

September 2007

Kobuk-Seward Peninsula Proposed Resource Management Plan and Final Environmental Impact Statement

Volume 1: Chapters I, II, III sections A and B

Fairbanks District Office and Anchorage Field Office, Alaska





United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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Dear Reader:

Enclosed for your review is the Kobuk-Seward Peninsula Draft Resource Management Plan/Environmental Impact Statement (Draft RMP/EIS). The Draft RMP/EIS considers and analyzes four alternatives that address future management of approximately 13 million acres of public lands administered by the Bureau of Land Management's (BLM) Fairbanks District Office and Anchorage Field Office. The planning area includes lands in western Alaska from Point Lay to the Norton Sound, and from the Bering and Chukchi seas east to the Kobuk River.

Your comments are needed at this time. The public review period for the Draft RMP/EIS will last 90 calendar days beginning with the publication of the Environmental Protection Agency's Notice of Availability in the Federal Register. Public hearings will be held before the close of the comment period in communities within the planning area. Hearing dates, times, and specific locations will be announced through news releases and on the Kobuk-Seward Peninsula RMP Web site (<http://www.ak.blm.gov/ksp>). Written comments may be sent via U.S. Mail to the BLM Fairbanks District Office, Attn: Kobuk-Seward Peninsula Draft RMP/EIS, 1150 University Avenue, Fairbanks, Alaska, 99709, or via e-mail to ksp_comments@ak.blm.gov. All comments will be considered and evaluated in the preparation of the Final RMP/EIS, and all substantive comments will be addressed.

Comments will be most useful if they are specific, mention particular pages (where appropriate), and address one or more of the following items:

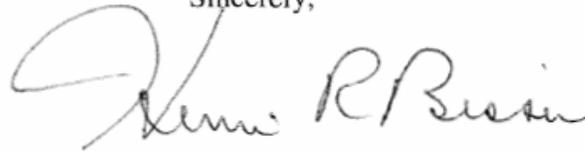
- Inaccuracies or discrepancies in information,
- Identification of new information that would have a bearing on the analysis,
- Identification of new impacts, alternatives, or mitigation measures, and
- Suggestions for improving management direction.

Public comments submitted for this planning review, including names and street addresses of respondents, will be available for public review at the Fairbanks District Office during regular business hours, 7:30 a.m. to 4:30 p.m., Monday through Friday, except holidays, and may be published as part of the Final EIS. If you wish to withhold your name or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your comments. Such requests will be honored to the extent

allowed by law. Anonymous comments will not be considered. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of an organization or business, will be available for public inspection in their entirety.

We appreciate your help in this planning effort and look forward to your continued interest and participation. For additional information or clarification regarding the Draft RMP/EIS or the planning process, please contact Jeanie Cole, Kobuk-Seward Peninsula RMP Lead Planner, at 907-474-2200.

Sincerely,

A handwritten signature in black ink, appearing to read "Henri R. Bisson". The signature is written in a cursive style with a large initial "H" and "B".

Henri R. Bisson
State Director

Kobuk-Seward Peninsula Draft Resource Management Plan and Environmental Impact Statement

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Proposed Action: Kobuk-Seward Peninsula Draft Resource Management Plan/Environmental Impact Statement (Draft RMP/EIS) for lands within the Fairbanks District Office and Anchorage Field Office.

Type of Action: Draft (X) Final ()
Administrative (X) Legislative ()

Abstract: The Kobuk-Seward Peninsula Draft RMP/EIS was developed based on information provided by BLM personnel, other agencies and organizations, and the public. Four alternatives are described and analyzed in this Draft RMP/EIS: Alternative A is the “no action” alternative; Alternatives B and C propose varying levels of resource use and conservation; and Alternative D, the agency preferred alternative, provides a balance between resource conservation and development.

Major issues and management concerns analyzed include: recreation, minerals management, subsistence, special designations, and management of cultural and natural resources.

Comments: Comments on the Kobuk-Seward Peninsula Draft RMP/EIS are due within 90 days from publication of the Environmental Protection Agency’s Notice of Availability in the Federal Register. The close of the comment period will also be announced in news releases, newsletters, and on the Kobuk-Seward Peninsula RMP Web site (<http://www.ak.blm.gov/ksp>). Comments can be submitted electronically or mailed to the address below.

Further Information:

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E-mail: ksp_comments@ak.blm.gov

Bureau of Land Management
Fairbanks District Office
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Executive Summary

A. Introduction

The Bureau of Land Management (BLM) has prepared this Draft Resource Management Plan (RMP) and Environmental Impact Statement (EIS) to provide direction for managing public lands within the Kobuk-Seward Peninsula Planning Area boundaries and to analyze the environmental effects that would result from implementing the alternatives presented in the Draft RMP/EIS.

The exterior boundaries of the planning area encompass approximately 31 million acres in northwestern Alaska. Within this area the Draft RMP/EIS will analyze proposed management on approximately 13.1 million acres administered by the Fairbanks District Office, including approximately 8.2 million acres of lands that are selected by the State of Alaska or Alaska Natives. The BLM is responsible for management of selected lands until conveyance occurs or until the selections are relinquished back to the BLM because of overselection. The planning area also includes private land (including Native Corporation land), State land, and lands managed by other Federal agencies. Management measures outlined in the Draft RMP apply only to BLM-managed land in the planning area; no measures have been developed for private, State, or other Federal agency lands.

The Draft RMP/EIS was prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act of 1976, and under requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508), the BLM's NEPA Handbook 1790-1, and the BLM's Land Use Planning Handbook 1601-1 (March 2005).

B. Purpose and Need

The RMP will provide the Fairbanks District Office with a comprehensive framework for managing lands within the planning area under the jurisdiction of the BLM. The purpose of an RMP is to provide a public document that specifies overarching management policies and actions for BLM-managed lands. Implementation-level planning and site-specific projects are then completed in conformance with the broad provisions of the RMP. The RMP is needed to update the Northwest Management Framework Plan (MFP) approved in 1982, and to provide a land use plan consistent with evolving law, regulation, and policy. This RMP meets the requirements of FLPMA, which states, "The Secretary shall, with public involvement . . . develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands" (43 U.S.C. 1712).

C. Decisions to be Made

Land use plan decisions are made on a broad scale and guide subsequent site-specific implementation decisions. The RMP will make the following types of decisions to establish direction in the planning area:

- Establish resource goals, objectives, and desired future conditions.
- Describe actions to achieve goals, objectives, and desired future conditions.
- Make land use allocations and designations.
- Make land use adjustments.

Management under any of the alternatives would comply with State and Federal regulations, laws, standards, and policies. Each alternative considered in the Draft RMP/EIS allows for some level of support of all resources present in the planning area. The alternatives are designed to provide general management guidance in most cases. Specific projects for any given area or resource would be detailed in future implementation plans or site-specific proposals, and additional NEPA analysis and documentation would be conducted as needed.

After the comments on the Draft RMP/EIS are reviewed and analyzed, the responsible officials can decide to:

- Select one of the alternatives analyzed for implementation, or
- Modify an alternative (e.g., combine parts of different alternatives) as long as the environmental consequences are analyzed in the Final RMP/EIS.

The alternative selected for implementation will be presented in a Proposed RMP and Final EIS. Following a 60-day Governor's Consistency Review, a 30-day protest period, and the resolution of any protests, a Record of Decision will be signed and an approved RMP will be released.

D. Issues

A planning issue is an area of controversy or concern regarding management of resources or uses on the BLM-managed lands within the planning area. Issues for the Kobuk-Seward Peninsula RMP were identified through scoping, interactions with public land users, and resource management concerns of BLM, the State, and other Federal agencies. These issues drive the formulation of the plan alternatives, and addressing them has resulted in the range of management options across the Draft RMP alternatives. Additional discussion on each issue can be found in the Scoping and Issues section in Chapter I. Issues of primary concern in the development of this Draft RMP/EIS include:

- Manage recreational use of public lands to reduce conflicts between sport and subsistence hunting and to prevent negative impacts on subsistence hunting opportunity, particularly in the Squirrel River.
- Maintain and protect subsistence opportunities. Determine how the management actions, guidelines, and allowable uses prescribed in response to the other issues will affect both subsistence opportunities and resources, and the social and economic environment.

- Determine which areas should be made available for mineral exploration and development.
- Provide access to BLM-managed lands for various purposes, including recreation, subsistence activities, and general enjoyment of public lands, while protecting natural and cultural resources.

E. Alternatives

The basic goal in developing alternatives was to prepare different combinations of management actions to address issues and resolve conflicts among uses. Alternatives must meet the purpose and need; must be reasonable; must provide a mix of resource protection, use, and development; must be responsive to the issues; and must meet the established planning criteria. Each alternative constitutes a complete RMP that provides a framework for multiple use management of the full spectrum of resources, resource uses, and programs present in the planning area. Under all alternatives the BLM would manage their lands in accordance with all applicable laws, regulations, and BLM policies and guidance.

