This would eliminate additional competition with subsistence hunters from non-local hunters gaining access to the Preserve by hired airplane operators. This alternative removes hunting opportunities for nonlocal Alaska residents who cannot afford guides, and the low level of sport hunting known to occur in the guide use areas now is not yet a major issue. For this reason this alternative was dismissed from further consideration in this analysis.

2.8 Summary of Alternatives and Impacts

Table 2.1. Summary of Alternatives

	Description	Attributes
Alternative A – No Hunting Guide Concessions Authorized (No Action)	The No Action Alternative would <u>not authorize</u> new hunting guides’ concessions within BELA. Subsistence and sport hunting would continue as in the past. Sport hunting access would continue to be by private parties with their own transportation or with licensed air taxi operators and big game transporters.	Subsistence and sport hunting would continue as in the past. Sport hunting access would continue to be by private parties with their own transportation or with licensed air taxi operators and big game transporters.
Alternative B – Award Up to 3 Hunting Guide Concessions for the Whole Preserve	The NPS would authorize <u>up to 3</u> sport hunting guide concessions in the Preserve, who could have operations overlapping in Guide Use Areas; 22-01, 22-03, 22-06, and 23-07.	Each hunting guide concession would be limited to an average of 10 clients per year and no more than 14 clients in any one year with a maximum of 100 to 300 ^a clients over the 10-year contract period. A four-mile radius of area of about 50.25 mi ² (32,150 acres) around the Serpentine Hot Springs bathhouse would be closed to guided hunting operations.
Alternative C – <i>NPS Preferred</i> Award Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve	The NPS would authorize <u>up to 3</u> sport hunting guide concessions for separate guide areas in the Preserve.	Client limits would be set at 10 clients per year for GUA 22-01 and a total of 10 clients per year for the remaining GUAs (22-03, 22-06 and 23-07). This could result in a maximum of up to 200 ^b clients in 10 years. An area of about 44 mi ² (28,150 acres) around the Serpentine Hot Springs bathhouse encompassing the upper reaches of Hot Springs Creek and Reindeer Creek watersheds would be closed to guided hunting operations.

a) Depends on whether 1, 2 or 3 guides are authorized.

b) Regardless of whether 1, 2, or 3 guides are authorized because the number of clients are assigned to an area, not the number of guides.

Table 2.2. Summary of Alternative Impacts

Alternative A – No Action	Alternative B – Guides in BELA with Overlapping Guiding Units	Alternative C – Guides in BELA with Separate Guiding Units (<i>NPS Preferred</i>)
Local Employment		
Alternative A would have <i>no effect</i> on project area job opportunities.	Alternative B would have a <i>negligible</i> direct and indirect impact, and negligible contribution to cumulative effects on job opportunities for the region. The effect would be perceptible, therefore of <i>low intensity</i> ; potentially <i>long-term</i> , and an <i>important</i> (rare) resource consideration in the region.	Alternative C would have a <i>negligible</i> impact, and negligible contribution to cumulative effects on job opportunities for the region. The effect would be perceptible, therefore of <i>low intensity</i> ; potentially <i>long-term</i> , and an <i>important</i> (rare) resource consideration in the region.
Recreation Use		
Alternative A would have <i>no effect</i> on recreation uses.	Implementation of Alternative B would have a <i>moderate</i> effect on recreation uses because of the observable introduction of up to 30 hunters annually in a previously sparsely used area, and because recreation uses are an important function of the Preserve. There would be a negligible contribution to cumulative effects to recreation uses, and no cumulative effects were identified. Effects would be <i>long-term</i> , <i>medium intensity</i> , and <i>affect an important resource</i> .	Implementation of Alternative C would have a <i>moderate</i> effect on recreation uses because of the observable introduction of up to 30 hunters annually in a previously sparsely used area, and because recreation uses are an important function of the Preserve. There would be a negligible contribution to cumulative effects to recreation uses, and no cumulative effects were identified. Effects would be <i>long-term</i> , <i>medium intensity</i> , and <i>affect an important resource</i> .
Cultural Resources		
Alternative A would have <i>no effect</i> on cultural resources.	The overall effect to cultural resources, both in traditional uses of the area and in the potential for disturbance to archeological and historical resources would be <i>moderate</i> because of the uniqueness of the resource within the Preserve. Alternative B would add <i>negligible</i> cumulative effects. Effects would be <i>low intensity</i> , <i>long-term</i> , and affect a <i>unique</i> resource.	The overall effect to cultural resources, both in traditional uses of the area and in the potential for disturbance to archeological and historical resources would be <i>moderate</i> because of the uniqueness of the resource within the Preserve. Alternative C would add <i>negligible</i> cumulative effects. Effects would be <i>low intensity</i> , <i>long-term</i> , and affect a <i>unique</i> resource.
Subsistence		
Alternative A maintains the status quo of subsistence hunting in the Project area, so there is <i>no impact</i> on subsistence resources or uses.	Though Alternative B would have a <i>minor</i> effect for subsistence hunting for muskoxen, brown bears, and caribou; it would have a larger effect on subsistence moose hunters due to competition for moose near Deering. Overall, Alternative B would have <i>moderate</i> direct and indirect effects to subsistence, and a <i>negligible</i> contribution to cumulative effects. Effects would be overall be <i>low intensity</i> , <i>long-term</i> , and affect a <i>common</i> resource.	Alternative C would have a <i>minor</i> effect for subsistence hunting for muskoxen, brown bears, moose, and caribou. Overall, Alternative C would have <i>minor</i> direct and indirect effects to subsistence due to a reduction in potential guides in the same unit, which would minimize conflicts. Alternative C would have a <i>negligible</i> contribution to cumulative effects. Effects would be overall be <i>low intensity</i> , <i>long-term</i> , and affect a <i>common</i> resource.

Alternative A – No Action	Alternative B – Guides in BELA with Overlapping Guiding Units	Alternative C – Guides in BELA with Separate Guiding Units (<i>NPS Preferred</i>)
Wildlife		
Alternative A would maintain the status quo of current sport and subsistence hunting in the Project area, so there would be <i>no impact</i> on wildlife.	The effect of Alternative B on wildlife varies by species. The direct and indirect effects would be <i>minor</i> for muskoxen and caribou, and <i>moderate</i> for moose and brown bears. There would be a <i>negligible</i> contribution to cumulative effects.	The effect of Alternative C on wildlife varies by species. The direct and indirect effects would be <i>minor</i> for muskoxen, and caribou, and <i>moderate</i> for moose and brown bear. There would be a <i>negligible</i> contribution to cumulative effects.

Figure 2.1. Structures and Installations

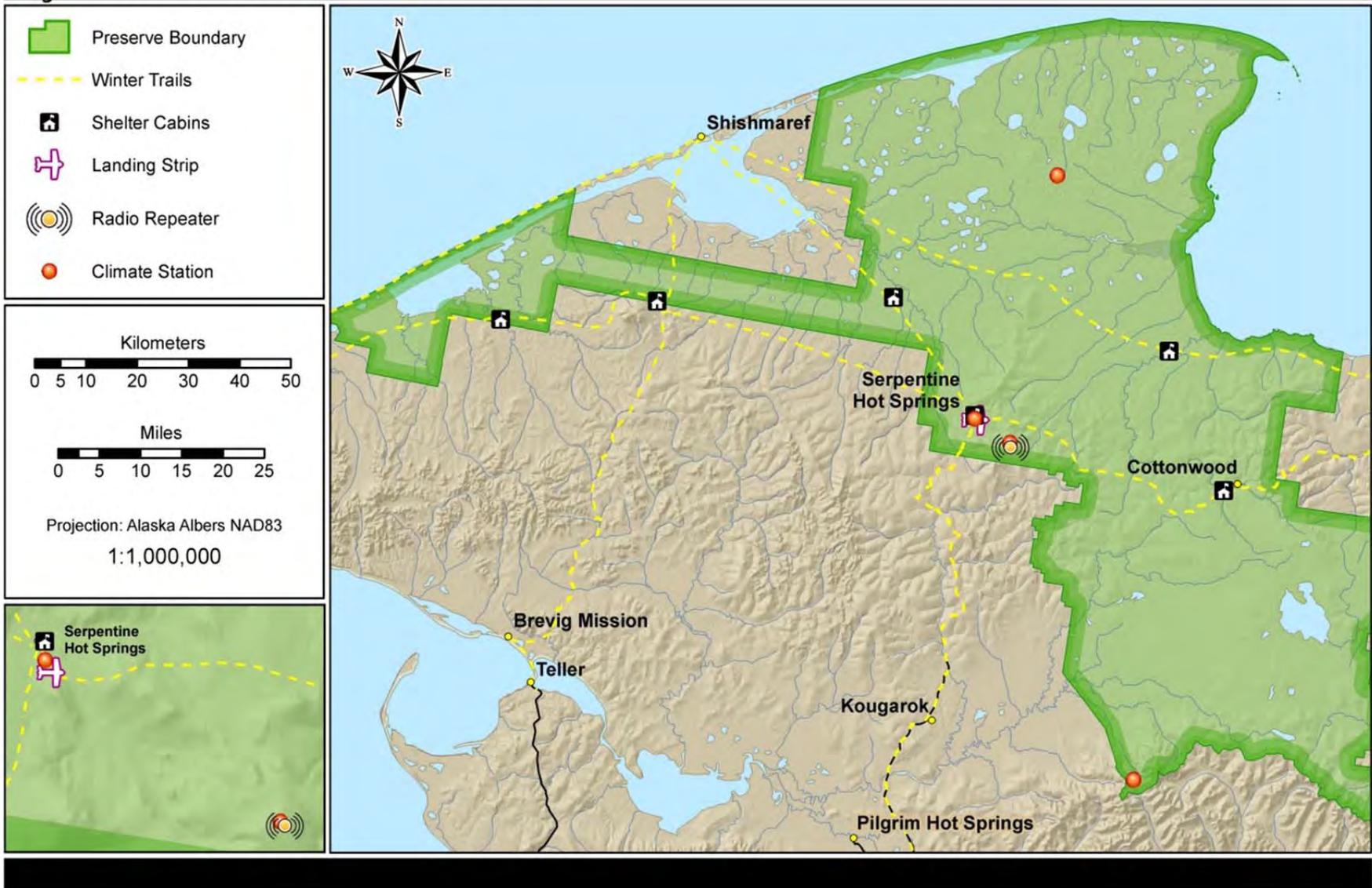


Figure 2.2. Guide Use Areas for All Guides in Alternative B

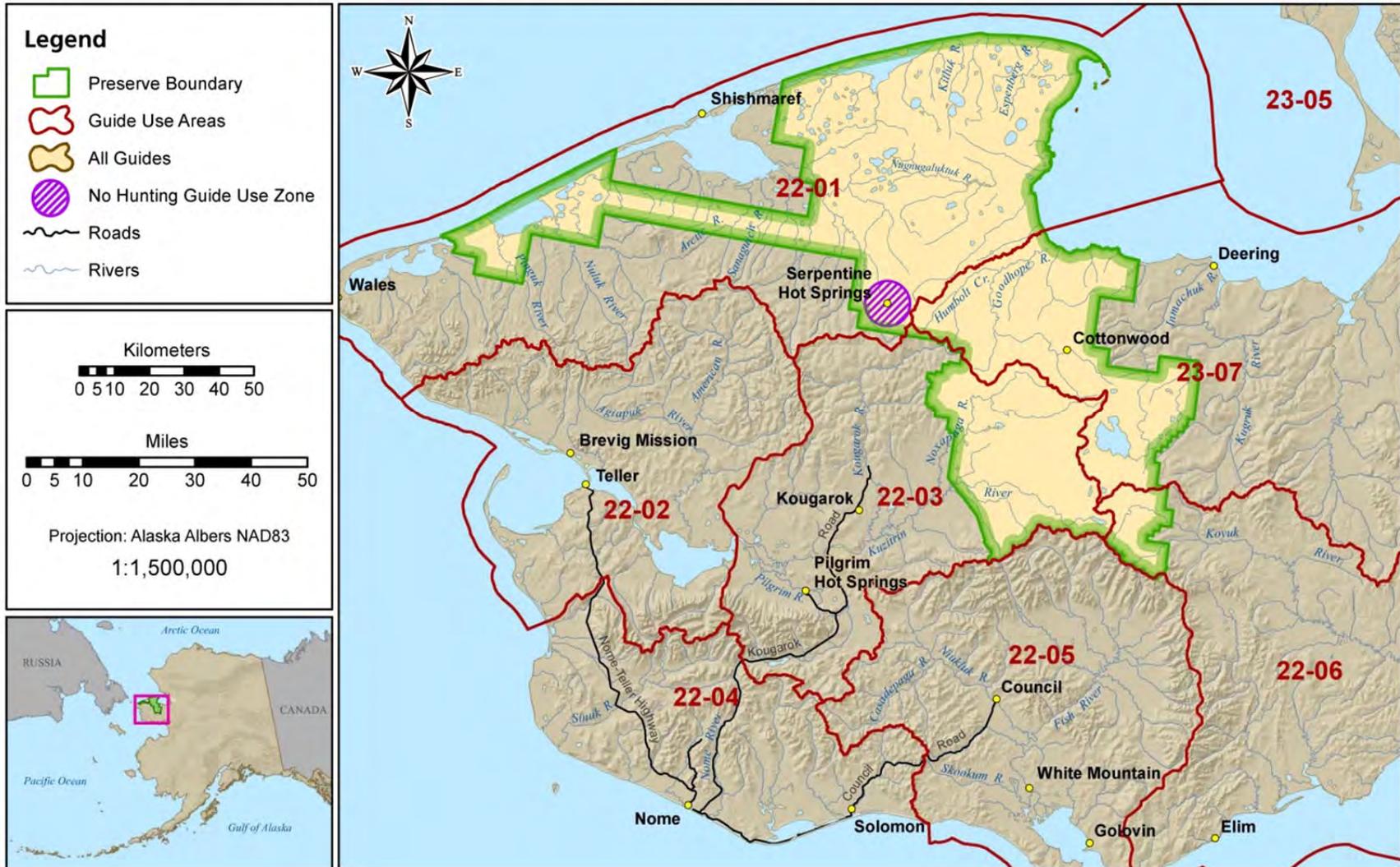


Figure 2.3. No Hunting Guide Use Zone for Alternative B

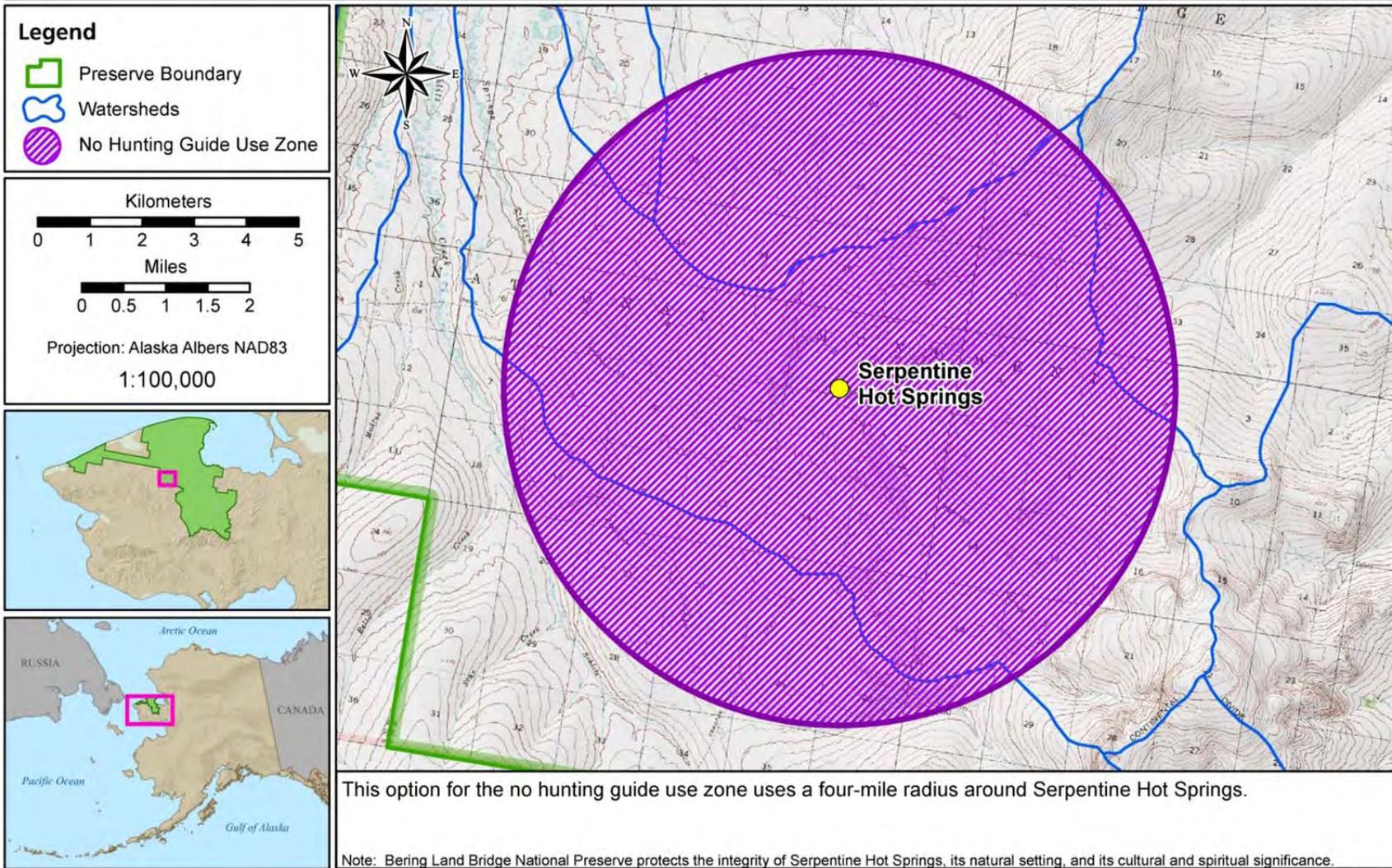
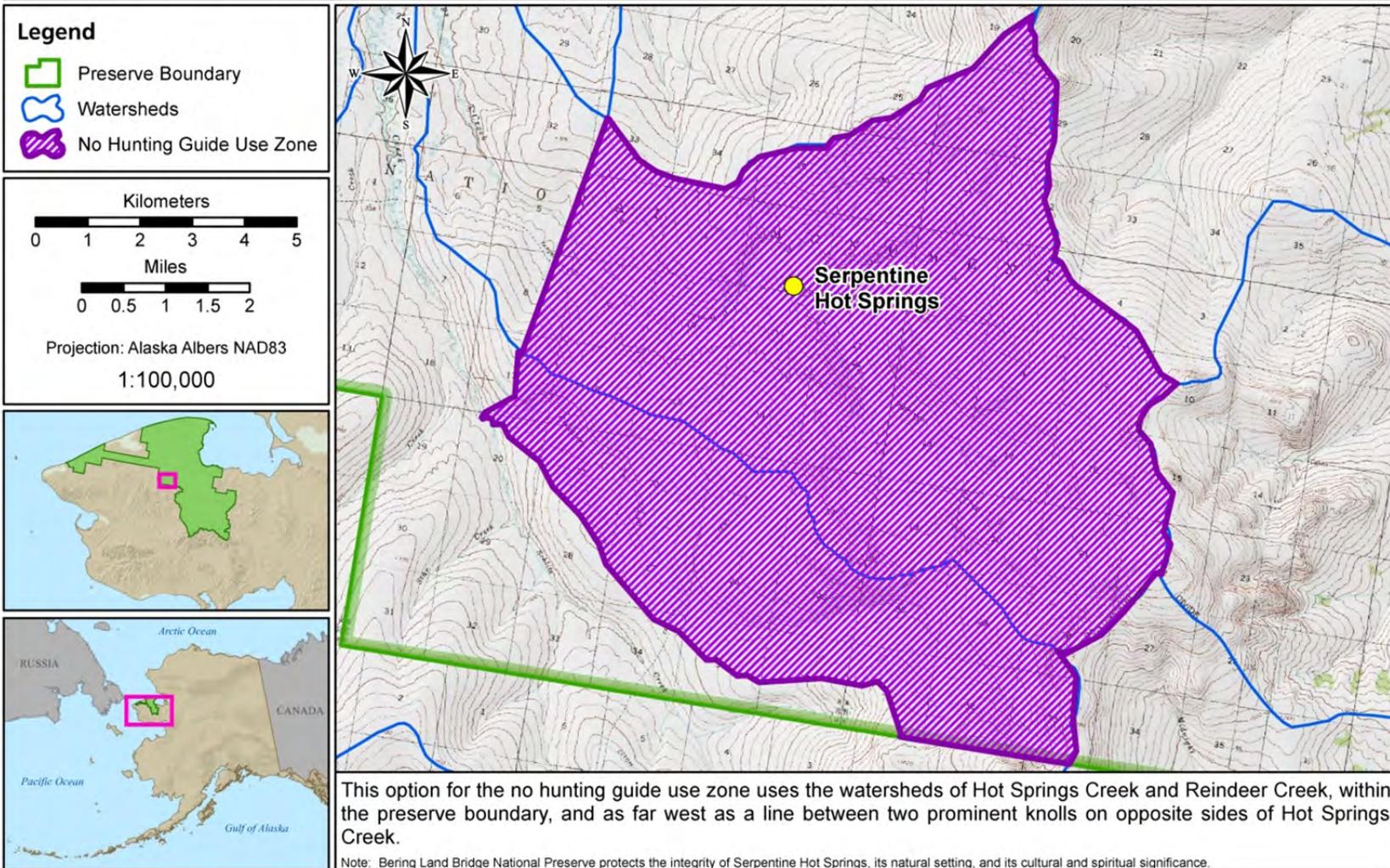


Figure 2.5. No Hunting Guide Use Zone for Alternative C



3.0 AFFECTED ENVIRONMENT

3.1 Project Area

Bering Land Bridge National Preserve (BELA) encompasses approximately one third of the Seward Peninsula, located in Northwest Alaska. The Seward Peninsula is about 150 miles north to south, and about 200 miles west to east, falling between the Arctic and Pacific Oceans, as shown on Figure 1. Terrain varies across the peninsula, ranging from coastal plains, plateaus, and mountains. Land status in the Seward Peninsula is a mosaic of land owned by the state, the federal government, native village corporations, regional native corporations and other private landowners. Subsistence is a primary land use on the Seward Peninsula, including hunting, gathering, and fishing at all times of the year. Historically mining was a significant activity, specifically in the Nome area, and this use continues to be important (NPS 1986). The Peninsula and BELA have also been used for reindeer herding, although it has decreased in recent decades.

The 2.7 million-acre Bering Land Bridge National Preserve encompasses 95,000 acres of non-federal land within the boundaries, as well as 180,000 acres selected by Native groups to fill their land entitlement under the Alaska Native Claims Settlement Act (ANCSA). There are also over 165 native allotments, approved or applied for, in the Preserve (NPS, n.d.). It encompasses a series of relict beach ridges at Cape Espenberg, and Aeolian deposits dating to Pleistocene times on the northern coastal plain. Volcanic areas contain five maar lakes, Devil Mountain, and the Iuruk Lava Plateau. The climate of the Preserve has both maritime and continental influences. Vegetation is treeless tundra, shrub thickets, and grassy meadows (NPS n.d.). BELA is rich in wildlife as well, with caribou, muskoxen, moose, polar bears, bowhead and beluga whales, walrus, and many species of birds (ADF&G 2012a).

The study project area includes communities on the Seward Peninsula that are geographically near BELA. From west to east they include: Wales, Shishmaref, Brevig Mission, Teller, Nome, White Mountain, Deering, Golovin, and Elim. Shishmaref is surrounded by the preserve, and Deering and Wales are near the Preserve boundaries (NPS, n.d.). There are no residents within the Preserve, but residents in nearby villages access it for cultural and subsistence reasons. An area around Serpentine Hot Springs is excluded under the action alternatives, as described in Chapter 2.

Incorporated in 1969, Brevig Mission is located at the mouth of Shelman Creek on Port Clarence, five miles northwest of Teller and 65 miles northwest of Nome. Deering is located on Kotzebue Sound, 57 miles south of Kotzebue. It was established in 1901 as a supply station for nearby gold mining. Elim is located on the northwest shore of the Norton Bay, 96 miles east of Nome. It was formerly the Malemiut Inupiat Eskimo village of Nuviakchak. In 1911 it became a federal reindeer reserve. Golovin is located on a point of land between Golovin Bay and Golovin Lagoon, 70 miles east of Nome. Originally an Eskimo village, it became a supply point when gold was discovered in nearby Council. Reindeer herding was important to the economy in the 1900s. Teller is located on a spit between Port Clarence and Grantley Harbor, 72 miles northwest of Nome. It was established in 1900 after gold was discovered near the area. Wales is located on Cape Prince of Wales, 111 miles northwest of Nome. It was established in 1890 with a Mission, and became a major whaling center and had a reindeer station. White Mountain is located on the bank of the Fish River, near the head of Golovnin Lagoon, 63 miles east of Nome. It was originally an Inupiat fishing village that grew with the discovery of gold near the area. It was the site of a government orphanage, which became an industrial school in 1926 (ADCCED 2011).

Shishmaref is located on Sarichef Island, in the Chukchi Sea, five miles from mainland, and 126 miles north of Nome. It is surrounded by BELA. There is a harbor that became a supply center for gold mining activities in the early 1900s. A storm in 1997 eroded 30 feet of the shore, requiring several buildings to be relocated (ADCCED 2011). In 2002 residents voted to relocate the community, and a move is still being evaluated.

Nome is located along the Bering Sea on the south coast of the Seward Peninsula, 539 miles northwest of Anchorage. A gold discovery in 1898 attracted 20,000 people to the area. The population declined along with the gold deposits, and was also influenced by an influenza epidemic and the Great Depression. A fire in 1934 destroyed most of the city. Today, government services provide the majority of employment. There are also retail services, commercial fishing, and tourist businesses. Nome is the finish line for the 1,100-mile Iditarod Trail Sled Dog Race each March, contributing to the tourism industry (ADCCED 2011).

All of the Seward Peninsula communities participate substantially in subsistence activities, as discussed in Section 3.5.

3.1.1 Access

The Bering Land Bridge National Preserve is vast and access is limited. There are no roads that lead directly into the Preserve. During the summer months access is available by small aircraft, small boat, or on foot. During winter access is primarily snowmachine, aircraft on skis, or dog sleds. No all-terrain vehicles (ATVs or ORVs) are allowed in the Preserve, unless permitted by the Superintendent for the purpose of reindeer herding. Other forms of mechanized transportation such as hot air balloons and motorbikes are also not allowed. Helicopters are not permitted for recreation or hunting, but can be permitted for scientific use.