Four alternatives were developed and carried forward for detailed analysis in the Draft RMP/EIS. Alternative A (the No Action Alternative) represents the continuation of current management practices. Alternatives B, C, and D describe proposed changes to current management, as well as what aspects of current management would be carried forward. These three alternatives were developed with input from the public, collected during scoping, from the BLM Planning Team, and through collaborative efforts conducted with the State of Alaska and the Alaska Resource Advisory Council (RAC). The alternatives provide a range of choices for meeting BLM planning and program management requirements, and resolving the planning issues identified through scoping.

1. Alternative A

Alternative A would continue present management practices and present levels of resource use based on the existing Northwest Management Framework Plan (MFP) (BLM 1982) and other management decision documents. Valid decisions contained in the Northwest MFP would be implemented if not already completed. Direction contained in existing laws, regulation, and policy would also continue to be implemented, sometimes superseding provisions in the Northwest MFP. The current levels, methods, and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. Most activities would be analyzed on a case-by-case basis. Few uses would be limited or excluded as long as they were consistent with State and Federal laws. One exception to this is the ANCSA (d)(1) withdrawals that close large portions of the planning area to mineral entry and location. Fire would be managed consistent with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

2. Alternative B

Alternative B highlights actions and management that would facilitate resource development. All ANCSA (d)(1) withdrawals would be revoked on lands retained in long-term Federal ownership, increasing the potential for mineral exploration and development. Seasonal stipulations for oil and gas leasing in caribou habitat would not apply under this alternative

(Appendix A). Travel and trail restrictions would be minimized. One Special Recreation Management Area (SRMA) would be identified in the Squirrel River to focus management on recreational use. In other areas, recreation management would focus on dispersed recreation and management of permits.

3. *Alternative C*

Alternative C emphasizes active measures to protect and enhance resource values. Production of minerals and services would be more constrained than in Alternative B or D, and in some areas, uses would be excluded to protect sensitive resources. Five Areas of Critical Environmental Concern (ACECs) and two SRMAs are identified, and specific measures proposed to protect or enhance values within these areas. Several rivers are recommended suitable for designation under the Wild and Scenic River Act. All areas would be designated as “Limited” to off-highway vehicles (OHVs) to protect habitat, soil and vegetation resources. Most ANCSA (d)(1) withdrawals are revoked but some would be replaced with new withdrawals in order to protect or maintain resource values. Most anadromous streams and all ACECs would be closed to mineral entry and location. Areas suitable for mineral material disposal would be very limited. This alternative treats lands selected by the State and by Native or village corporations as if these lands were to be retained in long-term Federal ownership.

4. *Alternative D*

Alternative D emphasizes a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative C. This alternative would designate one Research Natural Area (RNA), five ACECs, and two SRMAs. No rivers would be recommended as suitable for designation under the Wild and Scenic River Act. This alternative would revoke most ANCSA (d)(1) withdrawals, leaving the majority of the planning area open to mineral entry and location. The RNA and three anadromous rivers would be withdrawn from mineral entry. This alternative describes interim and long-term management strategies for State- and Native-selected lands.

5. *BLM Preferred Alternative*

Alternative D was selected as the preferred alternative based on examination of the following factors:

- Balance of use and protection of resources.
- Extent of the environmental impacts.

This alternative was chosen because it best resolves the major issues while providing for common ground among conflicting opinions. It also provides for multiple use of BLM-managed lands in a sustainable fashion. Alternative D provides the best balance of resource protection and use within legal constraints.

F. Environmental Consequences

Selection of Alternative A, the No Action Alternative, would maintain the current rate of progress in protecting resource values and in resource development. It would allow for use levels to mostly continue at current levels in the same places in the planning area, with adjustments required in order to mitigate resource concerns in compliance with existing laws and regulations. OHV use would remain unrestricted, resulting in the continued proliferation of trails and resource degradation in certain areas.

Alternative B would allow for maximum resource development with the fewest constraints. This alternative would result in greater impacts on the physical and biological environment than would implementation of Alternative C or D. Uses would generally be least encumbered by management under this alternative, though legal constraints, and Required Operating Procedures and Oil and Gas Leasing Stipulations (Appendix A) would be applied. This alternative would offer the greatest potential for mineral development and could result in economic benefits to local economies from resource extraction. All BLM-managed lands in the planning area would be designated as “limited” to OHV use with a maximum 2,000 pound gross vehicle weight rating. Development of new trails and resource degradation would continue in certain areas. Recreational use in the Squirrel River would be designated as a SRMA and more intensively managed than under Alternative A.

Alternative C would have the least potential to impact physical and biological resources from BLM actions. Uses would be the most restricted by management. More areas of BLM-managed land would be closed to mineral development than under any other alternative. All BLM-managed lands in the planning area would be designated as “limited” to designated roads and trails during the snow-free season, thereby reducing impacts to resources. This more restrictive OHV designation would somewhat reduce access to BLM-managed lands. Qualified subsistence users would be allowed to travel off designated trails to retrieve game. Two SRMAs would be designated. Recreational use in the Squirrel River would be very intensively managed during August-September. Designation and management of five ACECs would provide additional protection to wildlife, vegetation, visual, and other natural resources. Eleven river segments would be determined suitable for designation as wild under the Wild and Scenic Rivers Act, affording these areas more protection than under other alternatives. Subsistence resources would be maintained or enhanced.

Alternative D would allow for increased levels of resource development while providing for site-specific protection of resources. This alternative would provide almost as much opportunity for mineral development as Alternative B. Closures to mineral entry and location would be limited to small, site-specific areas. This alternative could result in economic benefits to local economies from resource extraction. All unencumbered BLM lands in the planning area would be designated as “limited” to OHVs with a maximum gross vehicle weight rating of 2,000 pounds. On State- and Native-selected lands, OHVs would be managed consistent with the State’s Generally Allowable Uses, resulting in less resource degradation than under Alternatives A or B. Within two SRMAs, additional limitations may be defined through development of activity plans, and may include instituting seasonal closures or limitations to existing or designated trails. Designation and management of five ACECs and one Research Natural Area would provide additional protection to wildlife, vegetation, visual, and other natural resources. Subsistence resources would be maintained.

G. Public Involvement

Public involvement has been an integral part of the BLM's planning effort. During scoping, nine public meetings were held during March and April 2004. Scoping meetings were held in Fairbanks, Anchorage, Kotzebue, Nome, Buckland, Kiana, Kivalina, Koyuk, and Shaktoolik. Newsletters have been mailed to update interested parties on the progress of the Planning Team and stages of the planning process. In addition, numerous briefings were held with various groups and organizations during the preparation of the Draft RMP/EIS. The BLM also invited all Native villages in the area for government-to-government consultation during the course of the process. Public involvement is described in more detail in Chapter V.

The comment period on the Kobuk-Seward Peninsula Draft RMP/EIS will extend for 90 days following publication of the Environmental Protection Agency's Notice of Availability in the Federal Register. After 90 days, comments will be evaluated. Substantive comments could lead to changes in one or more of the alternatives, or changes in the analysis of environmental effects. A proposed RMP and Final EIS will then be completed and released. If protests are received on the Proposed RMP/Final EIS, they will be reviewed and addressed by the Director of the BLM before a Record of Decision and Approved Plan are released.

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Chapter I: Introduction

A. Background

On January 30, 2004, the Bureau of Land Management (BLM) issued a Notice of Intent in the Federal Register to prepare a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) for lands administered by the Northern Field Office (now known as the Fairbanks District Office).¹ As defined by the Federal Land Policy and Management Act (FLPMA) of 1976, as amended, public lands are those federally-owned lands and interests in lands (e.g., federally-owned mineral estate) that are administered by the Secretary of the Interior, specifically through the BLM. This includes lands selected, but not yet conveyed, to the State of Alaska and Native Corporations and villages.

The approved RMP will meet BLM statutory requirements for a land use plan as mandated by Section 202 of FLPMA, which specifies the need for comprehensive land use plans consistent with multiple-use and sustained yield objectives. The EIS will fulfill requirements of the National Environmental Policy Act (NEPA) of 1969, as amended, to disclose and address environmental impacts of proposed major Federal actions through a process that includes public participation and cooperation with other agencies.

Due to BLM administrative boundary adjustments in January 2005, management of approximately 4.2 million acres of BLM-managed land in the Seward Peninsula area was transferred to the Anchorage Field Office. As this Kobuk-Seward Peninsula RMP had already been initiated before the boundary adjustment, the Fairbanks District Office will continue to prepare the RMP in close coordination with the Anchorage Field Office; once approved, the RMP will be implemented by both offices.

The BLM is the lead agency in preparing this Draft RMP/EIS. The BLM is coordinating closely with the State of Alaska and with Bering Strait Regional Corporation, NANA, and Arctic Slope Regional Corporation, as well as with village councils located within the planning area. In addition, the BLM has coordinated with the National Park Service, Western Arctic Park Lands, and the U.S. Fish and Wildlife Service, Selawik National Wildlife Refuge, in preparation of this document.

¹ In summer 2005, the Northern Field Office was renamed the Fairbanks District Office and reorganized with three new Field Offices: Arctic, Central Yukon, and Eastern Interior.

B. Purpose and Need for the Plan

Through the completion of an RMP/EIS, the BLM proposes to provide a comprehensive land use plan that will guide management of the public lands and interests administered by the Fairbanks District Office and the Anchorage Field Office. Most site-specific decisions and management actions, such as designation of specific trails, will occur through subsequent implementation plans.

Current management of these lands is guided by the Northwest Management Framework Plan (MFP) (BLM 1982). The MFP was amended in 2005 to be consistent with the National Fire Plan (BLM 2004b, 2005c). Since approval of the MFP in 1982, new regulations and policies have created additional considerations that affect the management of public lands. In addition, new issues and concerns have arisen over the past 20 years. Consequently, some of the decisions in the MFP are no longer valid or have been superseded by requirements that did not exist when the MFP was prepared. These new issues and changes in management policy drive the need for an inclusive, comprehensive plan that provides clear direction to both the BLM and the public.

C. Planning Area

1. *Land Ownership and Administration*

Map 1-1 at the end of the Planning Area section shows the location of the planning area within the State of Alaska and depicts the varying ownership and conveyance status within the planning area. Of the approximately 31 million acres within the planning area, decisions in the RMP/EIS will apply to 13 million acres, as described below and shown in Table 1-1 on page 1-6. Once conveyances are complete in 2009, somewhat less than 13 million acres will remain under BLM management within the planning area.

- **BLM:** These are lands that will most likely be retained in long-term Federal ownership. These lands, which constitute approximately 16 percent of the planning area, are not selected by the State or by Native corporations or villages.
- **State-selected:** These are formerly unappropriated and unreserved public lands that were selected by the State of Alaska as part of the Alaska Statehood Act of 1958 and Alaska National Interest Lands Conservation Act (ANILCA) of 1980. Until conveyance, State-selected lands outside of National Park system lands or National Wildlife refuges will continue to be managed by the BLM. ANILCA allowed for overselection by the State by up to 25 percent of the entitlement (sec. 906 (f)). Therefore, some State-selected lands will eventually be retained in long-term Federal ownership. State-selected lands constitute approximately 12 percent of the planning area.
- **Native-selected:** The Alaska Native Claims Settlement Act (ANCSA) of 1971 gave Alaska Natives an entitlement of 44 million acres to be selected from a pool of public lands specifically defined and withdrawn by the Act for that purpose. Some ANCSA corporations filed selections in excess of their entitlements. Similar to overselections by the State, some of the Native-selected lands will not be conveyed and will be retained in federal ownership. Native-selected lands constitute approximately 15 percent of the planning area.

- **Dual-selected:** These are lands that have been selected by both the State and Natives. Because of overselection, some of these lands could be retained in long-term Federal ownership. Dual-selected lands constitute less than 1 percent of the planning area.
- **Mineral estate:** Alaska is a "split estate" property rights state in which there can be two distinct owners of a given parcel of land: the surface owner and the sub-surface owner. Federal split-estate lands are those on which the surface of the land has been patented, that is, transferred to private ownership, while the mineral interests are retained by the United States. Surface property owners, for example, include home owners and businesses. The rights of a surface owner generally do not include ownership of mineral resources such as oil, natural gas or coal. Under the appropriate provisions and authorities of the Mineral Leasing Act of 1920, individuals and companies can prospect for and develop coal, petroleum, natural gas and other minerals reserved by the Federal Government. All subsurface mineral estate lying beneath BLM lands is managed by the BLM. State and Native selections segregate the land and keep it closed to mineral entry, except on pre-existing, valid federal mining claims (locatable minerals) and issue of mineral material permits with the concurrence of the selecting entity (salable mineral materials). Conveyances made under ANCSA and the Statehood Act includes the mineral estate. In some cases, subsurface mineral estate is reserved to the Federal government through conveyance of Native Allotments. This reservation only occurs where information dictates that a particular mineral was prospectively valuable at the time of conveyance. Conveyances made under other land disposal laws, such as the Recreation and Public Purpose Act, do not include the mineral estate and it remains under BLM management when the surface is conveyed. Within the planning area, the BLM manages an estimated 80,000 acres of subsurface mineral estate.
- **Military lands:** These lands are under withdrawal to the military. If released and returned to BLM management during the life of the plan, direction contained in the RMP/EIS would apply. Military lands constitute less than 1 percent of the planning area.

Lands within the planning area that will not be covered by the RMP/EIS:

- **State of Alaska lands:** These are lands that have already been conveyed to the State of Alaska. These lands constitute approximately 17 percent of the planning area.
- **Native lands:** These are lands already conveyed to village and regional Native corporations and are now private lands. These lands constitute approximately 18 percent of the planning area, and are included with other private lands when calculated in Table 1-1 on page 1-6.
- **National Park Service lands:** These are lands within Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Kobuk Valley National Park and Preserve, and Noatak National Preserve. These lands constitute approximately 43 percent of the planning area.
- **U.S. Fish and Wildlife Service lands:** These are lands managed by the U.S Fish and Wildlife Service within the Selawik and Alaska Maritime National Wildlife refuges. These lands constitute approximately 8 percent of the planning area.
- **Private lands:** These lands are privately owned, aside from Native corporations or villages and include Native allotments and other private land. These lands constitute less than 1 percent of the planning area.

2. Geographic and Social Setting

The Kobuk-Seward Peninsula Planning Area generally encompasses the area included in the Northwest Arctic Borough, the northern portion of the Bering Straits Region, and the western edge of the North Slope Borough. The planning area is bounded on the west and south by the Chukchi and Bering seas and on the east by the National Petroleum Reserve-Alaska (NPR-A), Noatak National Preserve, Kobuk-Valley National Park and Preserve, and the Yukon River watershed. The area is remote with no road access to interior Alaska. The only roads in the planning area are those associated with communities, the Red Dog Mine road, and about 200 miles of road out of Nome.

The two larger communities of Nome (population 3,505) and Kotzebue (population 3,082) serve as hubs for the area. There are 21 small villages with a combined population that ranges from 400 to 800 residents, and a few seasonal communities with no year-round residents.

Table 1-1. Land Status within the Kobuk-Seward Peninsula Planning Area

Land Category	Acres	Percent of Planning Area
BLM-managed lands		
BLM public lands	4,970,000	16
State-selected	3,624,000	12
Native-selected	4,539,000	15
Dual-selected	108,000*	<1
BLM-managed lands subtotal	13,133,000	43
National Park Service	4,090,000	13
U.S. Fish and Wildlife Service	2,327,000	8
Military	5,000	<1
State of Alaska	5,296,000	17
Private**	5,576,000	19
Total lands within the planning area	30,427,000	100

Note: All acreage figures are rounded to the nearest 1,000 acres to account for future updates to improve land status data. No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. For official land status and boundary information, refer to cadastral survey plats, master title plats, and land status case-files.

* Dual-selected acres are already included in the State- and Native-selected totals, and are not included in the total lands within the planning area acreage.

** Private lands include ANCSA lands, Native allotments, and all other privately owned lands. The vast majority of this acreage is comprised of Native corporation land.

INSERT 11x17 MAP
1_1_landstatus

D. Scoping and Issues

Early in the planning process, the public was invited to help the BLM identify planning issues and concerns relating to the management of BLM-managed lands and resources in the planning area. The formal 90-day scoping period began with publication of the Notice of Intent in the Federal Register on January 30, 2004. The scoping process included nine public meetings held in March and April 2004. Most of these meetings were held in small communities and villages within the planning area, although meetings were also held in Fairbanks and Anchorage. Concurrently, a Kobuk-Seward Peninsula RMP Web site was developed. This Web site contained the public meeting schedule, an explanation of the RMP process, and contact information. At the end of the scoping period, a scoping report was posted on the web pages and made available to the public (BLM 2004c). The Web site was available through April 2005, at which time all BLM Web sites nationwide were shut down for extensive system maintenance. On January 12, 2006, an updated version of the Web site was posted at <http://www.ak.blm.gov/ksp>. News releases and radio announcements were also used to notify the public of the planning process and how to become involved.

Identification of issues is the first step in the planning process. A planning issue is a controversy or dispute over resource management or uses on public lands that can be addressed in a variety of ways. During scoping, the BLM asked the public to provide issues or management concerns that needed to be addressed during plan development. After consideration of public comments, four planning issues were identified. Addressing these issues has resulted in a range of management options presented in three action alternatives and one no action alternative. While other management concerns are addressed in the RMP, management related to them may or may not change by alternative.

1. Issues Addressed

Issue Statement 1: How can recreational use of public lands be managed to reduce conflicts between sport and subsistence hunting and to prevent negative impacts on subsistence hunting opportunity?

Local residents are heavily engaged in subsistence activities and the public lands adjacent to communities throughout the planning area provide ideal opportunities for harvesting renewable resources. Except for Nome and Kotzebue, all communities within the planning area are small, isolated, predominantly Native communities that rely heavily upon subsistence harvests as a mainstay of livelihood. The population of the planning area is approximately 75 percent Alaska Native (Fried and Windisch-Cole 2005). Large tracts of BLM-managed lands within the planning area are critical to subsistence by providing largely undisturbed and uninhabited areas for wildlife populations to flourish.