Small aircraft equipped with floats can land on the many lakes and lagoons within the Preserve during the summer. Those equipped with tundra tires in the summer and skis during the winter months have numerous other access opportunities where the terrain is suitable. Aircraft with traditional landing gear are limited to the dirt 1,100-foot by 60-foot Serpentine Hot Springs strip. Commercial air taxi service into BELA is currently provided by four companies, and big game transporter service by three companies – all of which operate out of Kotzebue, Alaska.

Small boats can be used to access the Preserve along the coast and up the numerous small rivers and streams with navigability dependent upon seasonal stream flows and the type of vessel used. Dispersed camping is permitted anywhere within the Preserve. There has been debate in the past over allowing road access into the Preserve, but road access would be highly contested by several user groups.

Conflicts between local subsistence hunters, nonlocal sport hunters, and commercial operators have intensified at various locations throughout the Seward Peninsula since the Western Arctic Caribou Herd expanded its range onto the Peninsula. The primary factor driving this conflict is the relative few access points into wildlife use areas. However, conflicts between subsistence hunters and nonlocal hunters are not a pressing issue for the Preserve at this time.

3.2 Local Employment

Table 3-1 shows a demographic overview of communities in the project area.

Table 3.1. Overview of Community Demographic Characteristics

	Population^a	Median Family Income	Median Age	Percent Alaska Native	Unemployment Rate
Brevig Mission	388	\$27,500	20.8	94.3%	36.7%
Deering	122	\$42,917	30.0	89.9%	17.1%
Elim	330	\$53,750	23.8	89.7%	30.3%
Golovin	156	\$37,500	25.0	93.0%	19.6%
Nome	3,598	\$77,375	31.6	54.8%	10.2%
Shishmaref	563	\$37,292	22.5	94.9%	17.7%
Teller	229	\$35,000	25.1	96.1%	13.6%
Wales	145	\$42,708	25.4	84.8%	42.9%
White Mountain	190	\$28,125	27.2	81.6%	31.1%

Source: Alaska Department of Commerce, Community and Economic Development, Community Database Online, http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.htm a) U.S. Census, 2010

Opportunities for cash employment outside of Nome are very limited; full-time employment is sometimes available with the city, school districts, tribal government, and Native Corporations. Some residents participate in commercial fishing or small private commercial enterprises. The sale of arts and crafts augments cash income for some residents.

Nome is the transportation and economic hub for the Seward Peninsula region. Jet service to Nome is provided by Alaska Airlines, and air taxis transport residents and visitors to the smaller towns in the area. Nome has developed visitor amenities, such as lodging, restaurants, and retail establishments. As shown in Table 3.1, Nome has the highest median family income and the lowest unemployment rate (Alaska Department of Commerce, Community and Economic Development [ADCCED] 2011).

3.2.1 Reindeer Herding

Reindeer (*Rangifer tarandus*) [same species as caribou] have been present on the Seward Peninsula since introduced in 1891 by the federal government to provide a red meat source for local residents, following the crash of caribou populations. The reindeer population fluctuated greatly since their introduction. In the 1930s, reported numbers exceeded 600,000.

Section 201(2) of ANILCA allows reindeer grazing to occur within the Bering Land Bridge National Preserve, (subject to reasonable regulations) including necessary facilities, management actions and equipment to carry out sound reindeer husbandry operations. Reindeer husbandry includes herding, protection from predators, corralling (or handling), antler removal, slaughtering, preparation, and transporting to market. According to the 1937 Reindeer Act, only Natives can own and herd reindeer in Alaska.

Reindeer Herders that have traditionally operated within or adjacent to Bering Land Bridge National Preserve include the Goodhope herd (Shishmaref), Karmun herd (Deering), NANA Regional Corporation or Sheldon herd (Kotzebue), Ongtawasruk herd (Wales), Tocktoo herd (Brevig Mission) and Weyiouanna herd (Shishmaref) (NPS 1986).

As the Western Arctic Caribou Herd population has grown since the early 1980s and expanded their winter range onto the Seward Peninsula, conflicts between caribou and reindeer herds have had drastic effects on the viability of reindeer herding operations. Each winter Seward Peninsula reindeer herders have experienced large losses of reindeer that move off with the migrating caribou herd. Most of the reindeer herds on the eastern portion of the Seward Peninsula have been totally lost to the Western Arctic Caribou Herd. As of the summer of 2009, within the Bering Land Bridge National Preserve, only the Ongtowsruk operation (Wales) had a commercially viable herd. A few other reindeer herds on the southwest part of the Seward Peninsula also remain, as well as some small herds numbering from several dozen to several hundred deer also occur near Koyuk, White Mountain, Brevig Mission, and the Imuruk Basin (Gorn 2010). Although currently without reindeer, several of the former herders have expressed a desire to maintain their grazing permits with NPS, the Bureau of Land Management (BLM) and the State of Alaska, with anticipation that at some future date reindeer herding could once again be viable, should the caribou herd population experience another decline.

3.3 Recreation Uses

Recreation and tourism occur at relatively low levels in BELA because of the remote and relatively inaccessible location. The majority of fishing, hunting, and boating activities that occur in the project area are subsistence-based, which is not a recreational use. The Preserve offers opportunities for backcountry hiking and camping, backpacking, exploration, nature observation, photography, sport hunting, fishing, and coastal boating. The most common types of recreation within BELA are sport hunting, hiking, bird watching, and visiting the Serpentine Hot Springs area. Other significant locations in BELA include the Kuzitrin and Imuruk Lakes, and the Lost Jim Lava Flow. Table 3.2 shows visitation estimates for BELA from 1998 through 2010.

Table 3.2. Visitor Estimates for Bering Land Bridge National Preserve 1998-2010

	BELA Recreation^a Visits Winter	BELA Recreation Visits Summer	Back-country Winter	Back-country Summer	Total Overnight Stays
1998	1,540	2,200	-	-	-
1999	1,300	1,700	-	-	-
2000	1,325	1,700	-	-	-
2001	2,105	1,420	-	-	-
2002	1,475	1,300	-	-	-
2003	1,350	1,075	-	-	-
2004	1,550	1,160	-	-	-
2005 ^b	1,270	1,158	-	-	-
2006	506	759	270	162	1,732
2007	360	436	146	137	925
2008	641	378	276	99	1,533
2009	488	566	361	495	1,986
2010	1,900	742	815	308	1,483
Average	1,216	1,123	374	240	1,532

Source: National Park Service Public Use Statistics Office 2011 <http://www.nature.nps.gov/stats/park.cfm?parkid=103>

a) Recreation visit is defined as “the entry of a person onto lands or water, administered by the NPS for recreational purposes, excluding government personnel, through-traffic (commuters), trades persons, and a person residing within park boundaries”.

b) Backcountry visits started to be recorded at the end of 2005.

According to NPS logbooks dating from 1982, visitors to Serpentine Hot Springs come from across the state and country, but in general, winter and spring visitors originate from the community of Shishmaref. This includes families that pull sleds with children and hunting parties resting after a successful hunt. In the summer, visitors use personal aircraft and chartered air taxi services to access the Preserve, while winter and spring visitors arrive by snowmachine. Structures at the springs include a bathhouse and a shelter cabin. Serpentine Hot Springs tends to attract repeat visitors, many of whom stop signing the logbooks over time. Table 3.3 shows the number of visitors recorded at the Serpentine Hot Springs bunkhouse for one year, and their method of travel. Data was supplemented with counters along trails, at the airstrip, and at the bunkhouse (URS 2011).

Table 3.3. Serpentine Hot Springs Visitor Estimates by NPS Nome Office, 2010

	Snowmobiles ^a	Trail or Plane Use ^b	Overnights ^c	Month	Total Visits
Jan	44 ^f	0	115	145	260
Feb	27	0	70	30	100
Mar	44	0	174	74	248
Apr	70	0	102	44	146
May	98	0	52	22	74
Jun	0	68 ^b	56	24	80
Jul ^d	0	136 ^e	174	264	438 ^d
Aug	0	136 ^e	78	78	156
Sep	0	136 ^e	158	108	266
Oct	7	68 ^b	166	10	176
Nov	44 ^f	0	2	103	145
Dec	27	0	47	9	56
TOTAL	361	544	1,234	911	2,145

a) Counter is located along the trail.

b) Counter is located along the airstrip. Plane access is from mid-June through mid-October

c) Estimated using a counter on the door of the bunkhouse and estimating the number of door uses per person per day.

d) This month's visitor numbers are high because a crew of 15 archeologists stayed for 18 days totaling 270 of this month's 438 visits.

e) Summer plane access to Serpentine Hot Springs is estimated to be fairly consistent.

f) Winter use in January and November are estimated to be higher than Dec and Feb.

Source: URS 2011

Among recreation uses in BELA, sport hunting is one of the most important. Some non-resident sport hunters access BELA by air via the Nome Airport, and then to Shishmaref Airport where they continue by snowmachine or boat. Others are transported by small plane directly to the Preserve. Sport Hunting is described in Section 3.6.

3.4 Cultural Resources

In 1980, ANILCA designated Bering Land Bridge National Monument as Bering Land Bridge National Preserve. As the name of the preserve indicates, a major focus of this unit is the Bering Land Bridge between Asia and North America (NPS n.d.). One of the purposes of the unit is to preserve "archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent". In addition, the BELA GMP (1986) states, "the Seward Peninsula is especially important for archeological and paleontological studies because its record of the past was not disturbed by the great ice ages".

Archeological research in the region, dating from the mid twentieth century into the present day, reveals a rich history of occupation in both coastal and inland areas ranging from as early as 12,000 years (prehistoric) to the historic period. Prehistoric and historic sites recorded within the Preserve in the Trail Creek Caves (more than 10,000 years old) and the Fairhaven ditch (historic period). The Trail Creek caves site is one of the oldest known sites in Alaska (Larsen 1968 as cited in NPS 1986). Initial excavation of the archeological site near the Trail Creek Caves

springs in 2009 revealed use of the area at least 3,500 years ago, and stone tools and animal bones dating back possibly 12,000 years (NPS 1986; Goebel 2009).

Sites in the Cape Espenberg area are representative of a wide range of time periods including Arctic Small Tool tradition, Choris (3,170-2,500 years BP), Choris/Norton transitional (1,850-2,500 years BP), Norton/Ipiutak (2,500 – 2,000 years BP), and Western Thule. Over 11,000 acres of land in the Cape Espenberg area has been recommended for nomination to the National Register of Historic Places for its outstanding archeological record (GUA 22-01). The Cape Espenberg area was selected as an ANCSA 14(h)(1) by NANA Regional Corporation. There are numerous Native Allotments along the Cape Espenberg coastal area.

A number of float plane accessible areas in the Preserve contain sensitive cultural resources, several of which had been identified by Alaska Native Regional Corporations through the ANCSA 14(h)(1) process. Examples include Killeak and Devil’s Mountain maar lakes (GUA 22-01), Imuruk Lakes (GUA 23-07), and lava beds and associated area lakes (GUA 22-03). Native Allotments also exist within some of these prime access areas. Sites and areas of significance to local Inupiat have been identified through toponym and ethnographic research conducted by Kathryn Koutsky, Susan W. Fair, Dorothy Jean Ray, the BIA, among others. Many such sites have been identified, particularly along the coastal areas of the preserve (GUA 22-01 and 23-07), and include a number of graves and sensitive sites.

Serpentine Hot Springs remains one of the most important cultural sites in BELA. The springs have long been used by the Inupiat people of the Seward Peninsula for spiritual and medicinal purposes which continue today. The hot springs were known for where the most powerful shaman spirits lived, and the Serpentine River valley has been used traditionally by shamans to train in northwest Alaska (NPS 1986). The springs were also associated with a small settlement for gold mining in 1901 that included a cabin and bathhouse, since replaced. In present times, the site has a cabin, a bathhouse, and an airstrip. Most improvements were made by the Park Service and the villagers of Shishmaref, who continue to use the site for historical and spiritual purposes. The Park Service manages the springs, but recognizes its value to the modern Inupiat people, consulting frequently about management decisions (NPS 2003).

3.5 Subsistence

In Alaska, the term “subsistence” refers to the traditional way of life through which people secure a significant portion of their food through hunting, gathering, trapping and fishing. Subsistence practices generally focus on harvesting several species of fish, land mammals, marine mammals, birds, and vegetation throughout the year in a regular cycle, timed for availability, access, and resource quality. While serving as a vital source of food, the subsistence livelihood is also essential to maintaining the social organizations and traditional beliefs and culture of a community – with harvest techniques, cooperative labor, and sharing practices serving as unifying elements. Thus, subsistence activities are the central connection for local communities with the land and resources provided by that land.

In addition to establishing BELA, ANILCA recognized the importance of subsistence activities when it mandated under Section 201(2) that the Preserve be managed “to protect the viability of subsistence resources.” In addition, ANILCA Section 203 opened BELA, and all NPS lands, to hunting and subsistence uses by local residents and Section 811(a) under Title VIII established that “rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on public lands.” To ensure the long-term viability of and access to subsistence

resources, the NPS has stated in the BELA Foundation Statement that a purpose of the Preserve is to “protect natural resources and native habitats that provide the opportunity for local rural Alaska residents to engage in customary and traditional subsistence uses” (NPS 2009).

Communities on the Seward Peninsula known to use BELA for subsistence uses include Deering, Brevig Mission, Nome, Shishmaref, and Wales. Each of these communities can be characterized by active participation in subsistence hunting, trapping, and fishing on federal and state lands in the Bering Land Bridge National Preserve area. The BLM developed an overview of the regional subsistence harvest practices in the Kobuk-Seward Peninsula Approved RMP (BLM, 2008). An overview of subsistence hunting regulations is shown in Section 3.6.

3.5.1 Subsistence Harvests by Community

The following sections summarize subsistence harvest resource use patterns for the communities surrounding BELA. The data presented was gathered from unified federal and state databases and is reported by community harvest level, not by the geographic area in which the resources were taken. While comprehensive baseline subsistence data exist for many of the communities within the affected area, this information can be up to twenty years old and harvest levels of certain species (e.g., caribou) have likely changed. However, subsistence use patterns tend to be traditional and follow similar patterns from year to year. In addition, Kawerak, Inc. and the Alaska Department of Fish and Game conducted a comprehensive subsistence harvest survey for the Bering Strait/Norton Sound project area in 2005-2006; as a result, some communities surrounding BELA have more recent subsistence harvest data.

Subsistence Production Surrounding BELA

Wild food harvests for the communities surrounding BELA are significant and provide a large portion of total dietary needs for members. Harvest levels in pounds usable weight per person ranged from 744.1 pounds in Wales to 579.4 pounds in Brevig Mission (Table 3.4). Subsistence harvests at these levels constitute about 60 to 70 percent of the communities’ dietary energy requirements as well as four times the dietary protein requirement (Wolfe 2000). The contribution of individual species groups to total subsistence harvest in pounds varies between each community depending upon resource availability.

The species composition in percentage of wild resource harvests by communities that harvest subsistence resources in the project area are shown in Table 3.4. All communities within the project area have high marine mammal harvest levels, ranging from 78 percent in Wales to 32.9 percent in Deering. Salmon resources also constitute a high proportion of per capita harvest levels, making up 27.4 percent of harvest for Deering, 20.4 percent for Brevig Mission, 11.7 percent for Shishmaref, and 10.5 percent for Wales. Land mammals also make up a large portion of subsistence harvest resources, composing of 28.2 percent of per capita harvest for Deering, 19 percent for Shishmaref, 4.4 percent for Brevig Mission, and 3.4 percent for Wales. Broadly speaking, communities within the project area tend to rely heavily on marine mammal resources and to a lesser degree on salmon and land mammals.

As indicated in Table 3.4, the communities of Shishmaref, Wales, and to a lesser extent Brevig Mission were particularly reliant on marine mammal resources. Of these communities, Shishmaref focused a larger proportion of additional harvest efforts on large land mammals while Brevig Mission and Wales dedicated a large portion of additional harvest efforts on salmon resources. In contrast, the community of Deering indicated a more diversified allocation of

subsistence harvest efforts, dividing effort between marine mammals, land mammals, and salmon. These groupings highlight differences in resource availability between the communities surrounding BELA, the variety of food resources available within the project area, and the many alternatives offered in subsistence patterns (Ray 1993, cited in BLM 2008).

Additional community harvest data was reviewed for the communities of Shishmaref, Wales, and Brevig Mission from the North Pacific Research Board (NPRB) in the Bering Strait Region Local and Traditional Knowledge Pilot Project (Ahmasuk et al. 2008). The Bureau of Land Management BLM also developed an overview of the regional subsistence harvest practices in the Kobuk-Seward Peninsula RMP (BLM 2008).

Table 3.4. Species Composition in Percentage of Wild Resource Harvests by Community

Community and Year	Salmon	Other Fish	Shellfish	Land Mammals	Marine Mammals	Birds	Plants	Total	Pounds Harvested Per Capita
Wales 1993	10.5%	2.8%	3.1%	3.4%	78.0%	1.5%	0.6%	100%	744.1
Shishmaref 1995	11.7%	8.2%	0.4%	19.0%	55.7%	3.5%	1.6%	100%	792.9
Deering 1994	27.2%	6.7%	0.1%	28.2%	32.9%	3.5%	1.4%	100%	672.2
Brevig Mission 1989	20.4%	12.0%	0.3%	4.4%	56.4%	3.3%	2.7%	100%	579.4

Source: ADF&G 2012b

Subsistence Use Patterns on the Seward Peninsula

The communities utilizing BELA rely on a wide variety of resources and use traditional harvest strategies focused on the seasons and locations in which particular resources would be available and in prime condition. For each community surrounding BELA, the subsistence resources and seasons differ, particularly in the community’s reliance on marine mammals, salmon, and land mammals. Within the project area, Wales and Shishmaref focus subsistence activities primarily on marine mammals. As a result, a typical seasonal round begins in the fall and early winter, with residents engaging in seal hunting or non-salmon fishing from the ice. In the early spring, as the ice began to break up, people travel to traditional hunting camps to harvest seals and other marine mammals. Given the large amount of food collected, this is probably the most intense resource-harvesting period of the annual round (ADF&G 1985). In the summer months, most people focus their harvest efforts on fishing, hunting birds, and gathering eggs. Federal subsistence hunting is permitted for caribou, moose, muskoxen throughout the fall and early winter (Federal Register 2010). The seasonal round described above, one focused on marine mammal resources and to a lesser degree on large mammals, is shown in Table 3.5, and represents the typical harvest season for the community of Shishmaref. This type of seasonal round table was not available for other communities in the affected area.

Table 3.5. Seasonal Round of Harvesting Activities at Shishmaref

Species	Winter			Spring		Summer			Fall		Winter	
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Seal	■ ■	■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■			■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■
Walrus			■ ■				■ ■ ■ ■	■ ■ ■ ■				
Caribou	■ ■	■ ■	■ ■	■ ■	■ ■			■ ■	■ ■	■ ■	■ ■	■ ■
Moose	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■					■ ■ ■ ■	■ ■ ■ ■	■ ■	■ ■	■ ■
Fur-Bearing Animals	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■						■ ■ ■ ■	■ ■ ■ ■
Wild Fowl	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■			■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Salmon							■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■			
Non-Salmon	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■				■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Berries				■ ■	■ ■	■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■	■ ■	

Source: ADF&G 1985 ■ ■ ■ ■ higher intensity ■ ■ lower intensity

For Deering, marine mammal resources are less abundant, while large mammal and salmon resources are more common. The inherent flexibility of subsistence harvest strategies allows Deering to focus more of the community’s harvest efforts on terrestrial resources. During the spring breakup, residents hunt ringed and bearded seals along the coast, supplemented by eggs and waterfowl collected inland. In early summer, time is spent hunting waterfowl, and in late summer, effort is towards harvesting salmon and whitefish. In the fall, subsistence hunters seek caribou, bears, and moose (Burch 1990, as cited in NPS 2003). Both state and federal subsistence regulations (Alaska GUU 22 and GMU 23SW) allow for caribou, moose, muskox and brown bear hunts starting between July and August and continued on into winter, matching traditional hunting patterns (Federal Register 2010). As winter sets in, residents focus their attention on non-salmon fish species, collecting many from under the ice.

Additional details regarding subsistence harvest and sharing practices for the project area are found in the Kobuk-Seward Peninsula Approved RMP/Environmental Impact Statement (EIS) (BLM 2008).

Subsistence Harvest Use Areas

Subsistence harvest activities on the Seward Peninsula have been defined by long periods of use and familiarity. Over generations, residents of a community develop an intricate body of environmental knowledge regarding weather, vegetation, and terrestrial landscape, as well as the likely distribution and behavior of animals and fish within the area. This information is compiled and shared among generations through traditional stories and traditional place names that allow efficient navigation and communication about this highly valued landscape. The traditional use area for each community fluctuates over time and in intensity of use. Often subsistence use areas data does not exist for a community, both in extent of the subsistence use area or the intensity to

which community members harvest resources from the area. Existing subsistence use area data are presented in Figure 3.1. It is important to note that the lack of data for a community is not an indication of importance.

As indicated in Figure 3.1, communities within the affected area often utilize large portions of BELA to harvest land mammals for subsistence uses. For most communities surrounding BELA, the harvest of land mammals for subsistence purposes requires travel over large distances. Improving technology, such as snowmachines and ATV's, has enabled subsistence users to expand their range and increase their flexibility, when necessary, to pursue migratory resources such as caribou. In the context of this EA, the communities of Shishmaref and Deering are known to utilize large portions of the Preserve to harvest moose and caribou, although the intensity to which these resources have been harvested has only been determined for the region surrounding the community of Deering. As indicated in Figure 3.2, the harvest of large mammals for subsistence purposes occurs primarily in the area surrounding Deering, and to a lesser degree in those areas further from the community, including those areas within BELA.

Residents of Nome are known to utilize portions of BELA to harvest large land mammals for subsistence purposes (see Figure 3.1), in particular those areas adjacent to Serpentine Hot Springs (southeastern 22E and northeastern 22D). While Nome subsistence activities encompass only a small portion of BELA, the community's large population, relative to other communities in the region, has led to increased demand on subsistence resources within those areas of the preserve (Adkisson, 2012).

Figure 3.1. Subsistence Use Areas Large Mammals by Community, Brown Bear, Caribou, Moose, Sheep

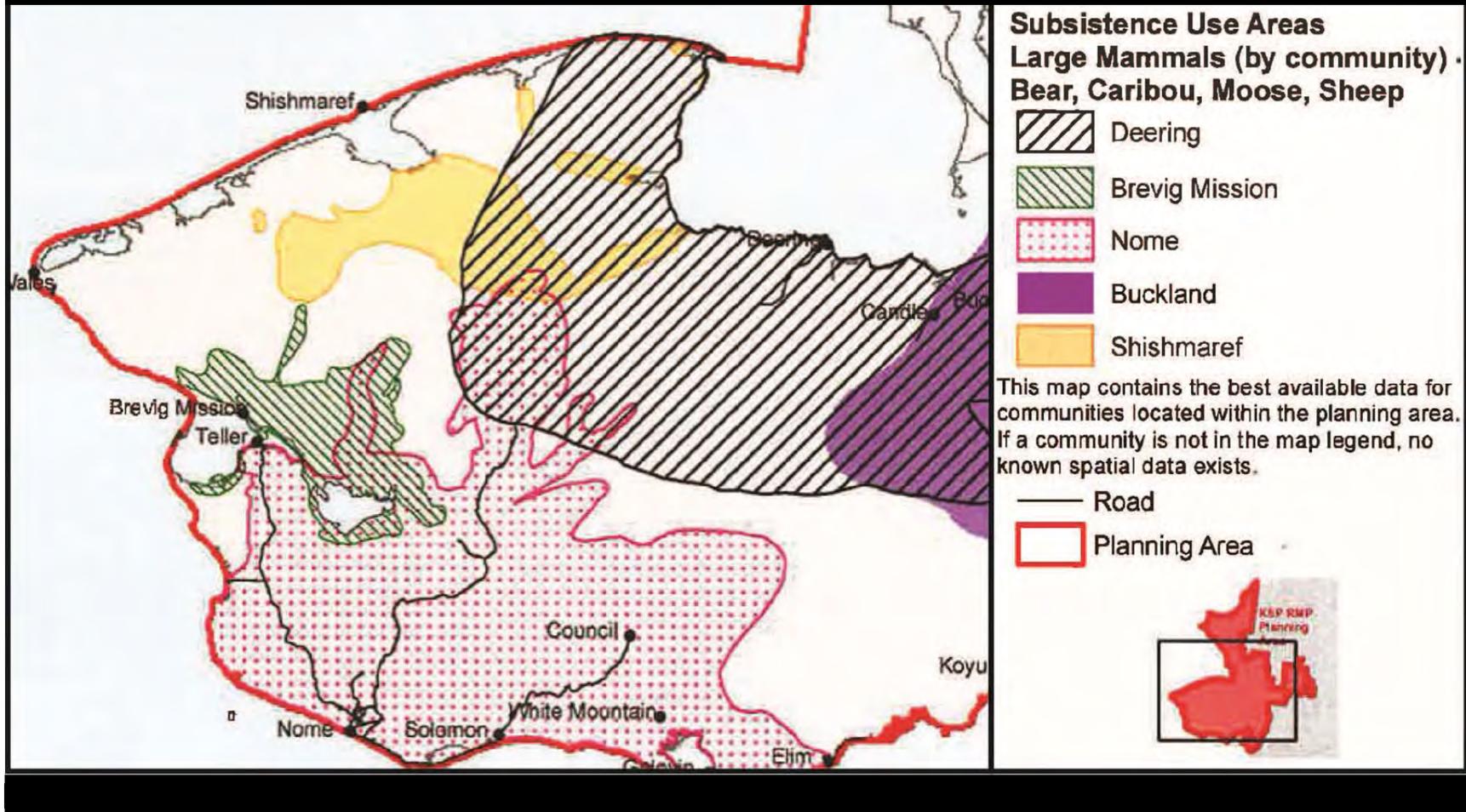
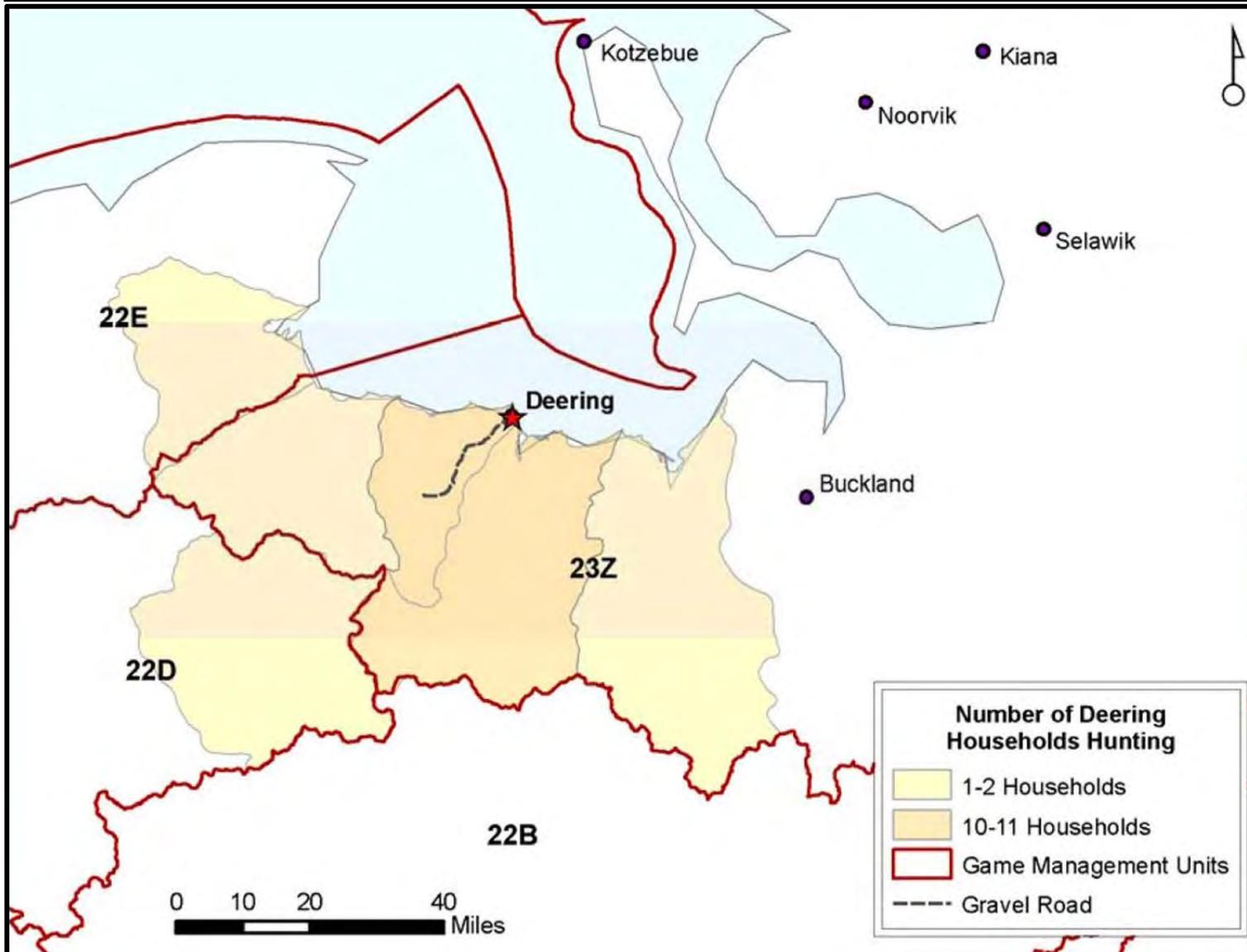