Commercial and dispersed recreational use of public lands in the Squirrel River has been a concern of local residents for the last 10-15 years, when the number of non-resident hunters began to increase substantially. In other areas, recreation is an emerging concern as moose populations in the region decline and increased regulation of hunting in other parts of Alaska makes the planning area more attractive to guides and sport hunters. Local residents have

expressed concern about maintaining the availability of wildlife and fish for subsistence use. Some are concerned that increased recreational use may prove detrimental to wildlife populations. In particular, low-flying aircraft are believed to disturb migrating caribou and other wildlife which may subsequently affect the availability of wildlife in areas accessible by local subsistence hunters.

BLM guidelines for the number of special recreation permits issued in the various game management units established by the State of Alaska have not been established. There is currently no limit to the number of special recreation permits that could potentially be authorized. Transporters and air taxi operations that transport unguided sport hunters into remote areas are currently not regulated by the BLM. This plan considers designation of special recreation management areas which will better allow the BLM to address this issue. Limitations may be placed on the number of special recreational use permits authorized or the number of visitors permitted.

Issue Statement 2: Maintain and protect subsistence opportunities. Determine how the management actions, guidelines, and allowable uses prescribed in response to the other issues will affect both subsistence opportunities and resources and the social and economic environment.

Subsistence opportunities and resources are an important part of rural Alaskan lifestyles. ANILCA requires that rural residents have a priority over other users to take fish and wildlife for subsistence on Federal public lands where a recognized consistent and traditional pattern of use exists. When it is necessary to restrict the taking of fish and wildlife on these lands, subsistence uses are given preference over other consumptive uses.

Resource development, increasing recreational activities, increased off-highway vehicle (OHV) use, and an increasing number of sport hunters all have the potential to affect subsistence resources and access to subsistence resources. ANILCA mandates that the BLM consider the effects of proposed management on subsistence resources.

Issue Statement 3: Determine which areas should be made available for mineral exploration and development.

Under the authority of 17(d)(1) of ANCSA millions of acres of public lands were withdrawn from mineral entry, location, and leasing for the purposes of study and classification. This planning process will assess the continued need for withdrawals on selected and unselected lands, balancing the need for mineral development and production with protection of resource values.

Public Land Order (PLO) 6477 was issued in 1983 in response to the Seward 1008 Study (BLM 1983). This PLO modified the 17(d)(1) withdrawals and opened parts of the planning area to mineral location and mineral leasing.

There are no active Federal oil and gas leases in the planning area. Parts of three oil and gas basins are located within the planning area, and a total of five exploration wells have been drilled within the planning area boundaries. All or parts of five coal fields are also found in the planning area, and there are currently two preferential right coal leases in the planning area. Both are 10-year leases that were issued in 1999, but at present neither lease is producing coal.

There are just over 300 known locatable mineral occurrences located on BLM-managed lands within the planning area. Most of these occurrences are located on the southern Seward

Peninsula, with a smaller number occurring in the Cosmos Hills region of the Kobuk River Valley. Known mineral deposits within the planning area that have seen active mining include numerous deposits of placer gold, placer tin, placer nephrite (Alaskan jade), lode gold, lode lead-silver, lode copper, and zinc. In addition, there are numerous known deposits that have never seen mineral production, including deposits of lode tin, fluorspar, and nickel/platinum group elements (PGE).

Issue Statement 4: Provide access to BLM-managed lands for various purposes, including recreation, subsistence activities, and general enjoyment of public lands, while protecting natural and cultural resources.

The planning area is comprised of a checkerboard pattern of mixed land status. As lands are conveyed from public management to private ownership (in the case of Native selections), some access routes to public lands are in danger of being lost if easements are not reserved as part of the conveyance process. Section 17(b) of ANCSA provided for the reservation of easements across lands being conveyed to Native regional and village corporations primarily to provide access to isolated public lands. In some cases, easements were reserved as a result of a paperwork exercise using maps without being field-checked. The locations of some easements were not field verified or marked for public use. As a result, easements are often unusable due to terrain or land ownership patterns. Additionally, many easement reservations were effectively nullified by later conveyance of Native allotments across the easement, thereby making them discontinuous. Some 17(b) easement trails are nearly impassible due to wet or unstable surface conditions, resulting in trespass on Native land when users travel off the trail (and off the easement) to get around bad spots. Some members of the public use 17(b) easements for uses that are not allowed as specified by the BLM in the conveyance document or regulations.

The vast majority of the planning area is roadless. The State has recently developed a Northwest Alaska Transportation Plan, which covers many of the acres in the planning area (ADOT&PF 2004). There may be a need for rights-of-way across BLM-managed lands if and when projects in the transportation plan are developed. Access may also be needed across BLM-managed lands for development of mineral resources and other commercial uses.

2. Issues Considered but Not Further Analyzed

During scoping, several concerns were raised that were beyond the scope of the plan, represented questions about how the BLM would go about the planning process, or do not meet current policy (see the Planning Process section beginning on page 1-15 for more information). The issues and concerns that will not be analyzed further are summarized below.

a) Wilderness Inventory and Management

In 1964, Congress enacted the Wilderness Act “. . . to assure that an increasing population . . . does not occupy and modify all areas within the United States . . . , leaving no lands designated for preservation and protection in their natural condition.” The statutory criteria used to identify lands with wilderness character have been in effect since passage of the Wilderness Act over 40 years ago.

Alaska lands were inventoried, reviewed, and studied for their wilderness values under the Wilderness Act criteria beginning in 1971 when Congress enacted ANCSA. For eight years

thereafter, the Department evaluated national parks, forests, wildlife refuges, wild and scenic rivers, and other lands for potential designation as wilderness.

Subsequently, Congress passed ANILCA, which preserved more than 150 million acres in specially protected conservation units. This represents more than 40 percent of the land area of the State of Alaska, and about 60 percent of the Federal land in Alaska. Pursuant to ANILCA, more than one-third of the lands preserved in conservation units, or 57 million acres, were formally designated as wilderness.

In recognition of the sensitive and protracted negotiations that resulted in the designation of large amounts of wilderness and the limitations wilderness designations impose on the multiple use of those lands, Congress did not mandate further wilderness inventory, review, or study of BLM lands in Alaska with one exception. Section 1001 of ANILCA mandated a study of Federal lands north of 68 degrees latitude and east of the western boundary of the National Petroleum Reserve-Alaska. These lands are not within the planning area.

Rather than mandating further wilderness inventory, review, or study, Congress granted the Secretary the discretion to undertake additional wilderness study of BLM lands but, per section 1326 (b) of ANILCA, precluded further study of any Department lands in the State of Alaska “. . . for the single purpose of considering the establishment of a conservation system unit, national recreation area, national conservation area, or for related or similar purposes” absent Congressional direction.

Shortly after the passage of ANILCA, the Secretary exercised this discretion to adopt a policy to not conduct further wilderness inventory, review, or study (outside of ANILCA) as part of the BLM planning process in Alaska. This policy was in effect for approximately 20 years. On January 18, 2001, Secretary Babbitt adopted another approach that deviated from this long-term policy.

Clearly, Congress may direct the BLM to undertake further wilderness study in Alaska in future legislation. However, in the absence of further legislation, Congress has granted the Secretary the discretion to determine whether further wilderness inventory, review and study of BLM lands in Alaska is warranted. The current Secretary, in a letter dated April 11, 2003, has instructed the BLM to “. . . consider specific wilderness study proposals in Alaska, as part of any new or revised resource management planning effort, if the proposals have broad support among the State and Federal elected officials representing Alaska. Absent this broad support, wilderness should not be considered in these resource management plans” (DOI 2003).

The State of Alaska has asked the BLM to adhere to this directive in this RMP, stating, “[a]t this time it is clear that there is a lack of broad support for further wilderness proposals” (ADNR 2004). Therefore, wilderness inventory was not conducted as part of this planning process and wilderness areas are not considered in any of the alternatives.