Figure 3.2. Number of Deering Households Hunting



Land Mammal Subsistence Harvest Use Area

Caribou, moose, and muskoxen are actively harvested by nearby residents within the Preserve (BLM 2008). These hunts are a large source of food and traditionally an important cultural event, although this has not always been the case. Moose did not begin migrating onto the Seward Peninsula until the 1950s; Shishmaref hunters recollect that the first moose was taken in 1956 (ADF&G 1985). For residents of Shishmaref, the first moose of the season is viewed as a significant annual event, with the meat from the hunt shared widely with the entire community (ADF&G 1985). Caribou also play an important nutritional, cultural, and economic function for communities on the Seward Peninsula, although this may vary depending upon a community's proximity to the Western Arctic Caribou Herd.

Community of Wales

For the community of Wales, the most recent subsistence harvest data for large land mammals was collected in 2000 and is shown in Table 3.6. It was estimated that during the study year, approximately 7,532 pounds of moose (14 animals) and 2,372 pounds of muskox (four animals) were harvested for subsistence use. After harvest, these subsistence resources were shared among community members, with 61 percent of utilizing moose resources, 50 percent muskox, and 20.5 percent caribou.

Table 3.6. Land Mammal Community Harvest Data for Wales in 2000

Resource	Percent Using	Percent Attempting to Harvest	Percent Harvesting	Percent Giving Away	Percent Receiving	Reported Harvest in Individuals	Pounds Harvested	Pounds Harvested per Household	Pounds Harvested Per Capita
Brown Bear	0	2.3	0	0	2.3	0	0	0	0
Caribou	20.5	2.3	0	6.8	22.7	0	0	0	0
Moose	61.4	40.9	31.8	27.3	47.7	14	7,532	171.2	51.6
Muskox	50	0	0	27.3	47.7	4	2,372	53.9	16.2
Wolf	0	0	0	0	0	0	0	0	0
Wolverine	0	0	2.3	0	0	2	0	0	0

Source: ADF&G 2012b

Community of Shishmaref

For the community of Shishmaref, the most recent subsistence harvest data for large land mammals is from 2000. As shown in Table 3.7, it was estimated that during the study year, approximately 37,128 pounds of caribou (273 animals), 22,596 pounds of moose (42 animals), and 5,930 pounds of muskox (10 animals) were harvested for subsistence use. These resources were shared among the community, with over 85.4 percent of the community using caribou, 77.4 percent using moose resources and 33.6 percent utilizing muskox resources. However, excluding caribou resources, the estimated per capita pounds harvested per person was roughly equal to or less than the community of Wales (Table 3.7).

Table 3.7. Land Mammal Community Harvest Data for Shishmaref in 2000

Resource	Percent Using	Percent Attempting to Harvest	Percent Harvesting	Percent Giving Away	Percent Receiving	Reported Harvest in Individuals	Pounds Harvested	Pounds Harvested per Household	Pounds Harvested Per Capita
Brown Bear	0	4.4	0	0	0	0	0	0	0
Caribou	85.4	33.3	39.4	35.8	68.6	273	37,128	271	72.7
Moose	77.4	57.8	32.8	24.8	67.9	42	22,596	164.9	44.2
Muskox	33.6	0	7.3	8	29.9	10	5,930	43.3	11.6
Wolf	0	0	0	0	0	2	0	0	0
Wolverine	0	0	0	0	0	7	0	0	0

Source: ADF&G 2012b

Community of Deering

For the community of Deering, the most recent subsistence harvest data is shown in Table 3.8. It was estimated that during the study year, approximately 16,184 pounds of caribou (119 animals) and 6,994 pounds of moose (13 animals) were harvested for subsistence use. These resources were shared among the community, with over 78.4 percent of the community using caribou and 78.4 percent using moose resources. However, the community of Deering’s utilization of caribou resources, in terms of estimated per capita pounds harvested per person (130.5 pounds) was greater than other communities in the areas surround BELA. The community of Deering obtains a large portion of their subsistence diet from the harvest of caribou (Table 3.8), utilizing a resource that is more readily available to them.

Table 3.8. Land Mammal Community Harvest Data for Deering in 2008

Resource	Percent Using	Percent Attempting to Harvest	Percent Harvesting	Percent Giving Away	Percent Receiving	Reported Harvest in Individuals	Pounds Harvested	Pounds Harvested per Household	Pounds Harvested Per Capita
Brown Bear	3.2	3.2	3.2	3.2	3.2	2	130	3	0.9
Caribou	87.1	54.8	45.2	54.8	71.0	182	24,743	526	161.6
Moose	9.7	6.5	0	3.2	9.7	0	0	0	0
Muskox	12.9	9.7	3.2	6.5	9.7	2	899	19	5.9
Wolf	9.7	9.7	9.7	3.2	3.2	2	0	0	0
Wolverine	6.5	9.7	6.5	0	0	3	0	0	0

Source: Braem 2011

Community of Brevig Mission

For the community of Brevig Mission, the most recent subsistence harvest data for large land mammals is from 2005. As shown in Table 3.9, it was estimated that during the study year, approximately 5,835 pounds of caribou (38 animals), 3,780 pounds of moose (seven animals), and 1,186 pounds of muskox (two animals) were harvested for subsistence use. These resources were shared among the community, with 16.1 percent of the community using caribou, 9.7 percent using moose resources and 3.2 percent utilizing muskox resources. Utilization of subsistence resources in terms of estimated per capita pounds harvested per person, 17.5 pounds for caribou, 12.8 pounds for moose, and four pounds for muskox are all less than other communities within the area.

Table 3.9. Land Mammal Community Harvest Data for Brevig Mission in 2005

Resource	Percent Using	Percent Attempting to Harvest	Percent Harvesting	Percent Giving Away	Percent Receiving	Reported Harvest in Individuals	Pounds Harvested	Pounds Harvested per Household	Pounds Harvested Per Capita
Brown Bear	0	0	0	0	0	0	0	0	0
Caribou	16.1	14.5	14.5	12.9	8.1	38	5,835	83.3	17.5
Moose	9.7	11.3	9.7	3.2	3.2	7	3,780	60.9	12.8
Muskox	3.2	3.2	3.2	1.6	0	2	1,186	19.1	4
Wolf	8.1	9.7	8.1	0	1.6	8	0	0	0
Wolverine	6.5	9.7	6.5	0	0	4	0	0	0

Source: ADF&G 2012b

3.6 Wildlife Populations

3.6.1 Brown Bear

Brown bears (*Ursus arctos*) are distributed at low density across the Seward Peninsula in a variety of habitats. After emerging from their dens they feed on carrion, moose and caribou calves, reindeer fawns, and vegetation. Berries and fish are important summer and fall diets before winter hibernation. The intense long winters and short summer seasons common to this arctic environment account for brown bears of the Seward Peninsula being somewhat smaller in size than brown bears of lower latitudes within Alaska.

Population Status and Trend

Brown bear populations on the Seward Peninsula were low during the early part of the century, likely due to predator control efforts and an active reindeer herding industry with herders shooting bears on sight (Westing 2009). Anecdotal observations by the public suggest that brown bears may have increased since the early part of the century, but there are no empirically derived abundance estimates to support this assertion or any earlier numbers to compare. Since 1997, state brown bear hunting regulations have been liberalized to increase annual harvests and to reduce the number of bears that the public perceive as a threat to people, property, and the reindeer industry in the area. ADF&G does not have a current population estimate for brown

bears on the Seward Peninsula, but a census was completed in the early 1990s resulting in an estimated population density of one bear per 27 square miles (Hughes 2009). During the past 20 years, the public has been vocally advocating reductions in brown bear numbers because brown bear predation on moose calves is thought to be a significant factor suppressing moose populations in parts of GMU 22 (Gorn 2010).

Harvest Regulations

Current brown bear harvest regulations are shown in Table 3.10.

Table 3.10. Brown Bear Harvest Regulations

Federal Subsistence Regulations	(GUA 22-01, GUA 22-03, GUA 22-06 and GUA 23-07) are “one bear by state registration permit. Aug 1 – May 31. Eligible participants for Unit 22 are limited to rural residents of Unit 22, and eligible participants for Unit 23 are limited to rural residents of Units 21 and 23. The meat must be salvaged for human consumption and sealing requirements only apply if the hide and skull are removed from the subsistence area, as per the conditions of the State permit.
State of Alaska Regulations	(GUA 22-01, GUA 22-03, GUA 22-06 and GUA 23-07) - One brown bear every regulatory year, August 1 – May 31, requiring a drawing permit for nonresidents. The State also administers a subsistence brown bear season for residents only, by registration permit (same seasons and harvest limits). Under the subsistence hunt regulations no tag is required but the harvest must be registered and the meat salvaged for human consumption. The hide and skull do not need to be removed from the field.

Source: Federal Register 2010, ADF&G 2012

Harvest History

According to Hughes (2009) the brown bear harvest on the Seward Peninsula was 63 percent males (108 of 171) during a recent two year reporting period of July 1, 2006 – June 30, 2008. The average annual reported harvest since 1998 has been 92 bears, which is a 70 percent increase over the 1990-97 average annual reported harvest of 54 bears. Higher harvests of brown bears are a result of more liberal harvest regulations coupled with the effort of local residents to reduce brown bear numbers because of the impact they believe bears have had on moose populations. Most of the harvest is by local recreational hunters who are not selective and shoot whatever bear presents itself first. Resident harvest generally exceeds nonresident harvest in Unit 22, except in Unit 22E where local residents show little interest in hunting brown bears (Hughes 2009).

Overall hunter success for brown bears on the Seward Peninsula cannot be determined because unsuccessful resident hunters are not required to report, but success for nonresident hunters during the regulatory years 2006-2007 and 2007-2008 was 50 – 56 percent for Unit 22B and 67 - 100 percent for Units 22D and 22E. Data for hunter success specific to Unit 23SW are not available. However, for the past five years, within the entirety of Unit 23, nonlocal resident hunters have harvested more brown bear than both nonresident hunters and resident hunters from Unit 23 (Westing 2009).

Table 3.11 displays the brown bear reported harvest by subunit from the ADF&G Harvest Lookup dataset on the State’s website (ADF&G 2012c). Although the harvest numbers are not specific to the individual GUAs within the Bering Land Bridge project area, they do provide general information about relative brown bear harvest activities across Unit 22. Table 3.12 displays the summary of the total known brown bear reported harvest across Unit 22, by season, for two recent regulatory years. These data show that both fall and spring brown bear reported harvests occur within Unit 22. In addition, Westing (2009) reported that, within the northern part

of the Seward Peninsula in Unit 23, which contains GMU 23-07, two brown bears were reported harvested in the 2006-2007 regulatory year, and four were reported harvested during the 2007-2008 regulatory year.

Table 3.11. Brown Bear Harvest Data

	GMU 22B			GMU 22D			GMU 22E			GMU 23		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
2007	9	1	10	3	1	4	2	0	2	9	1	10
2008	1	1	2	3	1	4	1	0	1	9	2	11
2009	11	1	12	4	2	6	1	0	1	12	3	15
2010	7	2	9	3	1	4	2	0	2	14	0	14

Source: ADF&G 2012c

Table 3.12. Unit 22 Brown Bear Harvest for Regulatory Years 2006-2007 and 2007-2008

Regulatory Years	Hunter Kill				Non-hunter Kill				Total*			
	M	F	Unknown	Total	M	F	Unknown	Total	M	F	Unknown	Total
2006-2007												
Fall 2006	18	31	0	49	2	0	0	2	20	31	0	51
Spring 2007	35	10	0	45	2	3	0	5	37	13	0	50
Subsistence	0	0	0	0	0	0	0	0	0	0	0	0
Total	53	41	0	94	4	3	0	7	57	44	0	101
2007-2008												
Fall 2007	19	9	0	28	3	4	1	8	22	13	1	36
Spring 2008	36	12	1	49	0	1	0	1	36	13	1	50
Subsistence	0	0	0	0	0	0	0	0	0	0	0	0
Total	55	21	1	77	3	5	1	9	58	26	2	86

*Represents the total known harvest including nonresident permit hunt harvests, DLP and other human-caused accidental mortality.

Source: Hughes 2009

Hunters in Unit 22 reported that snowmachines were the main mode of travel used by hunters that harvested brown bears (34 percent); boats were used for 26 percent of the harvest; and off road vehicles were used for 26 percent of the harvest. Boats and off road vehicles are used most frequently in the fall, while spring hunters most often used snowmachines. Registered guides sometimes used aircraft to move clients in and out of camps (Hughes 2009).

3.6.2 Caribou

Caribou (*Rangifer tarandus*) were present within the area now designated as the Bering Land Bridge Preserve, during the early to mid-1800s, but the population declined in the 1860s, with very few caribou left anywhere on the Seward Peninsula by 1880 (Stern 1980 cited in NPS 1986; Skoog 1968). The Western Arctic Caribou Herd population has since rebounded, and since the 1990s, has extended their winter range onto the Seward Peninsula, resulting in competition with reindeer herds that were established in the region in the late 1800 (Finstad 2007; Swanson et al. 2002; and Oleson 2005).

Population Status and Trend

In 1970 the Western Arctic Caribou Herd numbered approximately 242,000 caribou, and by 1976 it had declined to about 75,000 animals. From 1976 to 1990 the herd grew 13 percent annually, and from 1990 to 2003 it grew to approximately 490,000, but by 2009 it had declined to 348,000 caribou (ADF&G 2011). As of July 2011 the population is reported to be about 325,000, which represents about a four to six percent annual decline since its peak in 2003 (Woodford 2012). Since 1995 the westward shift of wintering caribou has extended into the Bering Land Bridge Preserve (Finstad 2007). Wintering caribou reached the Bering Strait coast on the peninsula in small numbers in 1998 and 1999. This trend has continued, with thousands of caribou now moving into central Unit 22D and Unit 22E each winter (Dau 2009). Dau (2009) also reported having observed and receiving reports of up to several thousand caribou, primarily bulls and immature cows, near Serpentine Hot Springs, Cape Espenberg, and the Bendeleben Mountains during summer as well. Seasonal ranges of the Western Alaska Caribou Herd are shown in Figure 3.3.

Harvest Regulations

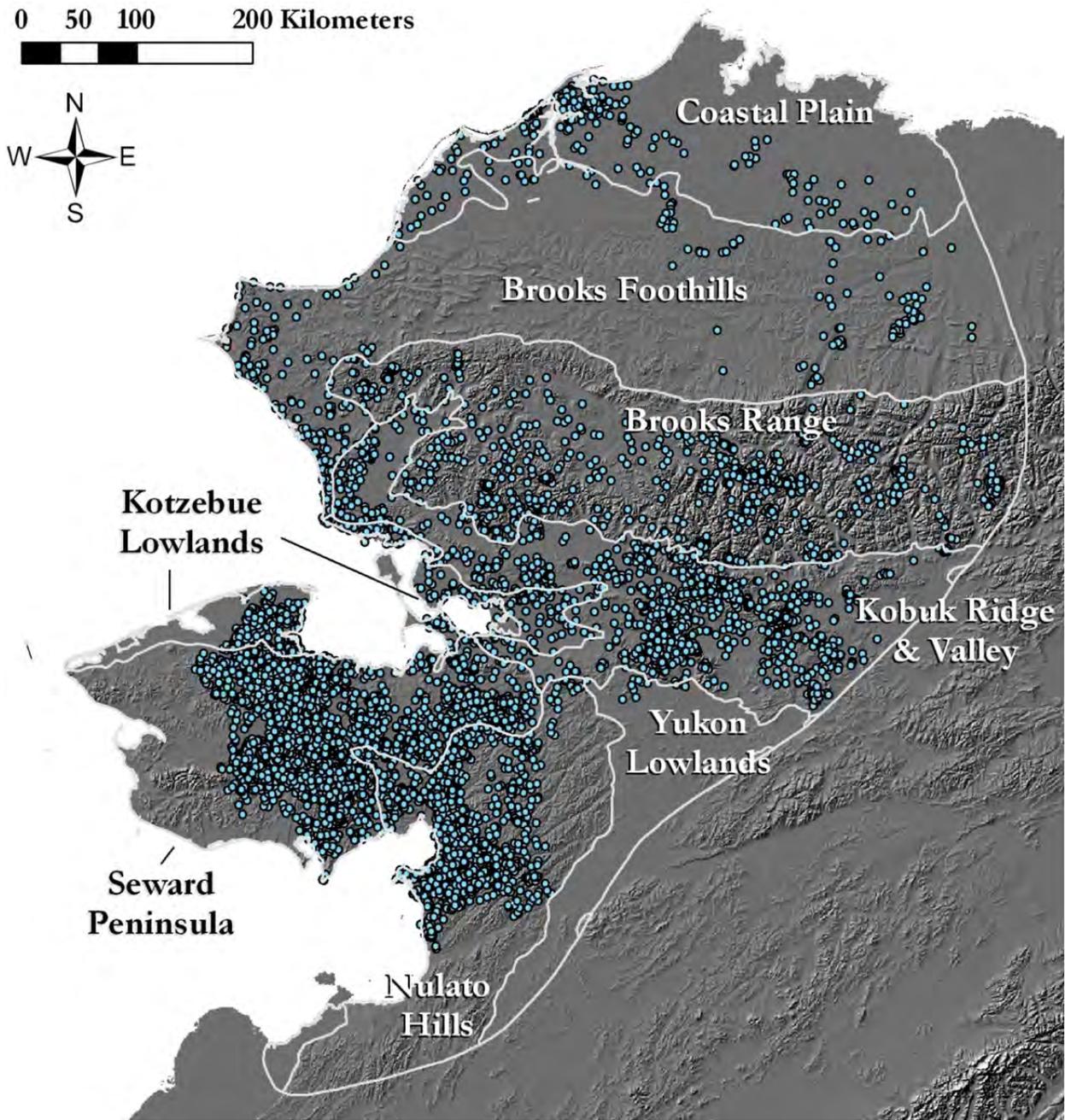
Current caribou harvest regulations are shown in Table 3.13. The Western Arctic Caribou Herd Working Group was organized in 1997 to ensure the conservation of the Western Arctic Caribou Herd, safeguard the interests of all users of the herd, and integrate indigenous knowledge with Western science. The Working Group makes recommendations to both the state and federal regulatory programs regarding harvest limits, season, and management objectives. This group of individuals representing about 20 stakeholder groups (villages) in the region, and they are supported by the Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, and ADF&G.

Table 3.13. Caribou Harvest Regulations

<p>Federal Subsistence Regulations</p>	<p>Unit 22B remainder (GUA 22-06), Unit 22D Kuzitrin drainage (GUA 22-03), and Unit 22E that portion east of and including the Sanaguich River drainage (GUA 22-01), are: 5 caribou per day; cow caribou may not be taken May 16–June 30. The season is July 1–June 30. There is no Federal subsistence caribou season in that part of Unit 22E west of the Sanaguich River drainage.</p> <p>Eligible participants for these Unit 22 hunts are limited to rural residents of Unit 21D (west of the Koyukuk and Yukon rivers), Unit 22 (except St. Lawrence Island), Unit 23 and Unit 24.</p> <p>For Unit 23 (GUA 23-07) the season is the same as for Unit 22 but the harvest limit is 15 caribou per day.</p> <p>Eligible participants for Unit 23 are limited to rural residents of Unit 21D (west of the Koyukuk and Yukon rivers), Galena, Unit 22, Unit 23, Unit 24 (including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area) and Unit 26A.</p> <p>Additionally:</p> <p>A snowmachine may be used to position a hunter to select individual caribou for harvest provided that the animals are not shot from a moving snowmachine.</p>
<p>State of Alaska Regulations</p>	<p>(GUA 22-01, GUA 22-03, GUA 22-06 and GUA 23-07) for residents is a harvest limit of 5 caribou per day; cow caribou may not be taken May 16–June 30. The season is July 1–June 30. For nonresidents the seasons are the same but the harvest limit is 5 caribou total for Unit 22 and two caribou total in Unit 23. For the remainder of Unit 22E the State identifies a “may be announced” season.</p> <p>Additionally:</p> <p>A State harvest ticket must be used, however, residents who live north of the Yukon River and hunt caribou in that area do not need caribou harvest tickets/reports but must register with ADF&G or an authorized representative within the area.</p> <p>In all hunts limited to one sex (May 16-June 30) evidence of sex must remain naturally attached to the meat.</p> <p>During the period January 1 – April 15, you may hunt the same day you have flown, provided you are 300 feet from the airplane.</p> <p>Meat taken on Unit 23 prior to October 1 must remain on the bones of the front quarters, hindquarters and ribs until removed from the field or processed for human consumption.</p> <p>Pilot and hunter orientation are required prior to hunting caribou in Unit 23.</p>

Source: Federal Register 2010, ADF&G 2012

Figure 3.3. Seward Peninsula Seasonal Caribou Range



Distribution of Western Arctic Herd caribou, 1999 – 2005, during winter (October through April), in northwest Alaska. Caribou locations acquired by satellite telemetry from 63 cows and 7 bulls are represented by light blue dots. The ecoregions covering the range of the herd are labeled and outlined in light gray (July 2011).

Harvest History

The total harvest of Western Arctic Caribou Herd was estimated by ADF&G to be approximately 9,500 caribou in 2006–2007 and 10,200 caribou in 2007–2008 (Dau 2009). The majority of the Western Arctic Caribou Herd harvest takes place within Unit 23. Although the 2006–2008 harvest levels were considered to be substantially lower than those reported in previous years, on average, the total annual harvest normally is about three percent of the population (Dau 2009).

Caribou are harvested under both state and federal regulations within the subunits of this project area. Federal regulations require federally qualified subsistence users to comply with state harvest ticket and reporting requirements. Therefore, reported harvest within the State’s management reports includes both state and federal harvests. However, reporting by local hunters is considered poor. After comparing registration harvest data with community harvest assessment surveys conducted by the ADF&G Division of Subsistence, it was estimated that only about 10 percent of the actual harvest is reported through the State’s harvest reporting system (Georgette 1994 cited in Dau 2009). Additionally, some of the reported caribou harvest in Unit 22 may have been reindeer. Caribou and reindeer are difficult to distinguish and they occupy the same habitats.

Because of the poor harvest reporting, harvests of the Western Arctic Caribou Herd within the Bering Land Bridge Preserve are difficult to estimate. Table 3.14 displays the reported harvest of caribou relevant to Unit 22 subunits from 2007–2010 (which probably represents about 10 percent of the actual harvest), and Table 3.15 shows the results of community harvest assessments from some selected communities within the past two decades. Both tables display harvests that would have taken place both on and off Preserve lands (project area) within those subunits. Reported caribou harvest from Unit 23 is not presented because it’s not available by GMA and therefore would not be representative of what occurred in the project area.

Table 3.14. Reported Caribou Harvest within GMUs that Contain Portions of the Bering Land Bridge Preserve

GMU	2007	2008	2009	2010
22B	10 bulls	16 bulls	3 bulls	1 bull
	0 cows	0 cows	1 cow	0 cows
	10 total	16 total	4 total	1 total
22D	19 bulls	8 bulls	18 bulls	22 bulls
	0 cows	1 cow	3 cows	0 cows
	19 total	9 total	21 total	22 total
22E	8 bulls	9 bulls	2 bulls	13 bulls
	2 cows	0 cows	0 cows	1 cow
	10 total	9 total	2 total	14 total
23SW	-	-	-	-

Source: Dau 2009

Table 3.15. Western Arctic Caribou Harvest for Selected Communities as Reported on Community Harvest Surveys.

	Year	Reported Harvest
Shishmaref	1989	197
	1995	342
	2000	286
Teller	2001	21
Wales	1993	4
	2000	0

Source: Dau 2009

Dau (2009) reports that most subsistence hunters harvest Western Arctic caribou using snowmachines during late October–early May, and boats or 4-wheelers during the rest of the year. Few local hunters use aircraft to hunt caribou. Guides operating in Unit 23 (mostly near Kotzebue) rely heavily on four-wheelers for hunting. Transport methods used by nonlocal caribou hunters, have been by airplane (76 percent in 2006–2007 and 78 percent in 2007–2008). Boats were the next most commonly used transport method but were used to a lesser degree in recent years.

3.6.3 Moose

Before the 1950s moose were generally absent throughout northwestern Alaska, but between the 1950s and early 1990s moose have expanded their range.. As many as 3,000 animals were estimated as being resident on the Seward Peninsula during the population peak in the mid-1980s (NPS 1986; Gorn 2010). Populations have declined since.

Moose rely on willow and other shrub thickets along rivers and streams as winter habitat. Deep snow, however, often makes these areas inaccessible. During summer and fall moose may be more broadly distributed, feeding on grasses, sedges, forbs, leaves of trees and shrubs and aquatic vegetation. Moose on the Seward Peninsula have quite large home ranges, and they may frequently move into and out of the Preserve. Although moose have been present in Unit 22 for only a relatively short time, they are a high valued subsistence resource.

Population Status and Trend

High winter mortality in the early 1990s, along with declining calf recruitment, suppressed populations and has reduced moose densities in Unit 22 for the past 20 years. Severe winters on the Seward Peninsula in 1989, 1990 and 1992 caused declines in moose densities because winter browse was insufficient to maintain such large populations, especially in Units 22B and 22D. Populations in these areas never recovered to their mid-1980s levels and recent data indicates these populations and others in the unit are currently declining (Gorn 2010). Habitat is no longer believed to be a major limiting factor at current population levels; rather, brown bear predation on calves is thought to be a significant factor suppressing moose populations in parts of Unit 22 (Gorn 2010). Brown bear density in Unit 22 has increased over the last decade and predation by brown bears on calf and adult moose is a significant factor suppressing moose populations in many parts of the unit.

Gorn (2010) reported that survey and inventory projects during the most recent reporting period showed populations stabilizing in Unit 22D and statistically significant population increases in Unit 22E. In 2008, the composition survey in a portion of the Kuzitrin drainage (GUA 22-03), classified 174 moose and found 33 bulls per 100 cows, 10 calves per 100 cows, and 7 percent calves. In spring 2009, biologists observed 655 adults and 45 calves and a six percent recruitment rate in the central portion of Unit 22D including the Kuzitrin, Kougarok, Noxapaga, and Pilgrim rivers (Gorn 2010).

Harvest Regulations

Table 3.16 contains current harvest regulations for moose.

Table 3.16. Moose Harvest Regulations

Regulation	Guidance
<p>Federal Subsistence Regulations</p>	<p>Unit 22B, remainder (includes GUA 22-06). 1 bull - Aug. 1–Jan. 31; Unit 22D—that portion within the Kougarok, Kuzitrin, and Pilgrim River drainages (includes GMU 22-03). 1 bull by State registration permit. Quotas and any needed closures will be announced by the Anchorage Field Office Manager of the BLM, in consultation with NPS and ADF&G. Federal public lands are closed to the taking of moose except by residents of Units 22D and 22C hunting under these regulations. Sept. 1–14; Unit 22E (includes GUA 22-01). 1 antlered bull. Federal public lands are closed to the taking of moose except by Federally qualified subsistence users hunting under these regulations - Aug. 1–Mar. 15. Eligible participants for these Unit 22 hunts are limited to rural residents of Unit 22. Unit 23, remainder (includes GMU 23-07). 1 moose; no person may take a calf or a cow accompanied by a calf - Aug. 1–Mar. 31. Eligible participants for this Unit 23 hunt is limited to rural residents of Unit 23. Additionally: The taking of one bull moose and up to three musk oxen by the community of Wales is allowed for the celebration of the Kingikmuit Dance Festival under the terms of a Federal registration permit. Permits will be issued to individuals only at the request of the Native Village of Wales. The harvest may only occur within regularly established seasons in Unit 22E. The harvest will count against any established quota for the area.</p>
<p>State of Alaska Regulations</p>	<p>*Unit 22B east of the Darby Mtns. and including Kwiniuk, Tubutulik, Koyuk, and Inglutalik river drainages (includes GUA 22-06). Residents only: One bull – Aug 1 - Sept. 30 – or – One antlered bull – Nov 1 – Dec 31. Nonresidents: One bull with 50-inch antlers or four or more brow tines on one side by permit (DM845) Nov1-Dec31. *Unit 22D Kuzitrin River drainage (includes Kougarok and Pilgrim rivers) and Southwest area located of Tisuk River drainage, west of the west bank of Canyon Creek beginning at McAdam’s Creek continuing to Tusuk Channel (includes GMU 22-03). Residents only: One bull by permit (RM840) available online or in person at Nome ADF&G or at license vendors in Teller, White Mountain, and Golovin beginning July 26. Season closed by emergency order when 54 bulls taken. Sept 1 – Sept 14 – or –</p>

Regulation	Guidance
	<p>One antlered bull by permit (RM849) available online or in person at Nome ADF&G or at license vendors in Teller, White Mountain, or Golovin beginning Dec1. Jan 1 – Jan 31 (may be announced).</p> <p>Nonresidents: No open season. *Unit 22E (includes GUA 22-01).</p> <p>Residents only: One bull – Aug 1 – Dec 31. -or- One antlered bull – Jan 1 – Jan 31.</p> <p>Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit (RM853) available online or in person at Nome ADF&G beginning July 26. Harvest must be reported within three days of kill. Season closed by emergency when 10 bulls are taken. Sept 1 – Sept 14. *Unit 23 remainder (includes GMU 23-07).</p> <p>Residents only: One bull by permit (RM880) available in person at license vendors within Unit 23 villages June 1 – July 1. Aug 1- Oct 31. -or- One moose by permit (RM880) available in person as license vendors within Unit 23 villages June 1 – July 15. Nov 1 – Dec 31 (taking a calf or cow accompanied by a calf prohibited). -or- One bull with 50-inch antlers or 4 or more brow tines on at least one side – Sept 1 – Sept 20.</p> <p>Nonresidents: One bull with 50-inch antlers or 4 or more brow tines on at least one side by permit (DM871-877) Sept 1 – Sept 20.</p> <p>Additionally:</p> <ul style="list-style-type: none"> • In areas indicated by a * federal restrictions exist. • In all hunts limited to one sex, evidence of sex must remain attached naturally to the meat.

Source: Federal Register 2010, ADF&G 2012

Harvest History

Current moose harvest in Unit 22 remains well below harvest levels that occurred in the 1980s, when the average annual reported harvest was 343 moose. During the four year period 1983-87 during the peak moose population on the Seward Peninsula, annual harvests in Unit 22 were 405, 395, 384, and 408. Declining numbers of moose have resulted in shortened seasons with harvest quotas in many parts of the unit, which have reduced harvest in recent years. Some predict that most State moose hunting regulations on the Seward Peninsula might need to move to Tier II hunts.

During the 2007–2008 season, harvest report data shows that 653 hunters harvested 200 moose in all of Unit 22 (184 males, 15 females, and 1 unknown). A harvest of 175 moose (159 males and 16 females) was reported taken by 520 hunters during the 2008–2009 season. Unit 22 residents accounted for 88 percent of the harvest in 2007–2008 and 90 percent of the harvest in 2008–2009. From 1994–2004 the proportion of harvest attributable to local residents remained between 69 -74 percent; however, since 2005 local resident harvest has been higher, between 78–

90 percent. Regulatory changes made in 2002, which closed nonresident seasons in large parts of the unit and established harvest quotas, likely discouraged visiting hunters from flying to Unit 22, and are probably responsible for the decrease in nonlocal harvest. The nonresident portion of the harvest accounted for 8 percent of the harvest in 2007 and 5 percent in 2008 (Gorn 2010).

Recent moose harvest and hunter effort within the Bering Land Bridge project area presented in the most current ADF&G management report includes:

- Within Unit 22B East – There is one drawing permit hunt (DM845) where up to eight permits are issued annually, which allows nonresident hunters to harvest moose. In 2007, eight permits were issued and six hunters hunted, of which four hunters harvested bull moose. In 2008, eight permits were issued and two hunters hunted, of which zero hunters harvested bull moose. In 2009, the harvest in all of Unit 22B was 39 bulls. In 2010, 34 bulls and one cow was harvested in all of Unit 22B.
- Within Unit 22D Kuzitrin - In September 2007, ADF&G closed fall registration permit hunt RM840 in the Kuzitrin River drainage (including the Pilgrim and Kougarok river drainages). The harvest quota of 39 bulls was reached (100 percent of quota). In 2008, within Unit 22D (Kuzitrin) hunters harvested 36 bulls (77 percent of 47 bull quota). In December 2008, ADF&G opened winter registration permit hunt (RM849) for residents only in this area to allow the harvest of an additional eight antlered bulls, but hunters harvested only one antlered bull (13 percent of quota). In 2009 the harvest in all of Unit 22D was 74 bulls and one cow. In 2010 the harvest in all of unit 22D was 56 bulls and one cow.
- Within Unit 22E - In November 2007 the Board adopted a nonresident registration hunt with quota while also lengthening the resident winter hunting season one month to end 31 January. In January 2008, ADF&G opened the resident season for antlered bull moose in Unit 22E. The season remained open until 31 January 2008. The longer season helped to satisfy the emergency request for additional moose hunting opportunity from residents of Wales. In 2009 the total harvest for Unit 22E was 20 bulls and one cow. In 2010 the harvest in all of Unit 22E was 14 bulls.

The most recent moose hunting report for Unit 22 indicate that 38 percent of successful moose hunters used four wheelers, 25 percent used boats, 11 percent used highway vehicles, 10 percent used snowmachines, and eight percent used off road vehicles. Only four percent of the harvest was by hunters using airplanes (Gorn 2010).

3.6.4 Muskox

Seward Peninsula muskoxen (*Ovibos moschatus*) are decedents of 36 animals that were transplanted to the area from Nunivak Island in 1970, and an additional 35 animals from Nunivak Island that were transplanted in 1981. All muskoxen throughout Alaska originated from 31 animals from Greenland that were brought to Nunivak Island in 1935-36 (MacDonald and Cook 2009). In addition to the Seward Peninsula population, other current day muskox populations in Alaska, dispersed from the Nunivak Island herd, exist on the Yukon-Kuskokwim Delta and Nelson Island in Western Alaska, the Cape Krusenstern to Point Hope region of northwest Alaska, and along the arctic coastal plain from Nuiqsut to the Canadian border. Previous Alaska muskox populations persisted along the arctic coast and foothills until their extirpation in the late 1850s (Lent 1998).

Muskox management on the Seward Peninsula is guided by recommendations from the Seward Peninsula Muskox Cooperators Group, comprised of staff from ADF&G, NPS, FWS, BLM, Bering Straits Native Corporation, Kawerak Inc., Reindeer Herders Association, Northwest Alaska Native Association, residents of Seward Peninsula communities, and representatives from other interested groups or organizations. Management goals for muskoxen in Unit 22 are; “to allow for continued growth and range expansion while providing for a limited harvest of muskoxen in accordance with State and Federal laws. Muskoxen along the Nome road systems of subunits 22B and 22C are managed for hunting, viewing, education, and other non-consumptive uses” (FWS 2010)

Population Status and Trend

Since the 1970s, muskoxen have dispersed from their transplant sites and extended their range east throughout the Seward Peninsula. Since 1970 the population has grown and in April 2010 was estimated at 2,616 animals (Gorn 2011b), however, the 2012 survey indicate that the Seward Peninsula population has declined to an estimated 2,223 muskoxen (Gorn 2012). They now occupy suitable habitat throughout the Seward Peninsula (Gorn 2011). Joly (2007) reported that individuals and small groups are found in Units 22B-East, 22A-North, Unit 23 along the Tagagawik River and in the Purcell Mountain, Unit 21 along the Yukon River near Ruby, and in Unit 24 near Huslia. Muskoxen observations are increasingly common in the summer months for these expansion areas, but few muskoxen are found in these areas in the winter (Gorn 2007).

The NPS cooperates with ADF&G, BLM, and FWS in an interagency program to develop population abundance and composition estimates every two years. This may be supplemented with additional work if necessary and if funding is available. In 2010, the Seward Peninsula muskox census estimated 2,616 muskoxen in Unit 22 and Unit 23SW, which was a 3.8 percent annual rate of increase between 2000 - 2010. The 2012 census however provided estimates that indicate that the population has declined approximately 12.5% per year over the past two years, resulting in a 2012 population estimate of 2,223 muskoxen (see Table 3.17).

Current population estimates for the units within this project area include: Unit 22E with 431 muskoxen; Unit 22D within the Kuzitrin River drainage with 208 muskoxen; Unit 23SW was estimated to have 222 muskoxen; and Unit 22B – east of the Darby Mountains was estimated to have 80 muskoxen (Gorn 2012). Unit 22B is heavily forested and is unlike western Seward Peninsula units; it usually receives deep snow during the winter (Gorn 2011).

Table 3.17. Estimated Number of Muskoxen in each Game Management Subunit on the Seward Peninsula for 2012

GMU	Mean	CV	2.5%	97.5%	Change since 2010
22A	84	25%	58	139	-2% (NS)
22B east	80	33%	49	150	+43% (NS)
22B west	380	8%	332	452	+4% (NS)
22C	289	9%	247	355	-28%
22D Kuz	208	14%	169	279	-12% (NS)
22D rem	344	9%	289	414	-28%
22D sw	77	16%	58	108	-52%
22E	431	11%	362	549	-51%
23 other	110	17%	84	159	-8% (NS)
23 sw	222	17%	171	319	+27% (NS)
Sew Pen. all	2223	8%	1971	2660	-23%
Sew Pen E	258	18%	197	375	-5% (NS)
Sew Pen W	1992	8%	1782	2350	-24%

Source: Gorn 2012

Muskoxen are more limited by snow than caribou due to their greater foot loading, low chest height, and smaller hooves making it more difficult to travel through deep or wind-hardened snow (Klein 1992) and therefore, tend towards coastal areas potentially due to the higher winds which reduce the snow depth during winter (Dau 2007). However, muskox in Unit 22 tend towards higher windblown slopes in the winter on the Seward Peninsula to avoid the deep snow drifts and are much more widely distributed throughout the region through the year. Muskoxen tend to be more sedentary during periods of heavy snow cover. Adult bulls generally tend to be less conservative than the general population and will enter previously unused winter habitats due to distant movements during the fall in search of harems (Smith 1989). Bulls may tend to be undercounted in composition surveys due to their proclivity for being solitary and therefore, more difficult to spot during census.

Regulatory History

Until 1995, there was no Federal or State muskox hunt in Unit 22 or Unit 23. After the Federal Subsistence Board recognized customary and traditional uses of muskoxen on the Seward

Peninsula, a subsequent federal hunt was established in Units 22D, 22E, and 23SW. A federal hunt for Unit 22B was added in 2001. State muskox seasons and harvest limits have also been established in Units 22B, 22C, 22D, 22E, and 23SW.

The following regulatory history is excerpted from the Office of Subsistence Management Staff Analysis for the most recent muskox federal regulation proposal (FWS 2010).

“The Seward Peninsula Cooperative Muskox Management Plan (1994) established the guiding management goals for muskoxen in this region.

In 1995, WP95-44 was adopted by the Federal Subsistence Board (Board) to establish the first Federal muskox hunt on the Seward Peninsula and recognized a Federal subsistence priority for Alaskan residents with a positive customary and traditional determination for muskox in Unit 22. The Board established a season of Sept. 1–Jan. 31 for Units 22D, 22E, and 23 South of Kotzebue Sound and west of and including the Buckland River drainage, and limited the harvest to bulls with a quota of three percent of the population from the most recent census (FWS 1995 as cited in FWS 2001).

In 1998, the Seward Peninsula Subsistence Regional Advisory Council submitted Proposal 89 to extend the season (Sept 1–Jan 31) two and a half months to August 1–March 31 for Units 22D, 22E, and Unit 23 SW. However, Proposal 89 was adopted with modification by the Board to extend the season to Aug. 1 to Mar. 15 in Units 22D and 22E and that portion of Unit 23.

In 1999, Proposal 46 extended the Special Action (SA 97-14) that combined the State/Federal harvest quota system. Due to the long traveling distances needed to reach Federal public lands and the poor travel/snow conditions during that time, the six affected villages supported the combination of the State and Federal harvest systems to create more harvest opportunities due to declining hunter success rates under the Federal subsistence harvest. The combined Federal and State harvest was adopted into permanent regulations by both the Alaska Board of Game (BOG) (1998) and the Federal Subsistence Board (1999). The consensus was to manage on a subunit basis within Unit 22 and Unit 23SW to allow for continued growth of the muskoxen population in this region and to increase harvest opportunities. Sharing the harvest quota between Federal and State systems helped meet the subsistence needs of the local users that may not have been met under only the Federal or State system separately. The cooperative management dispersed hunting pressure over an entire area regardless of land ownership to create a more biologically sound management approach (FWS 2001).

In 2001, WP01-35 was adopted and added a cow harvest to several units, including 22E, and changed the overall harvest quotas for all subunits.

In 2005, BOG established a Tier I subsistence registration hunt, previously a Tier II hunt, in Unit 22E as proposed by the Seward Peninsula Muskox Cooperators Group. In addition, the State season for the muskox drawing hunt in Unit 22E was lengthened to Aug. 1–Mar. 15, established a nonresident season, and allocated 10 percent of the drawing permits to nonresidents.

In 2006, WP06-41 established the use of a designated hunter permit for muskoxen in Unit 22 by federally qualified subsistence users. The designated hunter may hunt for any number of recipients in the course of a season, but have no more than two harvest limits in their possession at any one time; except in Unit 22E where a resident of Wales or Shishmaref acting as a designated hunter may hunt for any number of recipients, but have no more than four harvest limits in their possession at any one time. The special provision was differentiated between Unit

22E and the rest of Unit 22 because the muskoxen population continued to grow in Unit 22E whereas muskoxen numbers have stabilized in the remainder of Unit 22.”

In 2012, the BOG eliminated the draw hunts, which removed all nonresident opportunities, and they eliminated the Tier 1 hunts, except for in Unit 22E. Tier II hunts were established in Units 22B, 22D, and 23sw.

Harvest Regulations

Current muskox harvest regulations are listed in Table 3.18.

Table 3.18. Muskox Harvest Regulations

Regulation	Guidance
<p>Federal Subsistence Regulations</p>	<p>Unit 22B (GUA 22-06)—1 bull by Federal permit or State permit (FX2203). Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations. Annual harvest quotas and any needed closures will be announced by the Anchorage Field Office Manager of the BLM, in consultation with NPS and ADF&G. --- Aug.1–Mar. 15.</p> <p>Eligible participants for the hunt in Unit 22B west of the Darby Mountains is limited to rural residents of Units 22B and 22C. Eligible participants for the hunt in Unit 22B remainder is limited to rural residents of Unit 22B.</p> <p>Unit 22D, that portion within the Kuzitrin River drainages (GMU 22-03)—1 muskox by Federal permit or State permit (FX2206); however, cows may only be taken during the period Jan. 1–Mar. 15. Federal public lands are closed to the taking of muskox except by Federally qualified subsistence users hunting under these regulations. Annual harvest quotas and any needed closures will be announced by the Superintendent of the Bering Land Bridge National Preserve in consultation with ADF&G and BLM. Aug.1–Mar. 15.</p> <p>Eligible participants for this Unit 22 hunt is limited to rural residents of Units 22B, 22C, 22D (excluding St. Lawrence Island), and 22E.</p> <p>Unit 22E (GUA 22-01)—1 muskox by Federal permit or State permit (FX2210). Annual harvest quotas and any needed closures will be announced by the Superintendent of the Western Arctic National Parklands in consultation with ADF&G and BLM. Aug. 1–Mar. 15.</p> <p>Eligible participants for these Unit 22 hunt is limited to rural residents of Unit 23 south of Kotzebue Sound and west of and including the Buckland River drainage (GMU 23-07) —1 bull by Federal permit or State permit (FX2302). Aug. 1–Dec. 31.</p> <p>-or-</p> <p>1 muskox by Federal permit or State permit Jan. 1–Mar. 15.</p> <p>Eligible participants for these Unit 23 hunts are limited to rural residents of Unit 23 south of Kotzebue Sound and west of and including the Buckland River drainage.</p> <p>Federal public lands are closed to the taking of musk ox except by Federally qualified subsistence users hunting under these regulations. Annual harvest quotas and any needed closures will be announced by the Superintendent of the Western Arctic National Parklands, in consultation with ADF&G and BLM.</p> <p>Additionally:</p> <ul style="list-style-type: none"> • The taking of up to three muskox by the community of Wales is allowed for the celebration of the Kingikmiut Dance Festival under the terms of a Federal registration permit. Permits will be issued to individuals only at the request of the Native Village of Wales. The harvest may only occur within regularly established seasons in Unit 22E. The harvest will count against any established quota for the area.

Regulation	Guidance
	<ul style="list-style-type: none"> • federally qualified subsistence user (recipient) may designate another Federally qualified subsistence user to take muskoxen on his or her behalf unless the recipient is a member of a community operation under a community harvest system. The designated hunter must get a designated hunter permit and must return a completed harvest report. The designated hunter may hunt for any number of recipients in the course of a season, but have no more than two harvest limits in his/her possession at any one time, except in Unit 22E where a resident of Wales or Shishmaref acting as a designated hunter may hunt for any number of recipients, but have no more than four harvest limits in his/her possession at any one time
State of Alaska Regulations	<p>The State of Alaska administers a Tier I registration hunt in Unit 22E; and Tier II subsistence hunts in Units 22B, 22D, and 23sw, described as follows.</p> <p>Unit 22B east of the Darby Mtns., including drainages of Kwiniuk, Tubutlik, Koyuk, and Inglutalik rivers (GUA 22-06). Residents only. One bull by Tier II permit. All skulls require trophy destruction subject to permit conditions. Permit # TX105. Aug 1 – Mar 15.</p> <p>*Unit 22D Kuzitrin River Drainage (includes Kougarok and Pilgrim Rivers) (GMU 22-03). Residents only. One bull by Tier II permit. All skulls require trophy destruction subject to permit conditions. Permit # TX102. Jan 1 – Mar 15.</p> <p>*Unit 22E (GMU 22-01). Residents only. One muskox by permit available in person at license vendors in Unit 22E villages (Shishmaref and Wales) July 26-Nov 30. A total of 10 permits will be issued. All skulls require trophy destruction subject to permit conditions. Registration permit # RX 104. Aug 1 – Mar 15.</p> <p>*Unit 23 Seward Peninsula west of and including the Buckland River drainage (GMU 23-07). One bull by Tier II permit. All skulls require trophy destruction subject to permit conditions. Permit # TX106. Aug 1 – Mar 15.</p> <p>Additionally:</p> <ul style="list-style-type: none"> • In areas indicated by a * federal restrictions exist. • Subsistence registration muskox hunts (RX### and TX###) are open to Alaska residents only. • Aircraft may NOT be used to transport muskox hunters, muskox, or muskox hunting gear in subsistence hunts. • No tag required in subsistence muskox hunts (RX### and TX###). • In all hunts limited to one sex, evidence of sex must remain attached naturally to the meat.

Source: Federal Register 2010, ADF&G 2012, FWS 2012

Harvest History

Table 3-19 displays the reported muskox harvest and quotas for the management units within the project area for the regulatory year 2009-2010. There were a total of 154 muskoxen harvested from throughout the Seward Peninsula. During 2009-2010, 216 Tier I registration permits were issued for Seward Peninsula muskoxen hunts and 126 were filled for a 58 percent success rate. Thirty-four drawing permits were issued and 26 were filled for a 76 percent success rate. Eighteen federal permits were issued and two were filled for an 11 percent success rate. Sixty one percent of the hunters issued Tier I permits were residents of Units 22 or 23 (Gorn 2011). Within Unit 22E, harvest levels have been low and remained below the allowable harvest level. Since 2008 the success rate and actual harvest rate has been rising, with the bulk of the Unit 22E harvest focused on mature bulls.

Table 3.19. 2009-2010 Muskox Reported Harvest Data for Units within the Project Area

Units	State Hunts Tier 1	State Draw Hunts	Federal Subsistence Hunts	Total Harvest	Harvest Quotas
22B East	3 bulls	-	0	3 bulls	5
22D Kuz	8 bulls 2 cows	-	0	8 bulls 2 cows	11 with up to 4 cows
22E	24 bulls 4 cows 1 unknown	-	2 bulls	26 bulls 4 cows 1 unknown	62 31 cows
22E	-	15 bulls	-	15 bulls	20
23SW	12 bulls 5 cows	-	0	12 bulls 5 cows	16 8 cows
23SW	-	1 bull	-	1 bull	Up to 2

Source: Gorn 2011

Hunters reported that snow machines were used to hunt 63 percent, three or four wheelers 15 percent, boat seven percent, plane five percent, off road vehicles five percent, other two percent, and highway vehicles, foot travel each one percent. Transportation is unknown for one percent of hunters (Gorn 2011).

3.6.5 Wolves

Wolves (*Canis lupus*) were known to have ranged over the Seward Peninsula in historic times, and their populations have risen and fallen in response to prey populations and predator control efforts. The introduction of reindeer herds and a long history of predator control and bounties (lasting through the 1960s) resulting in low wolf numbers in the Preserve area at that time. ADF&G staff in Nome estimate that the wolf population on the Peninsula in 1983 was 100 to 200, up from 40 or 50 in the early 1970s (NPS 1986). As the Western Arctic Caribou Herd moved onto the Seward Peninsula, the abundance of prey for wolves resulted in a noticeable increase in the wolf population. This noticeable increase in wolf numbers pursuing caribou may have also had an impact on other prey populations such as reindeer and moose calves. Most wolves are reported in the eastern part of the Peninsula within spruce forest areas, which provide better cover than the open tundra.