There are no BLM-managed wilderness areas or wilderness study areas within the planning area. There are areas that possess opportunities for a primitive recreation experience, solitude, and naturalness. These areas are described in the Wilderness Characteristics section in Chapter III. These will not be recommended for congressional designation as wilderness areas.

b) Land Conveyance

Decisions made in the RMP will not affect or speed up the land conveyance process, nor will the RMP affect the recently-passed Alaska Land Transfer Acceleration Act (2004). The RMP does not attempt to influence prioritization of selections by either the State or Native or village corporations.

c) Commercial Activities

Comments were received regarding the fee structure and permitting of commercial activities such as special recreation use permits and grazing permits. These activities are governed by BLM regulation. Decisions made in the RMP will not affect existing BLM regulations.

d) Hunting and Fishing Regulations

There were numerous comments about changing hunting regulations to protect subsistence resources. The BLM manages wildlife and fisheries habitat; the Alaska Department of Fish and Game (ADF&G) manages wildlife and fish populations and issues fishing and hunting regulations. The Alaska Board of Game and Board of Fisheries create the regulations. In addition, the Federal Subsistence Board develops hunting and fishing regulations for federal public lands (as defined by Sec. 102 of ANILCA) which are closely coordinated with ADF&G. Decisions made in the RMP will not affect State or Federal fishing or hunting regulations. Any actions that might affect hunting and fishing will be coordinated with ADF&G consistent with 43 CFR Part 24, the Department of the Interior Fish and Wildlife Policy (which clarifies the Department's relationship with State fish and wildlife management agencies) and the Master Memorandum of Understanding between the agencies.

e) State of Alaska Administration of Guides, Outfitters, and Transporters

There were numerous comments about the State of Alaska's administration of guides, outfitters, and transporters. A State Commercial Services Board was recently reestablished to make recommendations to the State on how to better manage guides, outfitters, and transporters. Decisions in the RMP will not affect State administration of guides, outfitters, and transporters. Limits on the number of special recreational use permits issued by the BLM for activities on BLM-managed lands, however, may be instituted in special recreation management areas. See the Recreation Management section of Chapter II for more information on potential permitting limits in selected alternatives.

f) Federal Subsistence Program

Decisions made in the RMP will not change administration of this program; it will continue to be conducted through the Regional Advisory Councils (RACs) and the Federal Subsistence Board, with input from the general public, ADF&G, and Federal staff. Implementation of the federal subsistence program within federal conservation units and other affected federal lands will continue to be administered through the respective federal land management agency. The RMP will, however, consider impacts and access to subsistence resources and subsistence opportunities from proposed actions associated with the alternatives considered in the EIS.

E. Planning Criteria and Legislative Constraints

FLPMA is the primary authority for the BLM's management of public lands. FLPMA consolidates and articulates the BLM's management responsibilities. It provides overarching policy by which public lands will be managed and establishes provisions for land use planning, land acquisition and disposition, administration, range management, rights-of-way, designated management areas, and the repeal of certain laws and statutes. NEPA requires the consideration and public availability of information regarding the environmental impacts of major Federal actions that significantly affect the quality of the human environment. In Alaska, public land management is further directed by ANILCA, ANCSA, and the Alaska Statehood Act, particularly in regard to land and realty issues, as well as access and subsistence. Additional laws, regulations, and policies guide management of public lands.

Planning criteria are standards, rules, and guidelines that help guide data collection, alternative formulation, and alternative selection during the planning process. In conjunction with planning issues, criteria assure that the planning process is focused. The criteria also help guide the final plan selection and provide a basis for judging the responsiveness of the planning options. The following planning criteria were developed by the BLM and were reviewed by the public as part of the scoping process.

- Opportunities for public participation will be encouraged throughout the RMP process.
- Valid existing rights will be recognized and protected.
- Subsistence uses and needs will be considered and adverse impacts minimized to the extent possible in accordance with ANILCA Section 810.
- The Planning Team will work cooperatively with the State of Alaska, Native corporations, municipal governments, other Federal agencies, interested groups, and individuals.
- Wildlife habitat management will be consistent with ADF&G objectives and/or the Federal Subsistence Board requirements or mandates.
- The RMP will be consistent with the mandates of FLPMA, NEPA, the Council on Environmental Quality, the National Historic Preservation Act, the Wild and Scenic Rivers Act, and other Federal laws, regulations, and policies as required by law. The planning process will include an EIS that will comply with NEPA standards.
- The BLM will meet the requirements in Section 810 of ANILCA.
- OHV designations for all public lands within the planning area will be completed in accordance with 43 CFR 8342.
- Areas proposed for Areas of Critical Environmental Concern designation will meet the criteria contained in 43 CFR 1610.7-2.
- Review and classification of waterways as eligible for inclusion in the National Wild and Scenic River System will follow the criteria contained in 43 CFR 8351.

- The RMP will address all lands within the planning area that are currently administered by the BLM.
- The plan will be consistent with the Iditarod National Historic Trail: Seward to Nome Route Comprehensive Management Plan (BLM 1986).
- The BLM will not conduct a wilderness review or make wilderness area recommendations as part of this planning process per Secretarial direction (see the Wilderness Inventory and Management section on page 1-11).
- The BLM will characterize existing social and economic conditions and trends for local communities.
- The BLM will characterize impacts to existing social and economic conditions and trends.
- The BLM will incorporate environmental justice considerations in land use planning alternatives to adequately respond to environmental justice issues and problems facing minority populations, low-income communities, and Tribes living near public lands and using public land resources. The BLM will determine if its proposed actions will adversely and disproportionately impact minority populations, low-income communities, and Tribes (Executive Order No. 12898, Environmental Justice).
- The Alaska Land Health Standards and Guidelines will be incorporated into the RMP.

F. Planning Process

An RMP is an overall plan that guides management of public lands within a defined planning area. An approved RMP establishes the following items:

- Resource goals and objectives,
- Allowable resource uses,
- Areas to be managed for limited, restricted, or exclusive resource uses or for transfer from BLM management,
- Program constraints and general management practices and protocols,
- General implementation schedules, and
- Intervals and standards for monitoring the RMP.

The nine major steps in preparation of an RMP are outlined in Table 1-2.

Table 1-2. Steps in the BLM Land Use Planning Process

Step	Description
1: Identification of issues	This step is designed to identify major problems, concerns, or opportunities associated with the management of public land in the planning area. Issues are identified by the public, the BLM, and other governmental entities. The planning process is then focused on resolving the planning issues.
2: Develop planning criteria	Planning criteria are identified to guide development of the RMP and prevent the collection of unnecessary information and data.
3: Collect and compile inventory data	This planning step involves the collation and collection of various kinds of environmental, social, economic, resource, and institutional data. In most cases, this process is limited to information needed to address the issues. The data required for land use planning decisions is usually at a broader scale than data required in implementation level planning and analysis.
4: Analysis of the management situation	This step calls for the deliberate assessment of the current situation. It identifies the way lands and activities are currently managed in the planning area, describes conditions and trends across the planning area, identifies problems and concerns resulting from the current management, and identifies opportunities to manage these lands differently.
5: Formulate alternatives	During this step, the BLM formulates a reasonable range of alternatives for managing resources in the planning area. Alternatives include a combination of a current management (no action) alternative and other alternatives that strive to resolve the major planning issues while emphasizing different management scenarios. Alternatives usually vary by the amounts of resource production or protection that would be allowed, or in the emphasis of one program area over another.
6: Estimation of effects	This step involves estimating the physical, biological, economic, and social effects of implementing each alternative in order to provide a comparative evaluation of impacts in compliance with Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR 1500).
7: Selection of preferred alternative	Based on the information resulting from the estimation of effects, the BLM identifies a Preferred Alternative. The Draft RMP/EIS is then prepared for printing and distributed for public review.
8: Selection of RMP	Following review and analysis of public comments on the Draft RMP/EIS, the BLM makes adjustments as warranted and selects a proposed RMP. The Proposed RMP and a final EIS is then published. A final decision is made after a 60-day Governor's Consistency Review and a 30-day public protest period are completed. The BLM then publishes the Record of Decision (ROD) and prepares the Approved RMP.
9: Monitoring and evaluation	This step involves the collection and analysis of resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues and achieving desired results. Implementation of decisions requiring subsequent action is also monitored. Monitoring continues from the time the RMP is adopted until changing conditions require revision of the whole plan or any portion of it.

1. Relationship to BLM Policies, Plans, and Programs

The following BLM plans relate to or otherwise govern management in the planning area:

- Northwest Management Framework Plan (BLM 1982),
- Seward 1008 Study (BLM 1983),
- Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska (BLM 2004b, 2005c), and
- Alaska Land Health Standards and Guidelines (BLM 2004a).

2. Collaboration

Collaboration is often described as interaction with a wide range of external and internal working relationships. A variety of strategies have been implemented throughout the planning process to foster a collaborative approach, improve communication, and develop understanding of the issues and the process in development of the RMP/EIS (BLM 2004c). Some of these strategies are widely accepted outreach tools, while others have been implemented based on suggestions made by the public as to how they wanted to collaborate with the BLM in development of the plan.

To promote scoping participation, the BLM mailed letters to the boroughs, Native corporations, cities, and other entities listed below. The letters explained the RMP process, stressed the need for cooperation and consultation, and invited participation. A similar letter providing background material for the meeting was sent to all the Village Indian Reorganization Act (IRA) councils where scoping meetings were scheduled.