The annual reported wolf harvest in subunit 22B between 1990 to 2008 ranged from eight wolves in the 1990-91 season to 33 wolves in the 2000-01 season. For subunit 22D the reported harvest reached a peak of 13 wolves harvested in both the 2004-05 and 2005-06 seasons with no wolves reported as harvested in most other years. For subunit 22E there was a high of 10 wolves reported harvested in 1999-00 with most other years reporting a zero to five wolf harvest range. Forty-nine wolves were found to be harvested by Buckland residents (Unit 23SW) in 2003 through community harvest assessment surveys (Hughes 2009b).

Units 22 and 23 hunting and trapping regulations for wolves are liberal to encourage increased harvest of wolves. Beginning in 2008 the hunting season dates for both units were extended to 1 August – 30 April, and the bag limit was increased to 20 wolves.

Eighty three percent of the wolves harvested in Unit 22 were shot by subsistence or sport hunters, or shot opportunistically by local residents engaged in other activities. A few serious trappers in Unit 22 trapped or snared 11 percent of the wolves harvested. Hunters and trappers using snow machines harvested 89 percent of the wolves harvested (Hughes 2009b).

3.7 Big Game Commercial Service Providers

Guiding hunters in pursuit of big game is a profession that has been active in the Alaska long before statehood. These professional hunters, with their local knowledge and skills, provide a service to sport hunters willing to pay for advice, guidance, and accommodations in the field.

By state law, nonresidents who hunt brown bears, Dall sheep, or mountain goats must be accompanied in the field by a licensed Alaska big game registered guide-outfitter, or be accompanied in the field by an Alaska resident 19 years of age or older who is within the second degree of kindred. Nonresident aliens (non-U.S. citizens) hunting any big game must be accompanied in the field by an Alaska big game registered guide-outfitter.

Established in 1973, the Guide Licensing and Control Board, later called the Alaska Big Game Commercial Services Board (Board) was authorized by Alaska Legislature “to protect fish and game management” and “to get competent people as guides in Alaska.” The Board maintains regulations governing the big game commercial service industry in Alaska (AS 08.54). The Board prepares and grades a qualification examination for a registered guide-outfitter license that requires applicants to demonstrate that they are qualified to provide guided and outfitted hunts and, in particular, possesses knowledge of fishing, hunting, and guiding laws and regulations. The process includes a certification exam for each GMU that the registered guide-outfitter intends to provide big game hunting services, including such things as knowledge of the terrain, feasible transportation methods, game, and other characteristics of the game management unit. The Board authorizes the issuance of registered guide-outfitter, master guide-outfitter, class-A assistant guide, assistant guide, and transporter licenses after the applicant for the license satisfies the requirements for the license. The Board also adopts regulations, establishes a code of ethics for professions regulated by the board, and establishes requirements for the contents of written contracts to provide big game hunting services and transportation services to clients.

The State of Alaska is divided into 26 GMUs. The Big Game Commercial Services Board has divided each GMU into GUAs. Some GMUs have only one GUA while others have multiples GUAs. A master/registered guide-outfitter must annually register with the Department of Commerce, Community and Economic Development the GUA where they will be providing big game services. The registration must occur at least 30 days prior to providing big game services. Guide-outfitters cannot contract to provide big game services in a GMU for which they are not certified or a GUA they are not registered for. A guide-outfitter cannot register for, or conduct big game hunting services in more than three guide use areas during a calendar year. See Table 3.20 for the current list of guide-outfitters that are licensed by the State of Alaska to operate in GUAs within the Project Area.

Table 3.20. Big Game Guides and Transporters Licensed with the Big Game Commercial Services Board to Provide Guide Services in Guide Use Areas within the EA Project Area

GMU	GUA	Effective Date	Expiration Date	Guide
22	1	05/24/2008	12/31/2012	THOMAS GRAY P. O. BOX 306, NOME, AK 99762
22	1	01/01/2012	12/31/2016	BRIAN SIMPSON PO BOX 61210, FAIRBANKS, AK 99706
22	3	01/01/2012	12/31/2016	BRIAN SIMPSON PO BOX 61210, FAIRBANKS, AK 99706
22	6	03/27/2011	12/31/2015	THOMAS GRAY P. O. BOX 306, NOME, AK 99762
22	6	01/18/2008	12/31/2012	VANCE GRISHKOWSKY P.O. BOX 38, UNALAKLEET, AK 99684
22	6	03/26/2009	12/31/2014	HARRY HANNON P.O. BOX 53022, KOYUK, AK 99753
23	7	03/26/2009	12/31/2014	HARRY HANNON P.O. BOX 53022, KOYUK, AK 99753

Source: DCCED 2012

Additionally, a registered guide-outfitter who is registered in three guide use areas may also register for and conduct big game hunting services in a portion of one additional guide use area on federal land adjacent to a guide use area in which the registered guide-outfitter is already registered, if the Board finds that the portion of the adjacent guide use area for which the registered guide-outfitter is seeking to be registered would otherwise remain unused by a registered guide-outfitter because the boundaries of guide use areas do not coincide with boundaries of federal big game guide concession or permit areas. Also, a registered guide-outfitter who is registered in three guide use areas may also register for and conduct big game hunting services for wolf, black bear, brown bear, or grizzly bear in guide use areas where the Board of Game has authorized a predator control program for guide/client participation.

Prior to 1988, the Board managed a system of "exclusive guide areas" (EGAs) and "joint use areas." Under this system, a guide was able to register his camp and be entitled to exclusive guiding privileges in a designated area surrounding it. "Joint use areas" were assigned where the areas used by two or more guides overlapped. The system of exclusive guide use areas was determined to be unconstitutional by the Alaska Supreme Court in 1988 in the case *Kenneth D. Owsichek v. State of Alaska* (Owsichek 1988). Recent discussions by some hunting guides, advisory committees and others indicate a desire by some for the State to adopt new laws or regulations that would allow the Board to return to an "exclusive use" hunting guide system.

3.7.1 Interviews with Guides

NPS employees interviewed three big game hunting guides who currently operate on the Seward Peninsula. The guides were asked specific questions regarding:

- Appropriate guide areas and boundaries;

- Species hunted, by month of the year;
- Number of clients in a hunt, and annually;
- Access to the Preserve;
- Camping facilities.

Two of the guides operate from the western side of the Preserve, in Game Management Areas 22E and 22D, and one operates primarily to the east in Units 22B and 23. One guide stages hunts from Nome, and the others operate from Deering and Brevig Mission. All establish camps for their hunters outside the Preserve on State, BLM or private lands along the American, Angiapuk, Kuzutrin and Upper Koyuk Rivers.

At least one guide uses a charter aircraft to bring hunters into camps. Others stated that they avoid the use of aircraft because of the high cost it adds to their hunts. The guides hunt for bears in the fall (with ATVs), muskoxen in February-March (primarily with snowmachines), and bears again in April-May (ATVs or snowmachines). All of the guides also hunt for moose November to December, though this can be problematic because of low harvestable numbers, difficulty packing large moose out of the hunt areas, and resident sensitivity to competition for moose. Caribou are not planned guided hunts, because their whereabouts are unpredictable.

For business, the guides indicated that they would be interested in adding hunts within the Preserve, though they anticipate that this would be at relatively low levels. Access to the Preserve would likely be limited to the fringes of the Preserve in day trips, within 50 to 100 miles of their base camps outside the Preserve. Moose, in particular, would be difficult to transfer to camps established outside the Preserve during the fall when snowmachines can't be used because of the lack of adequate snow cover.

Hunts staged from Shishmaref or Deering, which are closer to the Preserve boundaries, would be possible. Though the guides would like to obtain moose in those areas if there is a sustainable population, one acknowledged that this would probably not be acceptable to local hunters. In addition, federal lands within this area are currently closed to those who are not federally qualified subsistence users. Under current harvest regulations, hunts staged at Shishmaref might be limited to brown bears and muskoxen hunts, and possibly caribou. The possibility of establishing camps within the Preserve on native allotments was also mentioned, though it was not clear whether this would be permitted within the Preserve boundaries.

4.0 ENVIRONMENTAL CONSEQUENCES

This section provides an evaluation of the potential effects or impacts of each of the alternatives on the resources described in the issue statements presented in Section 1.3.1, Issues Selected for Detailed Analysis.

4.1 Methodology and Impact Criteria

The direct, indirect, and cumulative impacts are described for each issue (impact topic) that was selected for detailed analysis. The impacts for each issue are based on the intensity (magnitude), duration, and context (extent) of the impact. Summary impact levels (negligible, minor, moderate, or major) are given for each issue. Definitions are provided below.

Intensity

- Low: A change in a resource condition is perceptible, but it does not noticeably alter the resource's function in the Preserve's ecosystem, cultural context, or visitor experience.
- Medium: A change in a resource condition is measurable or observable, and an alteration to the resource's function in the Preserve's ecosystem, cultural context, or visitor experience is detectable.
- High: A change in a resource condition is measurable or observable, and an alteration to the resource's function in the Preserve's ecosystem, cultural context, or visitor experience is clearly and consistently observable.

Duration

- Temporary: Impacts would last only a single visitor season or for the duration of discreet activity, such as construction of a trail (generally less than two years).
- Long-term: Impacts would extend from several years up to the life of the plan.
- Permanent: Impacts are a permanent change in the resource that would last beyond the life of the plan even if the actions that caused the impacts were to cease.

Context

- Common: The affected resource is not identified in enabling legislation and is not rare either within or outside the Preserve. The portion of the resource affected does not fill a unique role within the park or its region of the Preserve.
- Important: The affected resource is identified by enabling legislation or is rare either within or outside the Preserve. The portion of the resource affected does not fill a unique role within the Preserve or its region of the Preserve.
- Unique: The affected resource is identified by enabling legislation and the portion of the resource affected uniquely fills a role within the preserve or its region of the Preserve.

Overall Summary Impact Levels

Summaries about the overall impacts on the resource synthesize information about context, intensity, and duration, which are weighed against each other to produce a final assessment. While each summary reflects a judgment call about the relative importance of the various factors involved, the following descriptors provide a general guide for how summaries are reached.

- Negligible: Impacts are generally extremely low in intensity (often they cannot be measured or observed), are temporary, and do not affect unique resources.
- Minor: Impacts tend to be low intensity or of short duration, although common resources may have more intense, longer-term impacts.
- Moderate: Impacts can be of any intensity or duration, although common resources are affected by higher intensity, longer impacts while unique resources are affected by medium or low intensity, shorter-duration impacts.
- Major: Impacts are generally medium or high intensity, long-term or permanent in duration, and affect important or unique resources.

Impairment

Impairment of a Preserve resource(s) occurs when a resource would no longer fulfill the specific purposes identified in the Preserve's establishing legislation (or proclamation) or its role in maintaining the natural or cultural integrity of the Preserve, as described in the Preserve's GMP, foundation document, or other significant guiding plan.

Cumulative Impacts

Cumulative impacts are the additive or interactive effects that would result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7).

4.2 Alternative A – No Hunting Guide Concessions Authorized (No Action)

The No Action Alternative would not authorize new hunting guides' concessions within BELA. Subsistence and sport hunting would continue as in the past. Sport hunting access would continue to be by private parties with their own transportation or with licensed air taxi operators and big game transporters. This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the action alternatives.

4.2.1 Local Employment

The implementation of the No Action alternative would result in no direct or indirect impacts to communities or economic opportunity. No new employment would be created among nearby residents, and current healthcare, retail, and services would not increase as a result of guided hunting operations.

Cumulative Impacts

Past, present and future actions that could affect job opportunities for people living in villages on the Seward Peninsula include tourism development, especially in Nome; unknown return of reindeer for herding; and high unemployment rates. In addition, the community of Shishmaref,

from which some sport hunting currently launches, may relocate their town. Construction efforts in that pursuit could increase community revenue temporarily. Alternative A would have no contribution to cumulative effects on local employment.

Conclusion

Alternative A would have *no effect* on project area job opportunities. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.2.2 Recreation Uses

Under Alternative A, recreation would continue as it does currently, with sport hunting, hiking, and visits to Serpentine Hot Springs dominating recreational uses in the project area. Visitor numbers in BELA would be expected to fluctuate as normal for the Preserve. This alternative would have no effect on recreation.

Cumulative Impacts

Past actions that have contributed to recreation uses include the development of the facilities at Serpentine Hot Springs. Alternative A, the No Action Alternative, would not add to cumulative impacts. There are no future actions identified at present that would affect recreation uses in BELA.

Conclusion

Alternative A would have *no effect* on recreation uses, and *no* contribution to cumulative effects. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.2.3 Cultural Resources

Under Alternative A, no change in sport hunting patterns in BELA are expected, and as a result, the implementation of Alternative A would have no effect on cultural resources.

Cumulative Impacts

Alternative A, the No Action Alternative, would not add to cumulative impacts. Archeological excavations in BELA are ongoing, so new sites could be identified, and those previously identified could be expanded.

Conclusion

Alternative A would have *no effect* on cultural resources. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.2.4 Subsistence

In the No Action Alternative, non-local hunters using the services of guides would be limited to hunting outside the Preserve. With no other management actions, annual subsistence harvest levels of brown bears, caribou, moose, and muskoxen would remain at current levels.

Concerns about high brown bear populations in some areas of Unit 22, and their effect on moose populations would remain. The No Action Alternative would have no effect on subsistence hunting.

Cumulative Effects

Cumulative effects include increased subsistence hunting pressure on all species on the Seward Peninsula as the population of Nome increases. The population and migrations of the caribou herd is somewhat unpredictable, so effects to other Preserve resources as a result of hunters pursuing caribou is not calculable. The No Action Alternative would not add to cumulative effects.

Conclusion

Alternative A maintains the status quo of subsistence hunting in the Project area, so there is *no impact* on subsistence resources or uses. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.2.5 Wildlife Populations

In the No Action Alternative, non-local hunters using the services of guides would be limited to hunting outside the Preserve. With no other management actions, annual harvest levels of brown bears, caribou, moose, and muskoxen would remain at current levels. Concerns about high brown bear populations in some areas of Unit 22, and their effect on moose populations would remain. The No Action Alternative would have *no effect* on wildlife populations in the Preserve.

Cumulative Effects

Cumulative effects include increased hunting pressure on all species on the Seward Peninsula as the population of Nome increases. The population and migrations of the caribou herd and associated reindeer are somewhat unpredictable, so effects to other Preserve resources as a result of hunters pursuing caribou is not calculable. The No Action Alternative would *not* add to cumulative effects.

Conclusion

Alternative A would maintain the status quo of current sport and subsistence hunting in the Project area, so there would be *no impact* on wildlife. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.3 Alternative B – License up to 3 Hunting Guide Concessions for the Whole Preserve

The NPS would authorize up to 3 sport hunting guide concessions in the Preserve, who could have operations overlapping in areas pursuant to current state rules in any three of the four applicable Guide Use Areas (22-01, 22-03, 22-06, and 23-07, Figure 2.3). Hunting guide concessions would be limited to an average of 10 clients per year and no more than 14 clients in any one year with a maximum of 100 clients over the 10-year contract period. With three guides, this alternative could result in a maximum of up to 300 clients in 10 years. To minimize adverse effects to local subsistence communities, guide operations may be excluded from important subsistence use areas near local rural communities based on the ANILCA 810 findings (Appendix B). A four-mile radius of area around the Serpentine Hot Springs bathhouse would be closed to guided hunting operations as described above in Section 2.3 (Figure 2.4). This alternative provides guided hunting concessions to share large portions of the Preserve and the flexibility to pursue a variety of big game species to make a reasonable business venture.

4.3.1 Local Employment

The implementation of Alternative B would allow up to three hunting guide concessions with an average of ten clients per year. Guided hunting operations generally have 4-6 clients per hunt and require 1 guide assistant and one cook. Hunts typically last approximately 10-14 days. Supplies would most likely be brought from Anchorage and Nome.

If Alternative B is implemented, it is likely that concession guides would maintain their existing businesses outside the Preserve, with the assistants they currently employ, so there is little possibility of new employment opportunities, although the guiding opportunities would increase. Rentals or charters of aircraft, snowmachines, and hunting outfitters could receive extra business. These indirect opportunities would occur in the communities that serve as access points to the Preserve: Shishmaref, Deering and to a lesser extent, Wales.

Wheeled aircraft could not land at the Serpentine Hot Springs airstrip, however, since that area would be excluded for guiding activity. Because little or no new year-round employment would be created, the overall direct and indirect effects as a result of implementation of Alternative B would be negligible for growth in jobs. The effect would be perceptible, but of very low intensity; potentially long-term, and important in context, since employment opportunities are so rare in the project area.

Cumulative Impacts

Past, present and future actions that affect job opportunities for people living in villages on the Seward Peninsula include tourism development, especially in Nome; unknown return of reindeer for herding; and historically high unemployment rates. In addition, the community of Shishmaref, from which some sport hunting currently launches, may move their town to a new location in the future. Construction efforts in that pursuit could increase community revenue temporarily. Alternative B would have a negligible contribution to cumulative effects on job opportunities for residents.

Conclusion

Alternative B would have a *negligible* direct and indirect effect and negligible contribution to cumulative effects on job opportunities for the region. The effect would be perceptible, of very *low* intensity; potentially *long-term*, and an *important* (rare) resource consideration in the region. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.3.2 Recreational Uses

In Alternative B, a four-mile radius of area surrounding the Serpentine Hot Springs would be closed to guided hunting operations as described in Section 2.3. Since overall recreation use at the Preserve is low because of its remoteness, there would be little potential for conflicts with non-guided sport hunters and other recreationists. Conflicts could occur at some times of year at Preserve access points. These conflicts could occur as recreationists travel to the Preserve from Deering, Wales, Shishmaref, and possibly from the end of Kougarok Road that extends from Nome. The risk of incompatibility between up to 30 guided hunters annually associated with Alternative B would be observable, of medium intensity in local areas and low intensity over the majority of the Preserve, and possibly long-term in nature. ANILCA Section 201(2) states that

the Preserve should provide for outdoor recreation, so recreation use is important in context. Alternative B would result in moderate direct and indirect effects to recreational uses.

Cumulative Impacts

Past actions that have contributed to recreation uses include the development of the facilities at Serpentine Hot Springs. No actions that would lead to increases or changes to recreation uses were identified. Alternative B would not add a cumulative effect to recreation uses.

Conclusion

Implementation of Alternative B would have a *moderate* effect on recreation uses because of the observable introduction of up to 30 hunters annually in a previously sparsely used area, and because recreation uses are an important function of the Preserve. There would be a negligible contribution to cumulative effects to recreation uses, and negligible cumulative effects were identified. Effects would be *long-term, overall low intensity, and affect an important resource*. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.3.3 Cultural Resources

Lakes that are big enough for float plane access (e.g. Killiak and Imuruk Lakes and the maar lake and lava bed areas) have cultural resources that could be affected during fall hunts by guided groups. Coastal areas with cultural resources are not as commonly used for camp sites when hunting brown bears, caribou, moose or wolves. However, it is common to hunt for muskoxen in the winter on coastal bluffs. In the winter, it is likely that cultural resources are frozen securely in the ground, thus avoiding impact.

Serpentine Hot Springs is among the most important cultural and healing sites for residents who continue to use the area for traditional uses. Alternative B would close an area around Serpentine Hot Springs to guided hunting operations, which would avoid conflicts with cultural activities there. There is little risk of disturbance to undetected archeological resources. Therefore, the action is of low intensity. However, both the traditional cultural uses of the springs, and archeological resources are unique in context, and ANILCA Section 201(2) states that the Preserve should provide for archeological study. The effects could be long-term. Direct and indirect effects would be moderate.

Cumulative Impacts

Alternative B would have a negligible contribution to cumulative impacts because the authorization of up to 3 sport hunting guide concessions per year would not be a large increase to total current visits in the Preserve. Archeological excavations in BELA are ongoing, so new sites could be identified, and those previously identified could be expanded.

Conclusion

The overall effect to cultural resources, both in traditional uses of the area and in the potential for disturbance to archeological and historical resources would be *moderate* because of the uniqueness of the resource within the Preserve. Alternative B would add *negligible* cumulative effects. Effects would be *low intensity, long-term*, and affect a *unique* resource. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.3.4 Subsistence

Harvest of land mammals is an important part of the subsistence economy, as described in Section 3.5. The project area communities depend in varying proportions on land mammals, including harvests of brown bears, caribou, moose, and muskoxen. Caribou, when available (mostly in winter) comprise the largest harvests in numbers and pounds. This has most likely increased in proportion with the decline in reindeer herding, and as the Western and Arctic Caribou Herd (WACH) has ventured into the area. Moose follow closely, in years where there are sufficient numbers. Brown bears are not hunted as often, and are viewed as contributing to a lower population of moose. Muskoxen are also taken, though not in numbers approaching that of caribou and moose.

Subsistence hunting under federal regulations currently takes place in BELA and other federal public lands. Subsistence hunting is also authorized by the State of Alaska pursuant to state regulations and takes place throughout the State except where prohibited by federal law or regulation. Brown bears and caribou are harvested under both state and federal regulations within the subunits of this project area, by both local and non-local residents, and non-residents, from August through May. Federal regulations require federally qualified subsistence users to comply with state harvest ticket and reporting requirements. Caribou requirements are similar, but occur year-round (with exceptions for cows.) For all hunting units and communities, it is assumed that the services of guides would not be required for subsistence hunters.

Shishmaref and Wales are located in GMU 22E, which encompasses GUA 22-01. A large portion of 22E is comprised of federally managed land, including BELA. Hunting for moose on the federal public lands within GMU 22E is currently restricted to federally qualified subsistence hunters (rural residents of GMU 22 including Shishmaref and Wales); however, moose hunting by state residents (both local and nonlocal) and nonresidents is currently permitted on State managed lands in 22E adjacent to BELA. Muskox hunting in GUA 22-01 is currently open to subsistence under state (Tier 1) and federal regulations, except that commercial guides are currently prohibited from operating within BELA.

Brevig Mission and Teller are located in GMU 22D, which encompasses GUAs 22-02 and 22-03. GUA 22-03 is closed for moose hunting for non-locals, and non-residents. The eastern portion of GUA 22-03 overlaps BELA, where subsistence hunting for moose is permitted under federal regulations. GUA 22-03 is closed for moose hunting for non-locals, and non-residents; state subsistence regulations would apply to GMU 22D outside federally managed lands. For muskoxen, the same situation exists.

Golovin, White Mountain, Elim, and Council are located in GMU 22B, to the south of BELA. It encompassed GMU's 22-05, and 22-06. GMU 22-06 includes the southern tip of BELA, and also the Koyuk River which provides some access to the Preserve. Moose hunting is permitted in this area for non-locals (August, September, November, and December) and non-residents (permits November and December). Subsistence use areas for these communities are most likely concentrated further south than the BELA area.

Deering is located in GMU 23 and GUA 23-07. As described in Chapter 3, Deering residents subsistence hunt extensively within the BELA boundary to the west of the community. Non-local residents can hunt moose by harvest tickets in September and non-residents can hunt moose in September with a drawing permit. GUA 23-07 is closed to muskox hunting except for

subsistence hunting (Tier II) and hunting on the federal public lands is further restricted to federally qualified subsistence users.

Nome is located in GMU 22C. There is not a lot of overlap in subsistence hunting from the Nome area into BELA, but Kougarak Road extends from Nome north, terminating in GMU 22D and GUA 22-03, which is within 20 miles of the BELA boundary. Nome residents are eligible to harvest brown bear, moose, muskox and caribou under federal subsistence regulations on federal lands within this subunit.

Under current management regimes, both state and federal, few conflicts would emerge in the Guide Use Areas and Game Management Areas if guiding concessions are authorized for BELA. Guides and subsistence hunters alike would like more access to moose, but moose hunting is closed on Federal lands to non-local and non-resident hunters in the area near Shishmaref. The same is true beyond Kougarak Road in GMU 22D. Moose hunting by nonlocal residents and non-residents is permitted in Unit 23, which includes Deering. As discussed in Chapter 3, Deering residents are intensive subsistence users of BELA. There is a potential for conflicts in BELA among hunters in that area, and additional pressure on moose populations. Multiple guides bringing clients to the area would only compound the problem.

Caribou would not be targeted by guides, primarily because their arrival does not usually coincide with hunts for other species, and/or the herd is unpredictable. Guides have indicated that they would like to take them opportunistically if the occasion occurred. Bears are not commonly taken for subsistence uses in the Seward Peninsula area, and are viewed as reducing an important food resource, moose. The addition of muskox and brown bear hunts in GMU 22E could be beneficial to guide businesses with low potential for conflicts with subsistence hunting when brown bears and muskoxen are abundant, but guided hunts for limited moose resources or caribou that are accessible to federally-qualified subsistence users could cause competition for valued resources. Sport harvest opportunities for muskox, however are currently closed because of declining populations. When muskoxen were available to sport hunters there was a high demand for these animals by nonlocal hunters, and subsistence harvests by local residents in the project area have historically been relatively low.

Alternative B, which allows for hunting guides to overlap among guide use areas, would probably concentrate on the GUA 23-07 BELA for moose, and GUA 22-01 for brown bear and possibly some Tier 1 muskox hunting, adding to their current hunt choices for clients. It is unlikely that existing guides with camp facilities on different areas of the Seward Peninsula would relocate their facilities for this level of guiding. The hunts would affect an important resource, as established as a Preserve use in ANILCA 201 (2). The overall direct and indirect effects to subsistence uses as a result of Alternative B would be higher for moose than other subsistence resources, and potentially concentrate use conflicts in GMU 23. Therefore, the direct and indirect effects would be of medium intensity over a long term. Overall, direct and indirect effect would be moderate.

Cumulative Effects

Past and present activities that have impacted wildlife on the Seward Peninsula include sport and subsistence harvest activities as well as predator control efforts by reindeer herders and others. Assuming game management remains as it is currently, the low number of annual; guided hunters would add a negligible contribution to cumulative effects.

Conclusion

Though Alternative B would have a *minor* effect for subsistence hunting for muskoxen, brown bears, and caribou, it would have a larger effect on subsistence moose hunters. Overall, Alternative B would have *moderate* direct and indirect effects to subsistence, and a *negligible* contribution to cumulative effects. Effects would be overall be *low intensity, long-term, and affect a common resource*. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.3.5 Wildlife

Brown Bear

With the potential for (most likely) two guides in any one GUA with an average of 10 clients each per year, this alternative would contain a potential to harvest 20 brown bears in one GUA, and an additional 10 bears within another nearby GUA. Nonresident brown bear hunt success rates for Unit 22 has ranged from 50 -100 percent. Reported brown bear harvest in Unit 22E (GUA 22-01) over the past several years has been very low (six bears over a four year period) and most of these animals were likely taken on non BELA lands within the hunt area because guided hunts are not currently allowed within BELA. It is believed that some Unit 22E guides would be very eager to get access into BELA for brown bear hunting. ADF&G drawing permits for non-residents in GMUs 22 D&E is currently limited to 12 per year. Although resident hunters are not required to use a guide, there is a potential for some nonlocal resident hunters to use these new guided hunt services in BELA, and those hunts are not currently limited under State regulations.