- Bering Straits Native Corporation, Nome
- Cities within the Bering Straits Region
 - City of Brevig Mission
 - City of Buckland
 - City of Deering
 - City of Elim
 - City of Golovin
 - City of Koyuk
 - City of Nome
 - City of Shaktoolik
 - City of Shishmaref
 - City of Teller
 - City of Wales
 - City of White Mountain
- Kawerak Incorporated, Nome
- Kawerak Reindeer Herders Association, Nome
- NANA Regional Corporation, Kotzebue
- Northwest Arctic Borough
- Cities within the Northwest Arctic Borough
 - City of Ambler
 - City of Kotzebue
 - City of Kiana
 - City of Kivalina
 - City of Kobuk
 - City of Noorvik
 - City of Selawik
 - City of Shungnak
- Maniilaq Association, Kotzebue
- Arctic Slope Regional Corporation
- Iñupiat Community of the Arctic Slope
- North Slope Borough
- City of Point Hope (the only city within the North Slope Borough that is also within the planning area)

a) Intergovernmental, Interagency, and Tribal Relationships

During scoping, the BLM initiated government-to-government consultation with 25 tribes located within the planning area. As mentioned in the previous section, letters providing background information were also sent to several Native corporations and Tribal entities, particularly in those communities where public meetings were scheduled. Follow-up calls and/or faxes to all the tribes reminding them of the comment period were distributed in late April 2004.

A joint BLM-State of Alaska position has been created, with that person acting as liaison between the State of Alaska and the BLM in this planning process and for all other RMPs being prepared by the BLM across the state. This has been effective in facilitating information exchange and review of draft materials by State personnel. The BLM requested State input into the scoping process by contacting the State of Alaska liaison office by letter on February 5, 2004. On May 7, 2004, consolidated scoping comments were received.

b) Other Stakeholder Relationships

The BLM has sought involvement in the planning process by a variety of stakeholders outside of government and agency groups. Scoping comments were received from several individuals and organizations representing a range of interests including environmental concerns, mineral exploration and development, subsistence hunting, wildlife management, fisheries, and commercial ventures. Stakeholders were kept informed of progress on the RMP through a semi-annual newsletter, the Kobuk-Seward Peninsula RMP/EIS Web site, and opportunistically at meetings held by various groups such as the Northwest Arctic and Seward Peninsula Regional Advisory Councils, Western Arctic Caribou Herd Working Group, Alaska Miners Association, and Kawerak Reindeer Herders Association.

The BLM-Alaska Resource Advisory Council (RAC) is a 15-member advisory panel that provides advice and recommendations to the BLM on resource and land management issues. Members include Alaskans from around the state representing energy, tourism, commercial recreation, environmental interests, and archeological interests. Members also include elected officials, Alaska Native organizations, and the public-at-large. A subcommittee of the RAC was assigned to keep abreast of the planning process. The RAC as a whole was kept informed of progress on the plan through updates at its quarterly meetings. Members on the Kobuk-Seward Peninsula subcommittee were kept informed through email and newsletters. All RAC members were given an opportunity to review the preliminary alternatives before development of this Draft RMP/EIS.

3. Relationship between the RMP and EIS

This document actually contains two documents: A Draft RMP and a Draft EIS. As part of the EIS, the RMP is not a stand-alone document; rather, it consists of the text, data, and maps found in Chapter II. Chapter II describes four alternatives for the RMP and explains the differences between these alternatives as they relate to the planning issues. Each of the four alternatives represents a different RMP that would address the issues in different ways, though some decisions may be common to more than one alternative. Chapter II is also a required component of an EIS, written to compare and analyze the effects of implementation of each of the alternatives.

After public comments on the Draft EIS have been analyzed, a Final EIS and Proposed RMP will be prepared. The Final EIS will be very similar in content to the Draft EIS but will include responses to all public comments. Any errors or corrections identified through the comment process or through internal review will also be addressed in the Final EIS and Proposed RMP through modifications to the proposed plan or alternatives, development and evaluation of alternatives not previously considered, corrections to the document, and/or improved, supplemented, or modified analyses.

No earlier than 30 days after the Final EIS/Proposed RMP document is issued, a Record of Decision (ROD) and Approved RMP will be approved and published in a single document. The Approved RMP may be different from the preferred alternative identified in the Final EIS and Proposed RMP if the deciding official elects to combine elements of multiple alternatives into the Approved RMP. The RMP will describe the goals, objectives, and actions for fulfilling the direction and vision developed throughout the planning process. The ROD and Approved RMP will function as a stand-alone document to guide future land management decisions.

4. Implementation of the RMP

RMPs provide broad, general direction for management of BLM-managed lands. After an RMP is approved, many of the decisions made in the RMP become effective immediately. Other decisions will only be effective after additional action. For example, a decision to withdraw lands from mineral entry would not be effective until after formal action at the Secretarial level.

Before specific projects can be implemented on the ground, an implementation plan must be completed, and all implementation plans must tier to and be in compliance with the affected area's RMP. All implementation-level planning will be tiered to the management framework established in the RMP. For example, the RMP will describe what areas will be available for land disposal. The implementation level plan would describe under what conditions the lands would be made available and other conditions necessary to facilitate land disposal (appraisal, fair market value determination, access, etc.).

G. Related Plans

Plans formulated by Federal, State, local, and Tribal governments that relate to the management of lands and resources were reviewed and considered during development of this Draft RMP/EIS. BLM planning regulations require that BLM plans be consistent with officially approved or adopted resource related plans of other Federal, State, local, and Tribal governments to the extent that those plans are consistent with Federal laws and regulations applicable to public lands.

Management of Federal and State lands immediately adjacent to public land administered by the BLM will be considered to the extent possible in the formulation of alternative management scenarios and land use allocations. The main planning documents of other Federal, State, local, and Tribal governments to be considered in development of the RMP include:

- Northwest Area Plan for State Lands – Alaska Department of Natural Resources (ADNR 1989)

- Northwest Area Transportation Plan – Alaska Department of Transportation and Public Facilities (ADOT&PF 2004)
- Bering Straits Coastal Resource Service Area Coastal Management Plan – Alaska Coastal Management Program (ACMP 1989)
- Northwest Arctic Borough Coastal Management Program: Enforceable and Administrative Policies (ACMP 1998)
- Northwest Arctic Borough Coastal Management Plan Public Review Draft (ACMP 2004)
- North Slope Borough Coastal Management Program: Enforceable Policies (ACMP 1988)
- Northwest Arctic Borough Comprehensive Economic Development Strategy (Northwest Arctic Borough 2004)
- Bering Straits Native Corporation Land Use Policy (BSNC 1999)

H. Policy

The following policies and legislation are outside the scope of the plan but may influence decisions or constrain alternatives.

A 2003 memo from the Secretary of the Interior established the current policy on consideration of wilderness during BLM planning efforts in Alaska. The Secretary instructed BLM to “. . . consider specific wilderness study proposals in Alaska, as part of any new or revised resource management planning effort, if the proposals have broad support among the State and Federal elected officials representing Alaska. Absent this broad support, wilderness should not be considered in these resource management plans” (DOI 2003). As described above in the Wilderness Inventory and Management section beginning on page 1-11, the State of Alaska does not support further wilderness proposals; therefore, neither a wilderness inventory or wilderness area recommendations are included as part of this planning process.

Under the Statehood Act, the Federal government allowed the State of Alaska to select 104 million acres of Federal land. Approximately 28 percent of the BLM-managed lands in the planning area is State-selected. ANCSA requires the transfer of 44 million acres of public land to Alaska Native corporations. Approximately 38 percent of the BLM-managed lands in the planning area is Native-selected. Conveyance of State- and Native-selected lands within the planning area is ongoing. Implementation of planning decisions on selected lands may be delayed until conveyances are complete and final ownership is determined. Other decisions may be precluded because the lands in question may ultimately pass from BLM management.

Although Federal lands, including lands within the Kobuk-Seward Peninsula Planning Area, are excluded from the coastal zone (16 USC 1453[1]), the Coastal Zone Management Act of 1972 as amended (PL 92-583), directs Federal agencies conducting activities within the coastal zone or that may affect any land or water use or natural resources of the coastal zone to conduct these activities in a manner that is consistent “to the maximum extent practicable” with approved State management programs.²

The Alaska Coastal Zone Management Act of 1977, as amended, and the subsequent Alaska Coastal Management Program and Final Environmental Impact Statement (1979) establish

² “To the maximum extent practicable” means to the fullest degree permitted by existing law (15 CFR Sec. 930.32).

policy guidance and standards for review of projects within or potentially affecting Alaska's coastal zone. In addition, specific policies have been developed for activities and uses of coastal lands and water resources within regional coastal resource districts. Most incorporated cities, municipalities, and boroughs as well as unincorporated areas (coastal resource service areas) within the coastal zone now have State-approved coastal management programs.

Although State and coastal district program policies guide consistency determinations, more restrictive Federal agency standards may be applied. Federal regulations state that "(when) Federal agency standards are more restrictive than standards or requirements contained in the State's management program the Federal agency may continue to apply its stricter standards..." (15 CFR Sec. 930.39 [d]).

Certain Federal actions may require a Federal Consistency Determination. The BLM will contact the ADNR Alaska Coastal Management Program for program applicability before beginning a project that may affect a coastal zone.

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Chapter II: Alternatives

A. General Descriptions of the Alternatives

1. *Alternative A*

Alternative A would continue present management practices and present levels of resource use based on the existing Northwest Management Framework Plan (MFP) (BLM 1982) and other management decision documents. Valid decisions contained in the Northwest MFP would be implemented if not already completed. Direction contained in existing laws, regulation, and policy would also continue to be implemented, sometimes superseding provisions in the Northwest MFP. The current levels, methods, and mix of multiple use management of public land in the planning area would continue, and resource values would receive attention at present levels. In general, most activities would be analyzed on a case-by-case basis and few uses would be limited or excluded as long as they were consistent with State and Federal laws. Fire would be managed consistently with the Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2004b, 2005c).