GUAs 22-03, GUA 22-06 and GUA 23-07 are thought to have healthy brown bear populations which could support additional harvest. A maximum of 30 additional bear hunters within the Preserve harvesting an additional 15 to 30 brown bears per year, would represent about a 15-30 percent overall increase in brown bear mortality across the Seward Peninsula. An increase in brown bear hunting of this magnitude, because of the opportunity for guides to operate in the Preserve, is unlikely. Current nonresident brown bear hunter participation in Unit 22 outside the Preserve has been low with moderate to low demand for permits. The recent 2011 brown bear nonresident draw permit hunt for Units 22E and 22D (DB690) indicates that there were ten applicants for 12 available permits; for Units 22B and 22C (DB685) (which includes GUA 22-06) there were six applicants for 27 permits available; and for Unit 23 southwest (DB767 and 777) there were no applicants for six permits. ADF&G announced in mid-February 2012, after the drawing, that the hunt was undersubscribed and the remaining permits were available on a first come first serve basis. This information indicates that there is already a surplus of brown bear hunting opportunities in Unit 22, outside BELA, to those most likely to use guide services. However, because new guided hunts into the lightly used Preserve would be attractive to nonlocal hunters, a noticeable increase in harvest within BELA can be expected to occur.

The direct and indirect impacts of Alternative B on brown bears would be *low in intensity, long-term* in duration due to the low reproductive rate of brown bears. The resource is *important* in context, because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the effect to brown bears would be *moderate*.

Caribou

The current WACH population is about 325,000 animals. Although caribou harvest reporting is considered to be poor (about 10 percent reported through registration permit system compared to the harvest identified through community harvest surveys) the total annual caribou harvest for Unit 22 is probably somewhere near 500 animals, noting that Shishmaref harvested a reported 286 in 2000. Local residents hunting under federal subsistence regulations have a harvest limit of up to 15 caribou per day (on federal lands in GMU 23 and up to 5 per day in GMU 22) and nonresidents can harvest a total of five caribou in Unit 22 or 2 caribou in Unit 23. Although in recent years caribou have been observed on the Seward Peninsula throughout the year, the majority move into the area during winter months, making them an unreliable resource for sport hunters who are often limited to a two week hunting trip in the fall. According to the responses on the guide questionnaire, guides would not plan caribou hunting trips, but would harvest them opportunistically if encountered while conducting hunts for brown bears, moose or muskoxen. Under Alternative B the maximum number of caribou that could be harvested by nonresident clients of guides within the Preserve would be 150 caribou (30 clients with five caribou each) if they all came out of GMU 22, but it would be less if some came out of GUA 23-07 where nonresidents are limited to 2 caribou. Because of the constant movement of caribou, the location of the harvest (whether all harvested in one GUA or distributed across three GUAs) would be irrelevant. A small local population of caribou (about 2000) which have maintaining a year around presence in area, could be somewhat affected by fall hunting by guided hunters because larger numbers of caribou usually arrive in the area later in the season. These resident caribou may become more important to subsistence users in the region as the Western Arctic Caribou Herd continues to decline. The direct and indirect impacts of Alternative B on caribou would be *low in intensity* because of unpredictable access by guided hunters, and it would be *long-term* in duration. The resource is *important* in context, because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the effect to caribou would be *minor*.

Moose

Federal public lands are closed to the harvest of moose in GUA 22-01 and GUA 22-03, except by federally qualified subsistence users. GUA 22-06 and GUA 23-07 are open to nonlocal moose hunters and there is a nonresident season in GUA 23-07 for a limited number of draw permit holders (DM871-877). Within GUA 22-06 nonlocal resident hunters would hunt moose with a harvest ticket and nonresidents would hunt under a drawing permit system (DM845) during the November/December season. The DM845 hunt has a limit of eight permits. Within GUA 23-07 nonlocal residents would hunt with a harvest ticket and non-residents would hunt with a draw permit during Sept 1-20 (Table 4.1).

Table 4.1. Moose Guiding Opportunities in BELA

	Local hunters	Nonlocal residents	Nonresidents
GUA 22-01	Subsistence hunting only on Federal lands. Use of guides unlikely.	Closed	Closed
GUA 22-03	Subsistence hunting only on Federal lands. Use of guides unlikely.	Closed	Closed
GUA 22-06	Use of guides unlikely.	Harvest ticket Aug/Sept/Nov/Dec	DM845 Nov/Dec hunt 8 permits available
GUA 23-07	Use of guides unlikely. RM880	Harvest ticket Sept 1-20	DM871-877 Sept 1-20

Under Alternative B, with only two of the four BELA GUAs available for moose hunt guiding, and up to three guide permits issued, there would be two guides operating in the same GUA (if all three permits were issued). GUA 22-06, which has the most opportunity through regulations, is the smallest GUA. Two guides attempting to operate in this area may result in user conflicts. The nonresident draw hunt (DM845) however, takes place in November and December at a time when most bull moose have moved to lower elevations into winter habitats. It is unlikely that there would be a viable opportunity to guide hunters in the Preserve for this hunt. The remaining opportunity is for guiding nonlocal residents during the fall hunts in GMUs 22-06 and 23-07. Gorn (2010) reported that the moose population in Unit 22B (which includes GUA 22-06) is currently declining. Westing (2010) reports that the adult moose population in the northern Seward Peninsula (which includes GUA 23-07) appears to be stable but the harvest levels remain low. Three guides operating within these two small GUAs within the Preserve, with the potential to bring in 30 clients, could have an impact on moose populations in those local areas. It is unlikely that more than a few guided moose hunts would result from this guide hunt opportunity.

The impacts of Alternative B on moose would be *medium to high intensity* because of the low moose population. It would be *long-term* in duration and *important* in context because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the direct and indirect impacts to moose would be *moderate*.

Muskox

Federal public lands are closed to the harvest of muskoxen in GUA 22-03, GMU 22-06, and 23-07 except by federally qualified subsistence users (Table 4.2). GUA 22-01 is open to non-federally qualified muskox hunters. Currently only a Tier I hunt (Alaska residents only) is authorized by the State, which requires trophy destruction if the skull is removed from the unit. The ADF&G has been delegated discretionary authority to restrict bag limit in permit hunts to specific age classes. The season is from Aug 1 through March 15. For the most recent harvest data available (2010) 18 permits were issued, 12 individuals hunted and 11 bulls were harvested.

Table 4.2. Muskox Guiding Opportunities in BELA

	Local hunters	Nonlocal residents	Nonresidents
GUA 22-01	Subsistence hunting only under both State and Federal regulations. Use of guides unlikely.	Tier I subsistence hunt (RX104) use of guides unlikely	Closed
GUA 22-03	Subsistence hunting only on Federal lands. Use of guides unlikely.	Closed	Closed
GUA 22-06	Subsistence hunting only on Federal lands. Use of guides unlikely.	Closed	Closed
GUA 23-07	Subsistence hunting only on Federal lands. Use of guides unlikely.	Closed	Closed

Under Alternative B, with a limit of only two guides in any one GUA, and only one GUA with nonlocal hunting opportunities, only two guides would be issued permits in BELA to guide muskox hunts. The maximum number of guided hunters would be 20 per season. However, because only subsistence hunts are currently authorized in the area, with trophy destruction required if the skull is removed from the unit, it is unlikely there would be any demand for guide services. If guides were used by nonlocal subsistence hunters, user conflict with two guiding operations should be few because the GUA is a relatively large unit.

The direct and indirect impacts of Alternative B on muskoxen would be *low intensity*, *long-term* in duration, and *important* in context because protection of habitat for wildlife populations is enabled in ANILCA 201(2). The overall effect for muskoxen would be *minor*.

Cumulative Impacts

Past and present activities that have impacted wildlife on the Seward Peninsula include sport and subsistence harvest activities as well as predator control efforts by reindeer herders and others. Defense of life and property (DLP) killing of bears has also affected brown bear populations in the project area. The greatest influences over wildlife population, however, are habitat, weather conditions that influence winter survival rates, disease, and natural predation. Any additional harvest of wildlife that would occur as a result of Alternative B would contribute a negligible cumulative effect.

Conclusion

The effect of Alternative B on wildlife varies by species. The direct and indirect effects would be *minor* for muskoxen, and caribou; and *moderate* for moose and brown bears. There would be a *negligible* contribution to cumulative effects. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.4 Alternative C – License up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve (*NPS Preferred*)

The NPS would authorize up to 3 sport hunting guide concessions for separate guide areas in the Preserve (Figure 2.4). One guide concession would be assigned to any one GUA. An example might be: one guided hunting concession would be assigned to GUA 22-01, which covers the western half of the Preserve; and up to two additional concessions would be limited to the eastern half of the Preserve or GUAs 23-07, 22-03, and 22-06. Client limits would be set at 10 clients per year for GUA 22-01 and a total of 10 clients per year for the remaining GUAs (22-03, 22-06 and 23-07), with the number of clients in each of these three remaining GUAs set by the superintendent in each operating year plan. This alternative could result in a maximum of up to 200 clients in 10 years. As in alternative B, guide operations may be excluded from important subsistence use areas near local rural communities based on the ANILCA 810 findings (Appendix B). An area around the Serpentine Hot Springs bathhouse encompassing the upper reaches of Hot Springs Creek and Reindeer Creek watersheds would be closed to guided hunting operations as described above in Section 2.3 (Figure 2.5). This alternative provides space for each guided hunting concession without competition from other guides. Natural water and landforms around Serpentine Hot Springs would serve as boundaries that exclude guided hunters.

Because guides would likely operate from their existing camps, and add limited hunts within BELA because of access issues, the arrangement of separate guiding areas would not change the evaluation of most resources, except as noted.

4.4.1 Local Employment

Community and economic opportunity would be similar to that described in Alternative B, except that it could slightly change guided hunting points of access to the Preserve. This would divide economic effects among communities. Guided hunting operations generally have 4 - 6 clients per hunt and require 1 guide assistant, and one cook. The implementation of Alternative C would allow up to three hunting guide concessions with an average of 20 clients per year. Hunts would last approximately 10 -14 days. Supplies would most likely be brought from Anchorage and Nome. If Alternative C is implemented, it is likely that concession guides would maintain their existing businesses outside the Preserve, with the assistants they currently employ, so there is little possibility of new employment opportunities, although the guiding opportunities would increase. Rentals or charters of aircraft, snowmachines, and hunting outfitters could receive extra business. There is less potential for indirect sales and rentals to concentrate in the communities of Shishmaref and Deering because concession areas would not overlap.

Wheeled aircraft could not land at the Serpentine Hot Springs airstrip, however, since that area would be excluded for guiding activity. Because little or no new year-round employment would be created, the overall direct and indirect effects as a result of implementation of Alternative C would be negligible for growth in jobs. The effect would be perceptible, therefore of low intensity; potentially long-term, and important in context, since employment opportunities are so rare in the project area.

Cumulative Impacts

Past, present and future actions that affect job opportunities for people living in villages on the Seward Peninsula include tourism development, especially in Nome; unknown return of reindeer

for herding; and historically high unemployment rates. In addition, the community of Shishmaref, from which some sport hunting currently launches, may move their town to higher ground. Construction efforts in that pursuit could increase community revenue temporarily. Alternative C would have a negligible contribution to cumulative effects on job opportunities for residents.

Conclusion

Alternative C would have a *negligible* direct and indirect and contribution to cumulative effects on job opportunities for the region. The effect would be perceptible, therefore of *low intensity*; potentially *long-term*, and an *important* (rare) resource consideration in the region. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.4.2 Recreation Uses

The addition of up to 20 guided hunters per year would be observable and measurable and dispersed over the entire Preserve (low intensity). The Preserve has relatively few annual visitors, and most of them visit the hot springs area. In Alternative C, an area surrounding the Serpentine Hot Springs would be closed to guided hunting operations, so conflicts with other recreationists in that area would not occur. The closed area around the springs is also observable according to natural features, so the risk of guides crossing the boundary is minimal. The effects could potentially be long-term, and affect hunting, which is a unique recreation opportunity.

Cumulative Impacts

Past actions that have contributed to recreation uses include the development of the facilities at Serpentine Hot Springs. No actions that would lead to increases or changes to recreation uses were identified. Alternative C would not add a cumulative effect to recreation uses.

Conclusion

Implementation of Alternative C would have a *moderate* effect on recreation uses because of the observable introduction of up to 20 hunters annually in a previously sparsely used area, and because recreation uses are an important function of the Preserve. There would be a negligible contribution to cumulative effects to recreation uses, and no cumulative effects were identified. Effects would be *long-term*, *low intensity*, and for an *important* resource. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.4.3 Cultural Resources

Implementation of Alternative C would increase the number of sport hunters in the Preserve, and as described for Alternative B, there is a low risk of disturbance to both identified and previously undetected archeological and historical resource sites. Alternative C authorizes the guides to separate guide areas so the low risk of disturbance is further distributed more evenly throughout the Preserve.

Serpentine Hot Springs is among the most important cultural and healing sites for residents who continue to use the area for traditional uses. Alternative C would close an area around Serpentine Hot Springs to guided hunting, which would reduce some risks of disturbance. The closed area around the springs is also observable according to natural features, so the risk of guides crossing

the boundary is minimal. Overall, the addition of about 20 hunters annually, over a long term, would present a low intensity risk to cultural resources. However, both the traditional cultural uses of the springs, and archeological resources are unique and rare in context, and ANILCA Section 201(2) states that the Preserve should provide for archeological study. The effects could be long-term. Direct and Indirect effects would be moderate.

Cumulative Impacts

Alternative C would have a negligible effect to cumulative impacts. Archeological excavations in BELA are ongoing, so new sites could be identified, and those previously identified could be expanded.

Conclusion

The overall effect to cultural resources, both in traditional uses of the area and in the potential for disturbance to archeological and historical resources would be *moderate* because of the uniqueness of the resource within the Preserve. Alternative C would add *negligible* cumulative effects. Effects would be *low intensity, long-term, and for a unique resource*. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.4.4 Subsistence

Harvest of land mammals is an important part of the subsistence economy, as described in Section 3.5. The project area communities depend in varying degrees on land mammals, including harvests of brown bears, caribou, moose, and muskoxen. Caribou, when available (usually in winter) comprise the largest harvests in numbers and pounds. This has most likely increased in proportion with the decline in caribou herding, and as the WACH has ventured into the area. Moose follow closely, in years where there are sufficient numbers. Bears are not hunted as often, and are viewed as contributing to a lower population of moose. Muskoxen are also taken, though not in numbers approaching that of caribou and moose.

Subsistence hunting under federal regulations currently takes place in BELA and other federal public lands. Subsistence hunting is also authorized by the State of Alaska pursuant to state regulations and takes place throughout the State except where prohibited by federal law or regulation. Brown bears and caribou are harvested under both state and federal regulations within the subunits of this project area, by both local and non-local residents, and non-residents, from August through May. Federal regulations require federally qualified subsistence users to comply with state harvest ticket and reporting requirements. Caribou requirements are similar, but occur year-round (with exceptions for cows.) For all hunting units, and communities, it is assumed that the services of guides would not likely be required for subsistence hunters.

Shishmaref and Wales are located in GMU 22E, which encompasses GUA 22-01. A large portion of 22E is comprised of federally managed land, including BELA. Hunting for moose on the federal public lands within GMU 22E is currently restricted to federally qualified subsistence hunters (rural residents of GMU 22 including Shishmaref and Wales); however, moose hunting by state residents (both local and nonlocal) and nonresidents is currently permitted on State managed lands in 22E adjacent to BELA. Muskox hunting in GUA 22-01 is currently open to subsistence under state (Tier 1) and federal regulations, except that commercial guides are currently prohibited from operating within BELA.

Brevig Mission and Teller are located in GMU 22D, which encompasses GUA's 22-02 and 22-03. GUA 22-03 is closed for moose hunting for non-locals, and non-residents. The eastern portion of GUA 22-03 overlaps BELA, where subsistence hunting for moose is permitted under federal regulations. GUA 22-03 is closed for moose hunting for non-locals, and non-residents; state subsistence regulations would apply to GMU 22D outside federally managed lands. For muskoxen, the same situation exists.

Golovin, White Mountain, Elim, and Council are located in GMU 22B, to the south of BELA. It encompassed GMU's 22-05, and 22-06. GMU 22-06 includes the southern tip of BELA, and also the Koyuk River which provides some access to the Preserve. Moose hunting is permitted in this area for non-locals (August, September, November, and December) and non-residents (permits November and December). Subsistence use areas for these communities are most likely concentrated further south than the BELA area.

Deering is located in GMU 23 and GUA 23-07. As described in Chapter 3, Deering residents subsistence hunt extensively within the BELA boundary to the west of the community. Non-local residents can hunt moose by harvest tickets in September and non-residents can hunt moose in September with a draw permit. GMU 23-07 is closed to muskox hunting (effective 1012-2013) except for subsistence hunting and hunting on federal public lands is further restricted to federally qualified subsistence users.

Nome is located in GMU 22C, which is also GUA 22-04. There is not a lot of overlap in subsistence hunting from the Nome area into BELA, but Kougarok Road extends from Nome north, terminating in GMU 22D and GUA 22-03, which is within 20 miles of the BELA boundary. However, moose and musk ox hunting is closed in that area for all but subsistence hunting within BELA.

Under current management regimes, both state and federal, few conflicts emerge in the Guide Use Areas and Game Management Areas if guiding concessions are authorized for BELA. Guides and subsistence hunters alike would like more access to moose, but moose hunting is closed on federal lands to non-local and non-resident hunters in the area near Shishmaref. The same is true beyond Kougarok Road in GMU 22D. Moose hunting by nonlocal residents and non-residents is permitted in Unit 23, which includes Deering. As discussed in Chapter 3, Deering residents are intensive subsistence users of BELA. There is a slight potential for conflicts in BELA among hunters in that area, and additional pressure on moose populations.

Caribou would not be targeted by guides, primarily because their arrival does not usually coincide with hunts for other species, and/or it is unpredictable. Guides have indicated that they would like to take them opportunistically if the occasion occurred. Bears are not commonly taken by subsistence users in the Seward Peninsula area, and are viewed as reducing an important food resource, moose. The addition of muskox and brown bear hunts in GMU 22E could be beneficial to guide businesses with low potential for conflicts with subsistence hunting when brown bears and muskoxen are abundant, but guided hunts for limited moose resources or caribou that are accessible to federally-qualified subsistence users could cause competition for valued resources. Sport harvest opportunities for muskox, however are currently closed because of declining populations. When muskoxen were available to sport hunters there was a high demand for these animals by nonlocal hunters, and subsistence harvests by local residents in the project area have historically been relatively low.

Under Alternative C, which allows for three separate guide use areas, guides would probably prefer the GUA 23-07 BELA for moose and GUA 22-01 for brown bear and possibly some Tier 1 muskoxen hunting, adding to their current hunt choices for clients. It is unlikely that existing guides with camp facilities on different areas of the Seward Peninsula would relocate their facilities for this level of guiding. The hunts would affect an important resource, as established as a Preserve use in ANILCA 201 (2). The overall direct and indirect effects to subsistence are reduced with the reduction of potential guides in the same unit. Therefore, the direct and indirect effects would be of low intensity over a long term. Overall, direct and indirect effect would be minor.

Cumulative Effects

Past and present activities that have impacted wildlife on the Seward Peninsula include sport and subsistence harvest activities as well as predator control efforts by reindeer herders and others. Assuming game management remains as it is currently, the low number of annual; guided hunters would add a negligible contribution to cumulative effects.

Conclusion

Alternative C would have a minor effect for subsistence hunting for muskoxen, brown bears, moose and caribou. Overall, Alternative B would have *moderate* direct and indirect effects to subsistence, and a *negligible* contribution to cumulative effects. Effects would be overall be *low intensity, long-term, and affect a common resource*. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

4.4.5 Wildlife

Brown Bear

With the potential for only one guide operating in any one GUA with an average of 10 clients per year for GUA 22-01, and 10 clients for the remaining GUAs, Alternative C would represent a potential to harvest a total of 20 brown bears. Nonresident brown bear hunt success rates for Unit 22 have ranged from 50 -100 percent. Reported brown bear harvest in Unit 22E (GUA 22-01) over the past several years has been very low (six bears over a four year period) and most of these animals were likely taken on non BELA lands within the hunt area because guided hunts are not currently allowed within BELA. It is believed that some Unit 22E guides would be very eager to get access into BELA for brown bear hunting. ADF&G drawing permits for non-residents in GMUs 22 D&E is currently limited to 12 per year. Although resident hunters are not required to use a guide, there is a potential for some nonlocal resident hunters to use these new guided hunt services in BELA, and those hunts are not currently limited under State regulations.

GUAs 22-03, GUA 22-06 and GUA 23-07 are thought to have healthy brown bear populations which could support additional harvest. Twenty additional brown bear hunters within the Preserve harvesting an additional 10 to 20 brown bears per year, would represent about a 10-20 percent overall increase in brown bear mortality across the Seward Peninsula. An increase in brown bear hunting of this magnitude, because of the opportunity for guides to operate in the Preserve, is unlikely. Current nonresident brown bear hunter participation in Unit 22 outside the Preserve has been low with moderate to low demand for permits. The recent 2011 nonresident brown bear draw permit hunt for Units 22E and 22D (DB690) indicates that there were ten applicants for 12 available permits; for Units 22B and 22C (DB685) (which includes GUA 22-

06) there were six applicants for 27 permits available; and for Unit 23 southwest (DB767 and 777) there were no applicants for six permits. ADF&G announced in mid-February 2012, after the drawing, that the hunt was undersubscribed and the remaining permits were available on a first come first serve basis. This information indicates that there is already a surplus of brown bear hunting opportunities in Unit 22 outside of BELA to those most likely to use guide services. However, because new guided hunts into the lightly used Preserve would be attractive to nonlocal hunters, a noticeable increase in harvest within BELA can be expected to occur.

The direct and indirect impacts of Alternative C on brown bears would be *low in intensity*, *long-term* in duration due to the low reproductive rate of brown bears. The resource is *important* in context, because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the effect to brown bears would be *moderate*.

Caribou

The direct and indirect effects of Alternative C on caribou would be the same as described under Alternative B. The current Western Arctic Caribou Herd population is about 325,000 animals. Although caribou harvest reporting is considered to be poor (about 10 percent reported through registration permit system compared to the harvest identified through community harvest surveys) the total annual caribou harvest for Unit 22 is probably somewhere near 500 animals, noting that Shishmaref harvested a reported 286 in 2000. Local residents hunting under federal subsistence regulations have a harvest limit of up to 15 caribou per day (on federal lands in GMU 23 and up to 5 per day in GMU 22) and nonresidents can harvest a total of five caribou in Unit 22 or 2 caribou in Unit 23. Although in recent years caribou have been observed on the Seward Peninsula throughout the year, the majority move into the area during winter months, making them an unreliable resource for sport hunters who are often limited to a two week hunting trip in the fall. According to the responses on the guide questionnaire, guides would not plan caribou hunting trips, but would harvest them opportunistically if encountered while conducting hunts for brown bears, moose or muskoxen. Under Alternative C the maximum number of caribou that could be harvested by nonresident clients of guides within the Preserve would be 100 caribou (20 clients with 5 caribou each) if they all came out of GMU 22, but it would be less if some came out of GUA 23-07 where nonresidents are limited to 2 caribou. Because of the constant movement of caribou, the location of the harvest (whether all harvested in one GUA or distributed across three GUAs) would be irrelevant. A small local population of caribou (about 2000) which have maintaining a year around presence in area, could be somewhat affected by fall hunting by guided hunters because larger numbers of caribou usually arrive in the area later in the season. These resident caribou may become more important to subsistence users in the region as the Western Arctic Caribou Herd continues to decline. The direct and indirect impacts of Alternative B on caribou would be *low in intensity* because of unpredictable access by guided hunters, and it would be *long-term* in duration. The resource is *important* in context, because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the effect to caribou would be *minor*.

Moose

The impacts to moose from Alternative C would be similar as described for Alternative B. But, with only two GUAs available for guided moose hunts only two guide permits would be issued. Although this alternative would be less likely to produce user conflicts from having more than one guide operate in a relatively small GUA, the relatively low moose populations and limited opportunities in regulation for nonlocal hunters, the impacts of this alternative would be medium *to high intensity* because of the low moose population. It would be *long-term* in duration, and *important* in context because protection of habitat for wildlife populations is enabled in ANILCA 201(2). Overall, the direct and indirect impacts to moose would be *moderate*.

Muskoxen

The impacts to muskoxen from Alternative C would be even less than described for Alternative B, because only one guide permit would be issued for the only GUA that is not closed to non-federally qualified subsistence users (GUA 22-01). In addition, because this hunt is a Tier 1 hunt, which requires trophy destruction, it is unlikely to attract many guide clients. A maximum of 10 guide clients would be allowed for the one guide. This alternative with its potential for half as many guide clients, would be even less likely to produce user conflicts. The direct and indirect impacts of Alternative C on muskoxen would be *low intensity* and *long-term* in duration. It would be *long-term* in duration and *important* in context because protection of habitat for wildlife populations is enabled in ANILCA 201(2). The overall effect for muskoxen would be *minor*.

Cumulative Impacts

Past and present activities that have impacted wildlife on the Seward Peninsula include sport and subsistence harvest activities as well as predator control efforts by reindeer herders and others. DLP killing of bears has also affected brown bear populations in the project area. The greatest influences over wildlife population, however, are habitat, weather conditions that influence winter survival rates, disease, and natural predation. Any additional harvest of wildlife that would occur as a result of Alternative C would add a *negligible* cumulative effect.

Conclusion

The direct and indirect effects of Alternative C on wildlife vary by species. The effect would be *minor* for muskoxen and caribou; and *moderate* for moose and brown bears. Alternative C would contribute a *negligible* cumulative effect to wildlife populations. There would be no impairment to the purpose of the Preserve or to the integrity of the significant resources for which the Preserve was established.

5.0 CONSULTATION AND COORDINATION

5.1 Agency Consultation and Coordination

The NPS is the lead agency in the development of this EA. There was no formal public scoping in the development of this document. NPS policies do not require public scoping during draft document preparation of an EA. This EA will be available for public review and comment for a minimum of 30 days. Following the public review period, all the public comments will be considered. A final decision by the NPS Alaska Regional Director may come in the form of a Finding of No Significant Impact (FONSI), which would take into account any new information and public comment, and select an alternative to implement. If a FONSI is approved, it would be sent to those individuals and organizations that commented during the public review period, and it would be available on the National Park Service website (<http://www.nps.gov/wrst/parkmgmt/planning.htm>) and the NPS park planning web site (<http://parkplanning.nps.gov/>).