2. *Alternative B*

Alternative B lays the groundwork for active management to facilitate resource development. In this alternative, constraints to protect resource values or habitat would be implemented in very specific geographic areas rather than across the planning area or in special designations. All Alaska Native Claims Settlement Act (ANCSA) (d)(1) withdrawals would be revoked on lands retained in long-term Federal ownership, increasing the potential for mineral exploration and development. Seasonal stipulations for oil and gas leasing in caribou habitat would not apply under this alternative (Appendix A). Travel and trail restrictions would be minimized. One Special Recreation Management Area (SRMA) would be identified in the Squirrel River to focus management on recreational use. In other areas, recreation management would focus on dispersed recreation and management of permits. Management of State- and Native-selected lands would be mostly custodial.

3. *Alternative C*

Alternative C emphasizes active measures to protect and enhance resource values. Production of minerals and services would be more constrained than in Alternative B or D, and in some areas, uses would be excluded to protect sensitive resources. Areas of Critical Environmental Concern (ACECs) and SRMAs are identified, and specific measures proposed to protect or enhance values within these areas. Several rivers are recommended suitable for designation under the Wild and Scenic River Act. Limited areas are proposed for off-highway vehicles (OHVs) to protect habitat, soil and vegetation resources. Most ANCSA (d)(1) withdrawals are revoked but some would be replaced with new withdrawals in order to protect or maintain resource values. Most anadromous streams and all ACECs would be closed to mineral entry

and location. Areas suitable for mineral material disposal would be very limited. This alternative treats lands selected by the State and by Native or village corporations as if these lands were to be retained in long-term Federal ownership.

4. *Alternative D*

Alternative D, which is the BLM preferred alternative, emphasizes a moderate level of protection, use, and enhancement of resources and services. Constraints to protect resources would be implemented, but would be less restrictive than under Alternative C. This alternative would designate one Research Natural Area (RNA), five ACECs, and two SRMAs. No rivers would be recommended as suitable for designation under the Wild and Scenic River Act. This alternative would revoke most ANCSA (d)(1) withdrawals, leaving the majority of the planning area open to mineral entry and location. The RNA would be withdrawn from mineral entry. This alternative describes interim and long-term management strategies for lands selected by the State, or Native regional or village corporations.

Alternative D represents the mix and variety of actions that the BLM believes best resolves the issues and management concerns in consideration of all values and programs, and is thus considered the BLM's Preferred Alternative.

5. *Alternatives Considered but Not Analyzed in Detail*

a) Transfer of BLM-managed Lands in the Bering Land Bridge National Preserve to the National Park Service

One organization submitted a proposal to transfer lands in the Bendeleben Mountains to Bering Land Bridge National Park and Preserve. This Draft RMP/EIS considers alternatives that provide a full range of protection for the natural and cultural resource values found on these lands. Thus this alternative was not considered further.

b) Proposed Clear Creek Hot Springs RNA

This proposal, submitted by one organization in the mid-1980s, was submitted by another organization during scoping. While this area meets the criteria for designation of an RNA set forth in 43 CFR 1610.7, the land will not be retained in BLM ownership.

c) Proposed Camp Haven Gap RNA

This proposal, submitted by one organization in the mid-1980s, was submitted by another organization during scoping. The BLM has determined that the area does not meet the criteria for designation of an RNA set forth in 43 CFR 1610.7. This Draft RMP/EIS considers alternatives that provide a full range of protection for the natural and cultural resource values found on these lands.

d) Proposed Windy Cove RNA

This proposal, submitted by one organization in the mid-1980s, was submitted by another organization during scoping. Portions of the proposed RNA are high-priority selected lands and probably will not remain in BLM ownership. In addition, the BLM has determined that portions of the area do not meet the criteria for designation of an RNA set forth in 43 CFR 1610.7. This Draft RMP/EIS considers alternatives that provide a full range of protection for the natural and cultural resource values found on these lands. Other parts of the RNA are included in the Kigluaik ACEC, which is considered in one alternative.

B. Detailed Descriptions of the Alternatives

The following narrative provides a detailed description of proposed management by four categories: Resources, Resource Uses, Special Designations, and Social and Economic Conditions. Goals are listed under each resource, resource use, or program. These are followed by a description of objectives, management actions, and allocations proposed to achieve the goals and to address issues. Goals are consistent across alternatives. Objectives, management actions, and allocations may change by alternative. Management that is common across the alternatives is presented first, followed by descriptions of management by alternative.

1. Resources

a) Air Quality and Soil and Water Resources

(1) Goals

- Air and water quality should meet or exceed local, State and Federal requirements.
- Ensure that watersheds are in, or are making significant progress toward, a properly functioning physical condition that includes stream banks, wetlands, and water quality.
- Minimize negative impacts to soils and wetland vegetation and prevent soil erosion.
- Maintain desired ecological conditions as defined by the BLM-Alaska Statewide Land Health Standards.

(2) Alternative A

This alternative would continue existing management. The Northwest MFP contains little guidance relative to management of soil, water, and air resources. Under the watershed program, a permit is required for the use of vehicles weighing over 2,000 pounds off of existing trails. This alternative also recommends that the BLM file for water rights under State law to secure water for needed BLM uses on an as-needed basis. To date, the BLM has not filed water rights in the planning area. Proposed permitted or authorized uses would be analyzed through the appropriate NEPA document. Based on this analysis, the BLM would develop mitigation to minimize impacts from proposed activities to soil, water, and air resources. The resulting mitigation measures would be included in the permit that authorized the use. The BLM would continue to comply with applicable legislation, Federal regulations, and policy relative to soil, water, and air.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Support monitoring and assessment of riparian areas for proper functioning condition, as defined in the BLM manual Technical Reference 1737-3. Use this information to develop maintenance and restoration projects. Priority areas will include rivers determined suitable

for inclusion as wild or scenic, designated ACECs, areas known to be in need of restoration, and riparian areas within anticipated or ongoing mining activity.

- Develop a water quality database in critical aquatic habitats and important recreation use areas to establish baseline values. After initial assessment, monitor water quality in these areas.
- Contract soil surveys in areas of high resource value or proposed development as needed.
- Assess impacts from OHV trails, especially in high-use areas where riparian and wetland resources are at risk.

(b) Management Decisions

- In cooperation with the appropriate Federal, State, local, or tribal requirements, identify area-wide use restrictions, or other protective measures, including the Clean Air and Water Acts, Federal wetlands and floodplain requirements.
- In order to comply with the Safe Drinking Water Act and protect the quality and quantity of drinking water, the BLM will consult with owners/operators of potentially affected, Federally-regulated public water supply systems when proposing management actions in State-designated Source Water Protection Areas. The locations of public water supply systems and Source Water Protection Areas are available from the Alaska Department of Environmental Conservation Drinking Water and Wastewater Program.
- File for water rights under State law to secure water needed for BLM uses.

(c) Land Use Requirements

Resource protection would be applied on a site-specific basis for permitted activities and uses that affect soil, water, and air based on guidelines provided in the Required Operating Procedures, as described in Appendix A. Oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

b) Vegetation Management

(1) Goals

- Maintain the current, largely pristine nature of the Kobuk-Seward Peninsula landscape. Plant communities within the plan area generally exist in a natural mix of seral stages and species diversity, undisturbed except by natural forces generated by climate, weather, terrain, and wildlife.
- Prevent the introduction and spread of noxious and invasive plants on BLM-administered land.

(2) Alternative A

This alternative would continue existing management. The Northwest MFP contains little guidance relative to vegetation management. The permit required for the use of vehicles weighing over 2,000 pounds off of existing trails would reduce impacts to vegetation. The BLM would manage so as to maintain or improve the quality of the range through proper management of livestock and fire. Proposed permitted or authorized uses would be analyzed through the appropriate NEPA document. Based on this analysis, mitigation would be developed to minimize impacts from proposed activities to vegetative resources. The resulting

mitigation measures would be included in the permit that authorized the use. The BLM would continue to comply with applicable policy relative to management of riparian vegetation.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Complete land cover classification by extending project work to cover Point Hope, De Long Mountains, and Point Lay U.S. Geologic Survey topographic map quadrangles.
- Inventory and monitor BLM-managed lands within the plan area to document the presence of noxious and invasive plant species and prevent their spread.
- Continue to monitor permanent vegetation and fire effects transects established in the Buckland River valley, northern Nulato Hills, Selawik Hills, McCarthy's Marsh, and Death Valley to evaluate changes in vegetation in general, and specific plant communities such as lichen-rich and lichen-dominated habitats.