The NPS has determined that there are T&E Species expected in immediate project area such as polar bears and spectacled and Steller's eiders, but the proposed action would not be expected to have adverse effects on these species; therefore informal Section 7 consultation with the FWS has been initiated as noted in Appendix A.

5.2 List of Preparers

This EA was developed under an NPS contract by URS Group, Inc. of Anchorage, Alaska. The NPS holds final responsibility for all content.

URS Group Inc.

Bridget Easley – Deputy Project Manager

Jessica Evans – Environmental Scientist

Linda Harriss – Word Processor

Joan Kluwe – Principal in Charge

Tim Kramer – Environmental Scientist

Dan LaPlant – Senior Environmental Scientist

Kimberly Varner Wetzel – Project Manager

5.3 Contributors/Advisors

Bering Land Bridge National Preserve

Jeanette Pomrenke – Park Superintendent

Ken Adkisson – Subsistence Manager

Eileen Devinney – Cultural Anthropologist

Bud Rice – Project Manager

Brad Shults – Wildlife Biologist

Angel Solomon – GIS Specialist

6.0 REFERENCES

- ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2011. Detailed Community Information, Community Database Online. http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.htm.
- ADF&G (Alaska Department of Fish and Game). 2012. 2012-2013 Alaska Hunting Regulations governing general, subsistence, and commercial use of Alaska's wildlife. No 53. 127 pages.
- . 2012a. Bering Land Bridge National Preserve: Wildlife Viewing. <http://www.ADF&G.alaska.gov/index.cfm?ADF&G=viewinglocations.beringbridge>.
- . 2012b. Community Subsistence Information System. All Years Accessed www.ADF&G.alaska.gov/sb/CSIS/index.cfm?ADF&G=harvInfo.resourceRegionData.
- . 2012c. Harvest Lookup Database. <https://secure.wildlife.alaska.gov/index.cfm?fuseaction=harvest.lookup>.
- . 2011. "Western Arctic Herd 2009 Census Revised". Caribou Trails: News from the Western Arctic Caribou Herd Working Group. Spring 2011. Issue 11. 16 pages. http://www.ADF&G.alaska.gov/static/home/library/pdfs/wildlife/caribou_trails/caribou_trails_2011.pdf
- . 1985. The Economics of Wild Resource Use In Shishmaref, Alaska. Division of Subsistence. Technical Report No. 112. Fairbanks, Alaska.
- Adkisson. K. 2012. Personal Communication. Subsistence Manager. National Park Service. Bridget Easley. URS Ahmasuk, A., Trigg, E., Magdanz, J.S., Robbins, B. 2008. Bering Strait Region Local and Traditional Knowledge Pilot Project: A comprehensive Subsistence Use Study of the Bering Strait Region. North Pacific Research Board Final Report. Project #643
- BLM (Bureau of Land Management). 2008. Kobuk-Seward Peninsula Approved Resource Management Plan and Environmental Impact Statement. Fairbanks District Office and Anchorage Field Office.
- Burch. E. S. 1990. The cultural and natural heritage of northwest Alaska, Vol. 5: The Inupiaq nations of northwest Alaska. Nana Museum of the Arctic and the National Park Service, Anchorage, Alaska.
- Braem. N. M. 2011. Special Publication No. SP2011-002: Subsistence Wildlife Harvest in Deering, Alaska, 2007-2008. Alaska Department of Fish and Game. Division of Subsistence. May 2011. Anchorage.
- Dau. J. 2007. Unit 23 muskox. Pages 35–48 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2004–30 June 2006. Alaska Department of Fish and Game. Project 16.0. Juneau, Alaska, USA.
- . 2009. Units 21D, 22A, 22B, 22C, 22D, 22E, 23, 24 and 26A caribou management report. Pages 176–239 in P. Harper, editor. Caribou management report of survey and inventory activities 1 July 2006–30 June 2008. Alaska Department of Fish and Game. Juneau.

- DCCED (Department Of Commerce, Community, and Economic Development, Division of Corporations, Business and Professional Licensing.). 2012. Statutes and Regulations. Big Game Commercial Services Board. January 2012.
- Federal Register. 2010. Vol. 75, No. 125, Wednesday, June 30, 2010. Rules and regulations Department of Agriculture, Forest service, 36 cfr part 242, and Department of the Interior, Fish and Wildlife Service, 50 cfr part 100. Pages 37918 – 37969.
- Finstad, G. 2007. Reindeer In Alaska: Under New Management. University of Alaska Fairbanks, School of Natural Resources and Agricultural Sciences, Agricultural and Forestry Experiment Station. 8 pages.
- FWS (Fish and Wildlife Service). 2001. Staff Analysis WP01-35, in Federal Subsistence Board Meeting Materials May 9-10, 2001. Office of Subsistence Management, FWS. Anchorage, AK
- . 2010. Staff Analysis WP10-78. Pages 816–825 in Federal Subsistence Board Meeting Materials May 18-20, 2010. Office of Subsistence Management, FWS. Anchorage, AK. 826 pages.
- . 2012. Subsistence: Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska 2012/2014. Office of Subsistence Management. Anchorage.
- Goebel, T.G. 2009. Ice-Age Humans of the Bering Land Bridge: Archeology of Serpentine Hot Springs, Bering Land Bridge National Preserve, Alaska. Texas A&M University.
- Gorn, T.S. 2007. Unit 22 and southwest portion of Unit 23 muskox. Pages 12–34 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2004–30 June 2006. Alaska Department of Fish and Game. Project 16.0. Juneau, Alaska, USA.
- . 2010. Unit 22 moose management report. Pages 522–550 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. Alaska Department of Fish and Game. Project 1.0. Juneau, Alaska.
- . 2011. Unit 22 muskox. Pages 16-47 in P. Harper, editor. Muskox management report of survey and inventory activities 1 July 2008-30 June 2010. Alaska Department of Fish and Game. Project 16.0. Juneau, Alaska, USA.
- . 2011b. June 1, 2011 memo from Tony Gorn to the Seward Peninsula Muskox Census participants containing the revised 2010 census estimate. 3 pages.
- . 2012. May 9, 2012 memo from Tony Gorn to distribution list containing the 2012 Muskox Survey Results. 5 pages.
- Hughes, L. 2009. Unit 22 brown bear management report. Pages 270-282 in P. Harper, editor. Brown bear management report of survey and inventory activities 1 July 2006-30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.
- Hughes, L. 2009b. Unit 22 wolf. Pages 220-226 in P. Harper editor. Wolf management report of survey and inventory activities 1 July 2005-30 June 2008. Alaska Department of Fish and Game. Project 14.0. Juneau, Alaska, USA.
- Joly, K. 2007. Seward Peninsula Muskox Census, 2005. Bureau of Land Management Open File Report 111. 13 pages. Anchorage, Alaska.

- . 2011. Modeling influences on winter distribution of caribou in northwestern Alaska through use of satellite telemetry. *Rangifer* Special Issue 19: 75-85.
- Klein, D.R. 1992. Comparative ecological and behavioral adaptations of *Ovibos moschatus* and *Rangifer tarandus*. *Rangifer* 12(2) 47–55.
- Lent, P. 1998. Alaska’s indigenous muskoxen: a history. *Rangifer* 18:133-144.
- MacDonald, S.O. and Cook, J.A. 2009. *Recent Mammals of Alaska*. University of Alaska Press.
- NPS (National Park Service). 1986. General management plan; Land protection plan; wilderness suitability review. Bering Land Bridge National Preserve. 226 pages.
- . 1988. Final Environmental Impact Statement/Wilderness Recommendation, Bering Land Bridge National Preserve. U.S. Department of the Interior, National Park Service, Denver Service Center Report NPS D-21A.
- . 2001. Management Polices. Bering Land Bridge National Preserve.
- . 2003. Cultural Landscape Inventory: Iyat (Serpentine Hot Springs), Bering Land Bridge National Preserve.
- . 2006. Management Polices. Bering Land Bridge National Preserve. U.S. Department of the Interior, National Park Service, Mail Stop IDCC, Washington, DC 20402-0001. ISBN: 0-16-076874-8.
- . 2009. Preserve Foundation Statement, Bering Land Bridge National. Alaska Regional Office, National Park Service.
- . 2011. Bering Land Bridge NPRES Visitation by Month/Year. National Park Service Public Use Statistics Office. <http://www.nature.nps.gov/stats/park.cfm?parkid=103>.
- . 2012. Bering Land Bridge National Preserve. US Department of the Interior. <http://www.nps.gov/bela/>.
- . No date. Prehistory of Alaska: Bering Land Bridge National Preserve. http://www.nps.gov/akso/akarc/cr_bela.htm
- Oleson, H.J. 2005. Changing strategies in seward peninsula reindeer (*rangifer tarandus tarandus*) management. University of Alaska, Fairbanks.
- Owsichuk, K.D. v. State Alaska. (Owsichuk) 1988. State of Alaska, guide licensing and control board, appellee. 10/21/88. Supreme Court of Alaska. http://ak.findacase.com/research/wfrmdocviewer.aspx/xq/fac.19881021_0005.ak.htm/qx.
- Skoog, R.O. 1968. Ecology of the caribou (*Rangifer tarandus Granti*) in Alaska. Ph.D. Dissert., Univ. of Alaska, Fairbanks, AK. 699 pp.
- Smith, T.E. 1989. The role of bulls in pioneering new habitats in an expanding muskox population on the Seward Peninsula, Alaska. *Canadian Journal of Zoology* 67:1096–1101.
- Swanson, J.D., G.L. Finstad, R. Meyers, and K.L. Sonnin. 2002 An Eye in the Sky High-tech satellite telemetry improves reindeer management on Alaska's vast rangelands. *Rangelands* (24) vol. 5. Pages 30-40.

- URS. 2011. Bering Land Bridge National Preserve: Serpentine Hot Springs Transportation Access Report.
- Westing, C. 2009. Unit 23 brown bear management report. Pages 283-299 in P. Harper, editor. Brown bear management report of survey and inventory activities 1 July 2006-30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.
- . 2010. Unit 23 moose management report. Pages 551–571 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. Alaska Department of Fish and Game. Project 1.0. Juneau, Alaska.
- Wolfe, Robert J. 2000 Subsistence in Alaska: A Year 2000 Update. Division of Subsistence, Alaska Department of Fish and Game. Juneau.
- Woodford, Riley. 2012. Alaska's Largest Caribou Herd is Declining, in Alaska Fish & Wildlife News.
http://www.ADF&G.alaska.gov/index.cfm?ADF&G=wildlifeneews.main&issue_id=111. Accessed July 27, 2012.

APPENDIX A

U.S. Fish and Wildlife Service Consultation

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United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office

101 12th Avenue, Room 110
Fairbanks, Alaska 99701

October 4, 2012



MEMORANDUM

To: Bud Rice, Environmental Protection Specialist, National Park Service

From: Ted Swem, Branch Chief *Ted Swem*

Subject: Endangered Species Act Section 7 consultation for guided hunting concessions within the Bering Land Bridge National Preserve

This letter is in response to your request for consultation on endangered and threatened species, and critical habitats pursuant to Section 7 of the Endangered Species Act of 1973, as amended (ESA).

THE PROPOSED ACTION

The National Park Service (NPS) is considering allowing guided sport hunting concessions within the Bering Land Bridge National Preserve (BELA, the Preserve). The environmental assessment analyzes three alternatives: A) the No-Action Alternative with no guided sport hunting in the Preserve; Alternative B with up to three guides with up to 10 clients each per year who could operate anywhere in the Preserve except closed areas; and Alternative C, the NPS preferred alternative, which would authorize up to three sport hunting guide concessions for separate guide use areas (GUAs) in the Preserve and no more than 20 clients total each year (Map 1). No more than one guide concession would be assigned to any one GUA. Client limits would be limited to 10 clients per year for GUA 22-01 and 10 clients per year for the remaining GUAs (22-03, 22-06, and 23-07), with the number of clients for each of these GUAs set by the superintendent each operating year (20 guided hunters annually in BELA). The Superintendent may adjust client limits and limit uses, such as in sensitive areas, in an annual operating plan based on pertinent resource information. The proposed hunting guide concessions, if approved and awarded, would exist for 10 years. Thus, the proposed action would allow up to 200 clients to hunt with guides during the next 10 years.

Guide operations may be excluded from important subsistence use areas near rural communities. An area (Map 1) around the Serpentine Hot Springs bathhouse encompassing the upper reaches of Hot Springs Creek and Reindeer Creek watersheds would be closed to guided hunting operations. This restriction includes establishing guide camps, shooting, and processing game. Additionally, parties would be restricted from using safety cabins throughout the Preserve as bases for hunting activities, except in emergencies.

The numbers referenced below are game management units (GMUs) based on subunits - for example, 22E means GMU 22 Subunit E. Alaska Department of Fish and Game (ADFG) uses these units for managing wildlife, including in harvest limits and reporting. Also referenced below and represented on Map 1 are GUAs that ADFG uses in managing guides. For example, 22-01 refers to Area One within Game Management Unit 22. Six GUAs exist within Game Management Unit 22 on the Seward Peninsula: 22-01 through 22-06, as shown on Map 1.

Hunters and guides would adhere to ADFG regulations for GMU subunits 22E, 22D, 22 B, and 23 for brown bear, caribou, moose, and muskox regarding the season of hunting. Guides would be professionally licensed with ADFG and registered for the GUA. Under the current ADFG system, a guide can register for up to three GUAs, but there is no restriction on the number of guides who might apply for a specific GUA. Guides would be allowed to guide for all species their clients could legally hunt; however, some areas may be closed to non-subsistence use of certain species by the Federal Subsistence Board or limited by the Superintendent's annual operating plan. Below, we only discuss activities that could overlap within GMUs, GUAs, and BELA.

Brown Bear

GMU 22E (DB690)/GUA 22-01 and GMU 22D (DB690)/GUA 22-03; August 1 to May 31: New hunting would likely occur > 20 miles from the coast. Spring bear hunting would likely be by snowmachine, while fall bears would be by boat, small aircraft, or ORV where legal.

GMU 23SW/ GUA 23-07; fall (DB767) and spring (DB777): New hunting would likely be > 15 miles inland, and hunting sites would be accessed by snowmachine.

Moose

GMU 22E (RM853)/GUA 22-01; September 1 to 14: Access would predominately be by boat, small plane, ORV where legal, and foot once in the area.

GMU 23SW (DM877)/GUA 23-07: ADFG is currently not issuing drawing permits for nonresident moose harvest in this area, and is unlikely to allow sport hunting of moose in this area in the foreseeable future unless there is a significant growth in the moose population.

Muskox

GMU 22E (DX097)/GUA 22-01 and GMU 23 SW/GUA 23-07: Guided hunts could increase in GMU 22E/GUA 22-01 if ADFG allows muskoxen hunting for sport. Federal public lands in GMU 23 SW are currently closed to non-subsistence muskoxen hunting, and this is unlikely to change. Due to muskoxen population declines, sport hunting of this species is likely to be minimal or nonexistent in the near future.

Caribou

Most commercial interest in guiding for caribou is focused on the fall hunt in GMU 23, north of BELA.

Summary

The proposed action could result in a small increase in fall bear hunting closer to the coast and an increase in the level of spring bear hunting activity > 15 miles inland. However, currently the number drawing bear permits for GMU 22D and E combined is set in State regulations at 12 permits. Thus, guided bear hunting activity in the project area could rise from the current level (none) up to 12 permits annually with a few additional residential clients. Most likely the number of permits would vary annually.

Polar bear mitigation measures

To minimize potential impacts on polar bears, the following measures are included in the of activities proposed within polar bear habitat:

- 1) If polar bears are sighted, guided parties will minimize impacts and/or deter polar bears using methods described in the Service's human-polar bear interaction guidelines (attached) and the deterrence guidelines posted here: http://alaska.fws.gov/fisheries/mmm/polarbear/det_guidelines.htm.
- 2) Guided parties will report polar bear interactions to the NPS on the attached form. All forms must be turned into the Service at the address in this letterhead or via email (shannon_torrence@fws.gov) within 60 days of the end of the project to the Service.

THE ACTION AREA

The action area includes GUAs within BELA and areas used to travel to these GUAs (Map 1).

EFFECTS OF THE ACTION

Steller's and spectacled eiders

The Service listed the Alaska-breeding population of the Steller's eider (*Polysticta stelleri*) as threatened on June 11, 1997 (62 FR 31748) and the spectacled eider (*Somateria fisheri*) on May 10, 1993 (58 FR 27474). Alaska-breeding Steller's eiders breed on the North Slope and then migrate to fall molting areas in marine waters along the Kuskokwim Shoals and the Alaska Peninsula in southwest Alaska. Spectacled eiders also migrate through the action area using mostly marine habitats. Because the proposed action would allow guided hunting along the coast, the proposed action may affect these species. We anticipate that guided hunting activities may disturb a few migrating listed eiders if they are present in the action area. These disturbances, however, would be temporary and have, at most, an insignificant effect because eiders would most likely resume normal behavior after moving to a perceived safe distance.

Spectacled eider critical habitat

The proposed project includes a very small portion of the Norton Sound Unit (Unit 3) of spectacled eider critical habitat, which was designated on February 2, 2001 (66 FR 9146). Primary constituent elements (PCEs) for the Norton Sound Unit include all marine waters > 5 m (16.4 ft) and ≤ to 25 m (82.0 ft) in depth, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community. While boating activities may temporarily prevent some individuals from using very small portions of critical habitat containing PCEs, this habitat would again become available to spectacled eiders once boaters

leave the area. Therefore, effects on critical habitat, if any, would be temporary and small in scale, and thus insignificant.

Polar bears

On May 15, 2008, the polar bear was listed as threatened (73 FR 28212). Typically, most polar bears occur in the active ice zone, far offshore. While polar bears are not known to den in the action area, a few polar bears may transit the BELA, especially coastal areas. Thus, if guided hunting parties encounter polar bears, the proposed activities could temporarily disrupt the normal behavior of polar bears. Bears may become curious and approach hunting parties; alternatively, bears may avoid these parties. Based on mitigation measures, we anticipate that the proposed action would cause only minor and insignificant effects on in this species because polar bears will likely resume normal behaviors after the temporary disturbance.

Polar bear critical habitat

The Service designated critical habitat for polar bears on November 24, 2010 (75 FR 76086). Some proposed activities would occur within the no-disturbance zone of barrier island habitat (Unit 3). The no-disturbance zone includes the surrounding land and water within 1 mile (1.6 km; 0.87 nautical miles) of designated barrier island habitat. Additionally, some activities could occur on sea ice during winter (e.g., travel on snowmachine). Please see detailed critical habitat maps or shapefiles provided at the USFWS Alaska Region Marine Mammal Management polar bear critical habitat website¹ for additional information on polar bear critical habitat within BELA.

Refuge from human disturbance was identified as a function of barrier island habitat (Unit 3; including a 1.6 km no-disturbance zone) in the designation of polar bear critical habitat (75 FR 76086). While disturbance from guided hunting activities on barrier islands and within the no-disturbance zone could temporarily displace some polar bears, we anticipate that disturbance to polar bears would be minimized by following mitigation measures. Based mitigation measures and the small scale of the proposed action, we expect that the proposed action will result in minimal, short-term disturbance to polar bears that will have an insignificant effect on the conservation role of critical habitat.

¹ http://alaska.fws.gov/fisheries/mmm/polarbear/esa.htm#critical_habitat

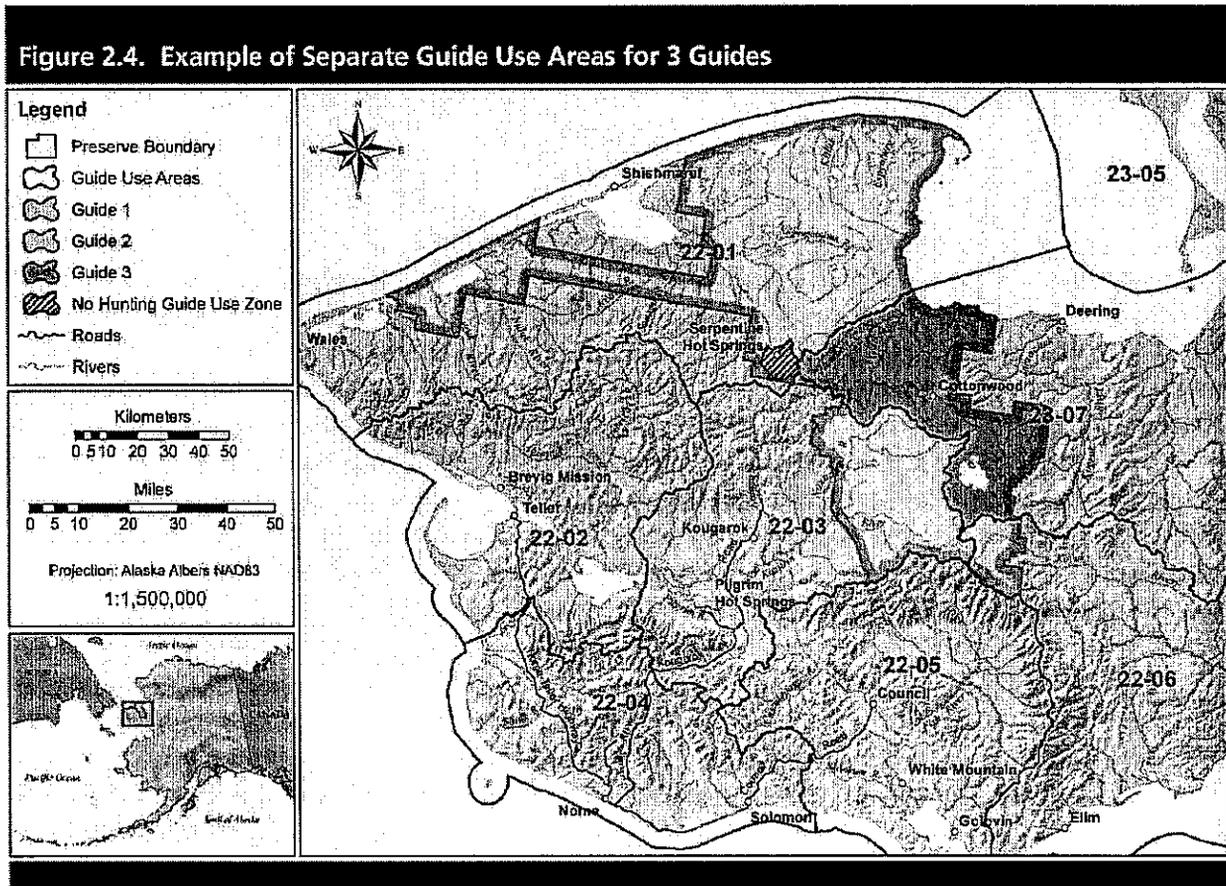
Summary

Given that the only anticipated effect of the project is a small number of temporary disturbances causing insignificant effects, we do not anticipate the project will adversely affect Steller’s and spectacled eiders, or polar bears. Similarly, due to low-level insignificant effects, the Service concludes that the proposed action is not likely to adversely affect spectacled eider or polar bear critical habitat.

Thank you for your cooperation in meeting our joint responsibilities under the Act. If you need further assistance, please contact Shannon Torrence at (907) 455-1871.

Sincerely,

Ted Swem
 Branch Chief
 Endangered Species



Map 1. Action Area containing GUAs within BELA.

APPENDIX B

ANILCA SECTION 810(a)

SUMMARY EVALUATION AND FINDINGS

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence activities which could result from the National Park Service (NPS) proposal to:

Solicit proposals for providing guided sport hunting services in the Bering Land Bridge National Preserve (BELA). If a prospectus is issued and proposals accepted, it could provide for up to three licensed guides to offer commercially guided sport hunting services for an average of 30 and a potential maximum of 42 clients in any given year but no more than a total of 300 clients over the 10-year contract life.

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, 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;
- (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.”

ANILCA created new units and additions to existing units of the national park system in Alaska. Bering land Bridge National Preserve was created by ANILCA Section §201 (2) for the purposes of protecting and interpreting examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geologic processes; to protect habitat for

internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves; subject to such reasonable regulations as the Secretary may prescribe, to continue reindeer grazing use, including necessary facilities and equipment, within the areas which on January 1, 1976, were subject to reindeer grazing permits, in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area. The Secretary shall permit the continuation of customary patterns and modes of travel during periods of adequate snow cover within a one-hundred-foot right-of-way along either side of an existing route from Deering to the Taylor Highway, subject to such reasonable regulations as the Secretary may promulgate to assure that such travel is consistent with the foregoing purposes.

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."

III. PROPOSED ACTION ON FEDERAL LANDS

The National Park Service (NPS) is considering soliciting proposals for offering guided sport hunting services in the Bering Land Bridge National Preserve (BELA). For more detailed descriptions of the NPS proposed action, alternatives to the proposal, and the environmental effects of each alternative, see the public review environmental assessment (EA) on Guided Sport Hunting Concessions in Bering Land Bridge National Preserve. If a prospectus is issued and proposals accepted, the NPS proposed action could provide for up to three licensed guides to offer commercially guided sport hunting services for an average of 30 and a potential maximum of 42 clients in any one year but no more than a total of 300 clients over the 10-year contract life.

Alternative A – No Hunting Guide Concessions Authorized (No Action)

The No Action Alternative would not authorize hunting guides' concessions within BELA. Subsistence and sport hunting would continue as in the past. Sport hunting access would continue to be by private parties with their own transportation or with licensed air taxi operators and big game transporters. This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the action alternatives.

Elements Common to All Action Alternatives

The following elements are common to both action alternatives and would be included in the concessions contract.

- Guided hunting operations would avoid areas near the Serpentine Hot Springs special management area. This includes establishing guide camps; shooting; and processing

game. The Serpentine Hot Springs area has been identified as significant in the Preserve's GMP, Foundation Statement, and ongoing Development Concept Plan for spiritual, recreational, and healing activities. Facilities at Serpentine Hot Springs (landing strip, bathhouse, and bunkhouse, and outhouse) are not to be used by guided hunting parties. The area closed to guided hunting operations would be inside Guide Use Area 22-01 and would vary by alternative as described below.

- Guided hunting parties are not to use safety cabins throughout the Preserve for bases of hunting operations. These shelter cabins are only to be used in case of emergencies (see Figure 2 for locations of shelter cabins and other installations in the Preserve).
- Guides would be allowed to guide for all species their clients would be legally able to hunt under current State hunting regulations, except as closed to non-subsistence uses by the Federal Subsistence Board or further limited in accordance with the Superintendent's annual operating plan.
- The Superintendent may adjust client limits and limit uses, such as in sensitive areas, in an annual operating plan based on pertinent resource information.

Alternative B – License Up to 3 Hunting Guide Concessions for the Whole Preserve

The NPS would authorize up to three sport hunting guide concessions in the Preserve, who could have operations overlapping in areas pursuant to current State rules in any three of the four applicable Guide Use Areas; 22-01, 22-03, 22-06, and 23-07 (Figure 2-2). Hunting guide concessions would be limited to an average of 10 clients per year and no more than 14 clients in any one year with a maximum of 100 clients over the 10-year contract period. If three guides are authorized, this alternative could result in a maximum of up to 300 clients in 10 years. To minimize adverse effects to local subsistence communities, guide operations may be excluded from important subsistence use areas near local rural communities based on findings in this summary evaluation. A four-mile radius of area around the Serpentine Hot Springs bathhouse would be closed to guided hunting operations as described above in EA Section 2.3 (Figure 2-3). This alternative provides guided hunting concessions to share large portions of nearly 2.5 million acres and flexibility to pursue a variety of big game species.

Alternative C - License Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve

The NPS would authorize up to three sport hunting guide concessions for separate guide areas in the Preserve (Figure 2-4). One guide concession would be assigned to any one Guide Use Area (GUA). An example might be: one guided hunting concession would be assigned to GUA 22-01, which covers the western half of the Preserve; the other two concessions would be limited to the eastern half of the Preserve or GUAs 23-07, 22-03, and 22-06. Client limits would be set at 10 clients per year for GUA 22-01 and a total of 10 clients per year for the remaining GUAs (22-03, 22-06 and 23-07), with the number of clients in each of these three remaining GUAs set by the superintendent in each operating year plan. This example could result in a maximum of up to 200 clients in 10 years. An example of three NPS Guide Areas might be one NPS Guide Area covering the north western portion of the Preserve or GUA 22-01; a second NPS Guide Area might cover the southwestern portion of the preserve and include GUA 22-03; and a third NPS

Guide Area might cover the eastern portion of the Preserve and include GUAs 23-07 and 22-06. Due to limits placed on the various Guide Areas (due to size and available wildlife populations), this would still result in a maximum of 200 clients over the 10-year contract life. An area around the Serpentine Hot Springs bathhouse encompassing the upper reaches of Hot Springs Creek and Reindeer Creek watersheds would be closed to guided hunting operations as described above in Section 2.3 (Figure 2-5). As in Alternative B, guide operations may be excluded from important subsistence use areas near local rural communities based on the ANILCA 810 findings (Appendix B). This alternative provides space for each guided hunting concession without competition from other guides.

IV. AFFECTED ENVIRONMENT

NATURAL ENVIRONMENT

Bering Land Bridge National Preserve (BELA) is located in northwestern Alaska about 500 miles northwest of Anchorage and occupies approximately the northern, one-third of the Seward Peninsula. It contains about 2,784,960 acres (96% of which is federally owned). The non-federally owned lands include 104 Native Allotments (167 parcels) which were basically selected for supporting subsistence activities, and their location reflects usage patterns. The allotment sites are predominately located along the sea coast, around the shores of inlets, and adjacent to navigable rivers, although there are a smaller number scattered through the interior of the preserve. They serve as camps for spring bird hunting, bases for spring marine mammal hunting, and later in the harvest cycle for harvesting birds and eggs, fishing, and gathering berries and greens, or as bases for winter hunting and trapping. Seasonal use of the preserve is largely a function of viable transportation. During winter and spring most subsistence users and travelers use snowmachines and dog teams for access into and across large areas of the preserve (especially inland) when snow and ice cover make such access possible. Summer and fall access is largely by boat and so access is limited to coastal and riparian areas near navigable rivers and streams. Use of ORVs is prohibited except by permit for reindeer herding.

The preserve has a gradient of landforms from coastal plain along the northern coast rising to a central plateau, and bordered in the south by a mountain range. The climate shows both maritime and continental influences and is strongly affected by conditions of the surrounding maritime waters, whether they are frozen or ice-free (generally mid-June to early November).

Three hundred twenty-six species and subspecies of vascular plants and 60 lichens have been identified from the preserve. Brackish/salt marsh grasslands occur in estuaries and around lagoons with drier grasslands on sandy seashore dunes. Wet tundra is common throughout the coastal lowlands with moist tundra (tussock grass with some shrubs around thaw and maar lakes) on drier hills and slopes. Moist tundra predominates throughout the uplands of the plateau and foothills generally as tussock grass but with shrubs in patches and thickets along river courses. Alpine tundra predominates in the mountainous areas. Willow, alder and birch make up some of the more noticeable shrub thickets. Willow, sourdock, wild rhubarb, dwarf fireweed, wild celery, and a variety of berries such as blackberries, blueberries, salmon berries, and cranberries are valued subsistence resources.

The preserve's varied habitats support a rich avifauna and some 108 species have been recorded in or around the preserve. The marine/estuarine habitats along with extensive freshwater lakes and ponds support large populations of migratory geese, ducks, and shorebirds. Varied tundra habitats especially in the uplands support the majority of the preserve's passerine birds. Birds valued for their subsistence use include several geese (Lessor Canadian Goose, Emperor Goose, White-fronted Goose, and Brant), surface feeding ducks (Mallard, Pintail, Green-winged Teal, and American Wigeon), and diving ducks (Greater Scaup, Oldsquaw, and several species of eiders).

Large mammals include moose, caribou, muskoxen, and brown bear. Moose and caribou dominate in subsistence importance with muskoxen slowly increasing. The Western Arctic Caribou Herd is a major subsistence resource throughout its range. Currently estimated at about 325,000 animals, and apparently continuing to decline from a peak in about 490,000 animals in 2003, it remains a major resource. Substantial numbers of the herd (generally numbering several thousand though varying yearly) occupy winter range in the eastern half of the Seward Peninsula where they are reasonably accessible to several communities. Brown bears are much less important, but this importance varies by community.

Furbearers include wolf, wolverine, red and arctic foxes, beaver, muskrats, and arctic ground squirrels, which provide raw materials for clothing and handicraft items. Depending on the species trapped and market conditions, these resources provide a source of potential cash.

While the preserve does not actually contain offshore marine waters, those marine waters adjacent to the preserve contain a diverse group of marine mammals, many of which are important for subsistence. These include polar bear, bowhead whale, beluga whale, walrus, bearded seal, and several smaller seals such as spotted and ringed seals. Some of the seals use islands (part of the preserve) and beaches in the Cape Espenberg area as haul-out areas.

Subsistence fishing occurs in both the fresh water areas of the preserve and marine waters adjacent to the preserve. While four species of salmon occur, chum salmon and pink salmon are the most important. Other important fish species include whitefish (both broad whitefish and humpback whitefish), herring, members of the cod family (e.g. burbot, arctic cod, saffron cod), sculpin, smelt, flounder, grayling, and arctic char.

SOCIAL/CULTURAL ENVIRONMENT

There are three primary communities located adjacent to BELA and within traditional tribal territories that use the lands and waters within BELA as a source of subsistence resources. These are Deering, Shishmaref, and Wales. In addition, there are two more communities (Brevig Mission and Nome), some of whose residents utilize portions of BELA as a source of some subsistence resources, though to a lesser degree than the three primary communities. There are also a few families from Kotzebue who seasonally use the Cape Espenberg area of BELA. Additionally, subsistence resources harvested by the communities identified above may be distributed over a much wider social network especially among relatives and friends in the form of gifting, exchanges, and following social customs.

The three primary communities plus Brevig Mission are predominately Alaska Native, generally relatively small, short on cash and jobs (refer to Table 3.1 page 25 of this EA for community demographics), and very heavily dependent on the subsistence harvests of wild foods as reflected in estimated total harvest in pounds as well as per capita harvest expressed in pounds. It is also worth noting that the cost of imported foods and commodities is extremely high in these communities.

Communities	Estimated Harvest in Lbs.	Per Capita Harvest in Lbs.
Wales	113,393	744.14
Shishmaref	444,036	792.92
Deering	99,121	672.19

Table 1 – Community subsistence harvest estimates

Shishmaref is located on an island at the mouth of a large inlet about at the midpoint of the coast line of BELA (otherwise it would be surrounded by BELA if it were located inland). It has a subsistence economy based largely around the harvest of medium to smaller sized sea mammals. A 1995 community harvest survey found sea mammals may account for about 56% of an annual harvest, followed by fish at 20%, and land mammals (primarily moose and caribou) contributing about 19%. Birds contribute 3%. Plant materials (such as greens and berries), and resources like marine invertebrates make up the remaining 2%. That 1995 survey estimated 66 brown bears harvested, 342 caribou harvested, 68 moose harvested and 0 muskoxen (while legal muskoxen hunting was opened in 1995 for the 1995-1996 hunt year, this result may have been due to a relatively small harvest combined with sampling and the fact that the majority of the harvest likely occurred in early 1996. A 2000 survey found Shishmaref harvesting an estimated 0 brown bears, 299 caribou, 46 moose, and 11 muskoxen. A 12-month survey (July 2005 to June 2006) survey by Kawerak, Inc. (2007) found Shishmaref harvesting an estimated 1.8 brown bears, 821.9 caribou, 15.8 moose, and 21.2 muskoxen.

Wales is located at the western tip of the Seward Peninsula and close to the western boundary of BELA. Its economy is centered on the harvest of large to medium sized sea mammals. A comprehensive community harvest survey in 1993 found marine mammals may make up to 78% of an annual harvest, followed fish at 13%. Land mammals (primarily moose) may contribute only 3%, birds 2%, plants 1%, and others such as marine invertebrates 3%. That same survey found Wales harvesting 0 brown bears, 4 caribou, 6 moose and 0 muskoxen (legal muskox hunting was not begun until 1995). Another survey in in 2000 found a 0 brown bears harvested, 0 caribou harvested, 14 moose harvested and 4 muskoxen harvested. A 12-month (July 2005 to June 2006) survey by Kawerak, Inc. (2007) found Wales harvested an estimated 0 brown bears, 7.4 caribou, 3.2 moose, and 6.3 muskoxen.

Deering is located on the southern shore of Kotzebue Sound, just outside of the eastern boundary of BELA. It has a more diverse subsistence economy with less emphasis on marine mammals than Shishmaref. A comprehensive community harvest survey in 1994 found that fish may contribute around 34% of the harvest, followed by marine mammals at 33%. Land mammals (primarily caribou and moose) may contribute around 28%. Birds contribute 4%, and plant

materials about 1%. That same survey estimated 4 brown bears harvested, 142 caribou harvested, 15 moose harvested, and 0 muskoxen harvested (legal muskox hunting was not begun until 1995).

Existing sport hunting adjacent to the project area is considered here in order to provide an existing baseline for assessing potential impacts of the alternatives to subsistence resources and uses. Human harvest impacts to wildlife resulting from sport hunting are managed by the State of Alaska through various tools, such as establishing wildlife population and harvest objectives, then adjusting hunting seasons, establishing individual hunter harvest limits, establishing the sex or other characteristics (such as antler size restrictions) of what constitutes a legally harvestable animal, and establishing the number of permits to be issued. Currently there are 5 big game master guides licensed by the State of Alaska to provide services in the areas adjacent to and surrounding BELA (Guide Use Areas 22-01, 22-02, 22-03, 22-05, 22-06 and 23-07). Three of these are registered for more than one these GUAs. Based on recent interviews with these guides, the number of guides currently operating immediately adjacent to the preserve in any given season may vary between one and three. It could be expected that at least some of this current activity would shift into the preserve under a concession program, if established. Moose, brown bear, muskox, and caribou provide the key species of interest to sport hunters where concerns about impacts to subsistence might arise. Harvests by nonresident hunters and those using drawing permit hunts for those species, as described below, are used as an indicator of possible sport hunting activity levels.

Brown Bear

GMU 22E (DB690) has a season of Aug. 1 - May 31. For the years 2006-2011, a total of 8 bears were taken, 7 between April 21 and May 8 with one unknown but likely taken in the spring. Access to spring bears would be almost entirely by snowmachine, while fall bears would be by boat, small aircraft, or ORV where legal outside of the preserve.

GMU 22D (DB690) has a season of Aug. 1 - May 31. For the years 2006-2011, a total of 24 bears were taken (7 or possibly 8 taken in the fall, most commonly September, and the rest, 16 or possibly 17, were spring bears). Access to spring bears was almost entirely by snowmachine, while access to fall bears would be by boat, small aircraft, or ORV where legal outside of the preserve.

GMU 23SW has two seasons - Fall (DB767) and Spring (DB777). For the years 2006-2011, a total of 4 bears were reported taken, and all were spring bears (DB777).

The net effect of the harvest of brown bears described above is probably not going to change much in the future; however, commercial guided sport hunting services in the preserve, could result in a small increase in fall bear hunting closer to the coast in GMU 22E coupled with a larger increased level of spring bear hunting activity inland from the coast in GMUs 22E and 22D. However, the number of drawing bear permits for the combined areas of GMU 22D and E is currently set in State regulation at 12 permits. This means the actual level of guided bear hunting activity in the project area could rise from between the current level of 0 to a maximum of 12 permits per year with a few extra clients thrown in to cover resident hunters who do not

need to apply for drawing permits. Likely the number of bears harvested in GMUs 22 D&E would fluctuate each year between the minimum and maximum. An increase in brown bear harvest in the Unit 23 Southwest portion of the preserve is expected to range between 0 and no more than 1 or 2 bears because there is plenty of bear hunting opportunity outside the preserve where logistics may be easier.

Moose

GMU 22E (RM853) has a season of September 1-14. For the four-year period (2008-2011), 5 moose (maybe 6 if one was incorrectly recorded as coming from 22D) were reported. Harvest dates fell between September 5 and 13. There were also an additional 8 unsuccessful hunters listed. The federal public lands (mostly Bering Land Bridge National Preserve) were closed to non-subsistence harvest use of moose, which would have left open village Native Corporation lands near the coast (Shishmaref and Wales) and a large area of state-managed lands south of the preserve and along the Continental Divide. It is possible that the difference between some successful and unsuccessful hunters might be whether or not they used a guide. It is also possible that the harvest came largely from the area away from the coast and toward the uplands of the Continental Divide based on the location of an active guide's base camp. Access is mostly by boat, small plane, ORV where legal, and foot once in the area. Overall, as long as the federal public lands in GMU 22E remain closed to non-subsistence moose hunting, the above picture is not likely to change, regardless of whether or not the preserve is opened to commercial guiding. If moose population parameters increase substantially and federal public lands are opened to non-subsistence hunting of moose in the future, some of the allowable harvest of moose could move into the preserve.

GMU 22D Remainder (RM842) has a season of September 1-14. This is essentially an area in the interior of the Seward Peninsula, away from the coast, south of the project area, and south of the Continental Divide. An active guide has a base camp in the north central portion of this area. For the six-year period (2006 through 2011), 36 moose were reported harvested. There were an additional 30 unsuccessful hunters during the same period.

GMU 22D Kuzitrin River Drainage (includes Kougarok drainage) has no open season for nonresidents. The State offers two resident moose hunts, a fall hunt with a carryover into a winter hunt if warranted. It is possible that a guide could become interested in offering guided moose hunts for Alaska residents in this area leading to some increase in activity. These hunts would be interior and distant from key local rural communities, from which difficult access provide minimal subsistence opportunity for moose.

GMU 23 SW (DM877) has a season, but ADF&G has not issued any permits for this hunt for several years, and this situation is unlikely to change in the foreseeable future.

The net effect with guided sport hunting in the preserve would be no increase in the non-subsistence harvest of moose in the area unless moose populations increase and the State issues drawing permits for nonresident hunters.

Muskox

GMU 22E (DX097) has a season of August 1 to March 15. During the six-year period (2006 through 2011) 71 bull muskoxen were taken. By comparison, residents of Wales and Shishmaref took 36 muskoxen in a 5-year period between 2006 and 2010. Of the 71 muskoxen taken in the sport hunt, 6 were taken in the fall between August 4 and October 1, and the remaining 65 were taken between February 1 and March 12. Fall access could have been by small boat, small plane, or ORV (outside the preserve) in the uplands. Access for the winter hunt would have been predominately by snowmachine, or small plane to a much lesser degree. Prior to 2010, drawing hunt activity would have been confined to village Native Corporation lands or interior uplands. Unguided sport hunts could have occurred within the preserve closer to the coast in 2010 and 2011. If the preserve is opened to guided hunting, depending on the location of the animals, more guided hunting could occur within the preserve closer to the coast. Because the muskoxen population in GMU 22E has substantially declined, and there is currently no drawing sport hunt, and there will not likely be one again until the muskoxen population recovers. While a guide could conceivably guide for a Tier I hunt, the number of permits is currently quite low (10 this year) and they are issued only in the villages of Wales and Shishmaref. The result is that it will likely be many years before guided muskoxen hunting at anything above a minimal level resumes.

GMU 23 SW: The State offered a very small drawing hunt of 2 permits per year in 2008 and 2009 for state managed lands. One bull was harvested in 2009-2010 year in early March. That hunt was dropped in the 2010-2011 hunt year and is no longer being offered, and will not likely be for the foreseeable future unless there are substantial changes in the status of the muskoxen population. The federal public lands in GMU 23 SW are currently closed to non-subsistence muskoxen hunting, and this is unlikely to change until the muskoxen population recovers.

Caribou

Most caribou harvested from within the project area (Bering Land Bridge National Preserve) are taken by residents of Shishmaref, who now hunt caribou year round. In the summer months a small but increasing number of animals are harvested along the coastal and lagoon areas east of Shishmaref and a short distance inland via rivers draining into that coastal area. In the winter, caribou hunting shifts inland and away from the coast, and the winter hunt accounts for the bulk of their harvest. There are Nome residents who hunt caribou by flying into Serpentine Host Springs in the late fall; however, most of Nome's caribou harvest occurs in the fall via road access and then some in the winter via snowmachine. All of this harvest is largely inland and well south of the preserve. Almost all of the commercial interest in guiding for caribou is currently focused on the fall hunt in GMU 23, well north of the project area. The fall caribou migration through more northerly parts of GMU 23 offers sport hunters the best opportunity to harvest caribou, and many prefer a large, well-antlered bull.

V. SUBSISTENCE USES AND NEEDS EVALUATION

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

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;
- what 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:

Alternative A – No Hunting Guide Concessions Authorized (No Action). In terms of harvest numbers, guided sport hunting on the Seward Peninsula is for the most part closely controlled through the allocation of permits to clients. Consequently, the effect on population numbers from this activity would be minimal, especially across larger areas. This alternative would add no additional harvest within the preserve or immediate surrounding area. Therefore, this alternative would not result in a significant restriction to subsistence uses through reducing populations of subsistence resources.

Alternative B – License Up to 3 Hunting Guide Concessions for the Whole Preserve: This alternative could result in a situation where up to 3 guides, and potentially an average of 30 clients per year, were mostly attempting to access the preserve out of locations such as Shishmaref and Deering. While not expected to have significant effects in reducing the overall populations of moose or muskoxen, it could contribute to localized reductions of animals closer to the communities, thereby causing increased hardship and expenses to local subsistence users as a result of their having to travel further with increased fuel costs in order to harvest moose or muskox. This situation could become more pronounced with each passing year. While perhaps not resulting in a significant reduction in populations of animals used by local rural residents in overall in terms, this alternative could result in the greatest adverse effects on animal resources closest to communities that are preferred by the subsistence users.

Alternative C - License Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve (NPS Preferred Alternative). This alternative would limit the number of guides to 3 with no more than one guide authorized in any one GUA overlapping the Preserve. With the average number of clients limited to 20 per year and divided to about half (10) in the western part of the preserve and half (10) in the eastern half of the preserve, the impacts to animal populations would be spread over a wider area and into areas of preserve with less subsistence use. There are currently 2 guides operating in the GMU 22E. The possible addition of a third guide with a concession contract for the preserve portion of GUA 22-01 would add nothing to the overall harvest for brown bears, moose, or muskox because those harvests are managed through restricting the number of permits or providing a limited total allowable harvest before closing the season. Therefore, there would be none to very little increase in the number of clients hunting within the overall area of Unit 22E, and there would be very little increase in overall harvest expected in the area above the existing levels of Alternative A. Therefore, this alternative would not result in a significant impact to subsistence uses as a result of causing a reduction in the population numbers of the hunted species.

2) Restriction of Access:

Alternative A – No Hunting Guide Concessions Authorized (No Action): Maintaining reasonable access to federal public lands and resources for subsistence purposes is ensured in Section 811 of ANILCA and in federal implementation regulations. The NPS currently has no information to suggest that current levels of general hunting in or immediately adjacent to the preserve, and guided sport hunting adjacent to the preserve is of such a level that local subsistence users are displaced from or hindered from accessing subsistence use areas or resources. Therefore, this alternative has not and would not result in a significant restriction of access for subsistence uses.

Alternative B – License Up to 3 Hunting Guide Concessions for the Whole Preserve: This alternative would authorize up to 3 guides with potentially an average of 30 clients per year, most of which might attempt access into the preserve from locations like Shishmaref, Deering, and Wales. It is possible that instances of negative interactions with subsistence users could occur. It also might result in disruption to specific individual hunts. Both action alternatives contain provisions to restrict guides from using facilities at Serpentine Hot Springs and immediate areas surrounding it, as well as several shelter cabins. Consequently, this alternative could result in short-term negative impacts to subsistence access to resources, but it would not result in a significant restriction of access for subsistence uses.

Alternative C - License Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve (NPS Preferred Alternative): This alternative would limit the number of guides to 3 with no more one guide authorized in any one GUA overlapping the Preserve. With the average number of clients limited to 20 per year and divided to about half (10) in the western part of the preserve and half (10) in the eastern half of the preserve, the effects to access for subsistence uses would be spread over a wider area and into areas of preserve with less subsistence use. This alternative would have less effect on subsistence access to resources than Alternative B, and the potential of causing a chronic or prolonged displacement or other restrictions or disruptions of access. Consequently, this alternative would not result in a significant restriction of access for subsistence uses.

3) Increase in Competition:

Alternative A – No Hunting Guide Concessions Authorized (No Action): This alternative would result in no increase in competition for subsistence resources because it would not result in adding to either the number of guides operating in or the number of clients currently hunting in the area.

Alternative B – License Up to 3 Hunting Guide Concessions for the Whole Preserve: This alternative could lead to an increase in competition especially in areas near the community of Shishmaref, where it might be attractive for up three guides with up to an average of 30 clients per year to begin operating. This attraction would be a consequence of the ease of access into the preserve from Shishmaref (using it as a base of operations) along with the especially attractive options of hunting brown bear, muskoxen and moose. Because it is natural for subsistence users to attempt to harvest resources closer to home, unless guides and their clients make a conscious effort to hunt beyond the normal range of village hunters, this could result in increased negative interactions between sport hunting clients and village subsistence users and increased competition for moose, muskoxen, and potentially caribou closer to the village. While this

alternative would not result in a significant restriction in terms of loss or large scale reduction in harvests of key resources, it could possibly interrupt some hunts or result in some hunters needing to invest more effort at greater costs in achieving successful harvests of moose, muskox, and caribou. This could result in short term and adverse impacts to some individuals or families in the community with respect to competition for valued subsistence resources such as moose, caribou, and muskoxen.

Alternative C - License Up to 3 Hunting Guide Concessions for Separate Guide Areas within the Preserve (NPS Preferred Alternative): This alternative might lead to a slight increase in competition especially if it were possible to hunt for moose or muskoxen within the northernmost area of the preserve adjacent to lands owned by the Shishmaref Native Corporation because there might be a small increase in moose and muskox harvest from those lands by nonlocals. The number of clients currently hunting in the general area on state managed lands is not expected to increase. This alternative could result in a slight positive effect on competition for subsistence resources if some of the current hunting pressure for moose and muskox immediately adjacent to the community were to be transferred further inland from the coast and the community. Consequently, this alternative would not result in a significant competition for subsistence resources.

VI. AVAILABILITY OF OTHER LANDS

Almost the entire area of lands within the preserve (except for private inholdings where access for hunting might be prohibited by the land owner) is already open to general hunting under state regulation except where restricted by Federal Subsistence Board closures to non-subsistence hunting such as for muskoxen and moose in certain hunt areas. With the minor exception of the immediate area of Serpentine Hot Springs, the same would hold for commercial big game guiding if it were authorized. The same holds for other federal (BLM) lands outside of the preserve. Much of non NPS (BLM and state lands surrounding the preserve are already available for commercially guided sport hunting activities and likely would continue to be so even if the National Park Service were to not authorize the activity on NPS lands.

VII. ALTERNATIVES CONSIDERED

No other alternatives were considered for the purposes of the analysis because the three existing alternatives provide a reasonable range in the level of commercially guided hunting services within the preserve from a base of zero up to potentially an average of 30 clients per year throughout almost the entire area of the preserve.

VIII. FINDINGS

This analysis concludes that all three alternatives will not result in a significant restriction of subsistence uses. The key reasons for this is that guided sport hunting would be focused primarily on moose, caribou, muskoxen and brown bear, sport hunter harvest amounts are low, overall harvest is tightly managed for most species by permit allocations, and guided sport hunting activity would have no effect on substantial key categories of the annual subsistence harvest including marine mammals, fish, birds, and plant materials. Alternative B, however, has

potential under certain conditions (larger number of clients clustering up at key access points into the preserve at Shishmaref, Wales, and Deering) to increase the number of clients hunting near Shishmaref and to a lesser extent Deering and Wales. This could result in short term, localized reductions of moose and muskox numbers, and increasing the potential for negative interactions with local hunters including possibly disrupting some subsistence hunts. Alternative C (the NPS preferred alternative) would minimize , if not eliminate, the potential negative impacts of Alternative B by spreading the client numbers out across the preserve and into areas of lesser subsistence use.

Reference Cited:

Ahmasuk, Austin and E. Trigg, Kawerak, Incorporated. 2007 . *A Comprehensive Subsistence Use Study of the Bering Strait Region . Bering Strait Region Local and Traditional Knowledge Pilot Project. North Pacific Research Board Project Final Report Project #643. Revised January 2008.*

Available on-line at North Pacific Research Board at:

http://doc.nprb.org/web/06_prjs/643_NPRB%20final%20report%201-10-2008.doc