(b) Management Decisions

- Recognize and manage lichen-rich plant communities (lichen tussock tundra, white spruce-lichen woodland, etc.) as unique habitats due to the slow growth potential of lichen and its great importance to caribou and reindeer.
- As needed, plan and implement site-specific actions necessary to protect and manage habitat through activity-level planning and/or mitigation and stipulation guidelines.
- On a landscape scale, and in cooperation with other State, Federal, Native and private land managers, use wildland fire to protect, maintain, and enhance vegetative resources, and as nearly as possible, allow fire to function in its natural ecological role.
- Use wildland fire, prescribed fire, and mechanical treatment as appropriate to manage for a natural fire regime to support a diverse mix of habitats.
- As needed, consider managing fire to protect old growth lichen stands in caribou winter range on the Seward Peninsula and Nulato Hills through the appropriate fire management option.
- Manage for multi-aged lichen stands, which provide diversity and ecological stability, while recognizing that caribou make substantial use of old growth lichen range.
- Protect vegetation on lands underlain by continuous or discontinuous permafrost from physical damage and thermokarst erosion from uncontrolled OHV use.
- Work with others to implement the BLM's Partners Against Weeds Plan and the Strategic Plan for Noxious and Invasive Plant Management in Alaska.
- Work with the Committee for Invasive and Noxious Plant Management to develop appropriate educational materials on noxious and invasive species.
- Use integrated pest management (IPM) practices to control or eradicate noxious and invasive species. (IPM incorporates the best-suited cultural, biological, and chemical controls that will result in the least impact on the environment.)

(c) Land Use Requirements

Resource protection would be applied on a site-specific basis for permitted activities and uses that affect vegetation based on guidelines provided in the Required Operating Procedures, as described in Appendix A. Oil and gas leases would be subject to the Oil and Gas Leasing Stipulations, also listed in Appendix A.

c) Fish and Wildlife

(1) Goals

- Maintain and protect subsistence opportunities.
- Determine how the management actions, guidelines, and allowable uses prescribed in response to the other issues will affect both subsistence opportunities and resources as well as the social and economic environment.

(a) Fish

- In cooperation with the Alaska Department of Fish and Game (ADF&G), maintain and restore important migratory and resident fisheries habitat, including the maintenance of existing habitat improvements.
- Work with ADF&G to maintain or restore the fisheries potential of anadromous fish streams to support the public use and enjoyment of the resource and to promote economic stability within the planning area by managing for healthy wild populations of anadromous stocks.
- Manage habitat in a condition that will support resident species that spend all or part of their life cycles on public lands and that are of high economic, social, or scientific value to local communities or the nation.

(b) Wildlife

- Maintain sufficient quality and quantity of habitat to support healthy populations of wildlife.
- To the extent practical, mitigate impacts to wildlife species and their habitats from authorized and unauthorized uses of BLM-managed lands.
- In cooperation with ADF&G, ensure sustained populations and a natural abundance and diversity of wildlife resources.

(2) *Alternative A*

This alternative continues current management. Under the Northwest MFP, “crucial” wildlife habitats would be protected. Outside of crucial habitats, other uses would be mitigated to prevent any significant alterations in wildlife populations. Proposed permitted or authorized uses would be analyzed through the appropriate NEPA document. Based on this analysis, mitigation would be developed to minimize impacts from proposed activities. The resulting mitigation measures would be included in the permit that authorized the use.

(3) *Management Common to All Action Alternatives (B, C, and D)*

(a) Inventory and Monitoring

1. Fish

- Work cooperatively with ADF&G, USFWS, NPS, local Native corporations, and private non-profit corporations to inventory habitats and populations to help identify streams that contain anadromous and resident fish species on Federal public lands.
- Conduct habitat inventories in upper river drainages on BLM lands to extend coverage of the anadromous stream catalog. Inventory Shaktoolik, Ungalik, Inglutalik, Koyuk, Tubutulik,

Fish, Kuzitrin, Agiapuk, Buckland, Kivalina, Pah, Pick, Kukpowruk, Ipewik, and Nilik rivers; and Kiklovilik Creek (upper Selawik River).

- Determine upstream limits of Dolly Varden on public lands where data gaps exist. In particular, determine the upstream extent of Dolly Varden spawning in the Kivalina River drainage. Survey suspected spawning grounds associated with fresh water springs in the upper watershed.
- In cooperation with the State of Alaska, collect genetic samples to characterize Chinook, coho, and chum salmon stocks throughout the planning area. The Boston Creek Chinook population in the upper Fish River drainage is high priority.
- Monitor water quality in priority watersheds to assess compliance with Alaska Land Health Standards.

2. Wildlife

- Work cooperatively with State and other Federal agencies to inventory and monitor habitats and populations of important subsistence species to provide the necessary information to develop subsistence regulations and bag limits on Federal lands as required by the Federal Subsistence Board.
- Cooperate with other State and Federal agencies to identify important habitats for Special Status Species and important subsistence species.

(b) Management Decisions

1. Fish

- Use the NEPA review process to mitigate adverse effects on fisheries resources from actions permitted on public lands to ensure that habitats are maintained or restored to a condition that will support desired populations of resident and anadromous species.
- Enter into cooperative restoration projects with private, State and other Federal agencies to implement the priority restoration work identified in BLM's Norton Sound Aquatic Habitat Management Plan, the Norton Sound/Bering Strait Regional Comprehensive Salmon Plan, and the Kobuk-Seward Peninsula RMP.
- Assure land use decisions are managed in compliance with State water quality standards.
- Increase habitat productivity in streams/lakes currently utilized by anadromous fish but producing below potential.
- Incorporate the mitigation measures outlined in Required Operating Procedures in Appendix A for avoiding potential impacts to aquatic life from use of fire retardant and fire suppression foams.

2. Wildlife

- Work cooperatively with State and other Federal agencies to implement the Western Arctic Caribou Herd (WACH) Strategic Management Plan, the Seward Peninsula Muskox Cooperators Plan, Boreal Partners in Flight Landbird Conservation Plan for Alaska, and other cooperative management efforts.
- Mitigate impacts from other uses to ensure that habitats are maintained in a condition that will support desired populations of wildlife species and to reduce direct impacts on wildlife from permitted activities.
- Use wildland fire and prescribed fire to improve moose wintering habitat, but not to the detriment of caribou winter range.

- Due to their value as wildlife habitat, protect riparian and tall shrub habitats through avoidance, rehabilitation of disturbed areas, or other measures.
- Minimize, to the extent possible, the displacement of wildlife resources from traditional subsistence harvest areas.
- Additional site-specific actions needed to manage wildlife habitat will be made through activity-level planning or as mitigation on proposed activities.

(c) Land Use Requirements

All permitted activities would operate under guidelines and stipulations provided in Appendix A: Required Operating Procedures, Stipulations, and Standard Lease Terms. These procedures were developed through the EIS process and are based on current knowledge of resources in the planning area and current permitting procedures. All oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

(4) Alternative B

As in Alternative A, appropriate mitigation measures would be developed through NEPA analysis on a case-by-case basis. In addition, this alternative proposes some inventory and monitoring of wildlife and fish habitats. Required Operating Procedures applied to all activities would provide additional protection for fish and wildlife habitat. No seasonal restrictions would be applied to oil and gas development in caribou habitat.

(5) Alternative C

This alternative would be the same as Alternative B with the exception that an activity plan would be developed for management of caribou habitat in the Nulato Hills ACEC. This plan would address fire management specific to maintaining lichen habitats for caribou.

(6) Alternative D

This alternative would be the same as Alternative B with the exception that an activity plan would be developed for management of WACH calving, insect relief, and core wintering habitat. Through this planning process, the BLM would develop additional oil and gas leasing stipulations for calving and insect relief habitat, appropriate mitigation measures for linear ROW, and fire management prescriptions for caribou winter range.

The preceding information is summarized in the following table.

Table 2-1. Fish and Wildlife—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Caribou habitat management	Address activities in WACH herd habitats on a case-by-case basis and mitigate impacts to the extent possible.	Manage WACH calving, insect relief, and core winter habitat in the Nulato Hills subject to BLM Required Operating Procedures and oil and gas leasing stipulations with the exception that leasing stipulations #6 and #7 would not apply.	Designate WACH calving, insect relief, and core winter habitat in the Nulato Hills as ACECs. Develop an activity plan for management of caribou habitat in the Nulato Hills ACEC. This plan would address fire management specific to maintaining lichen habitats for caribou.	Designate WACH calving, insect relief and core winter habitat in the Nulato Hills as ACECs. Develop activity plan for management of WACH calving, insect relief, and core wintering habitat. Through this planning process, additional oil and gas leasing stipulations for calving and insect relief habitat, appropriate mitigation measures for linear ROW, and fire management prescriptions for caribou winter range would be developed.

d) Special Status Species

(1) Goals

- Identify, conserve, and monitor rare and vulnerable habitats and plant communities to ensure a self-sustaining persistence of Special Status Species plants within the Kobuk-Seward Peninsula RMP area.
- Ensure that proposed land uses initiated or authorized by the BLM avoid inadvertent damage to habitats supporting Special Status Species plants and plant communities.
- Manage habitats consistent with the conservation needs of Special Status Species to avoid listing any species under the Endangered Species Act and ensuring progress toward recovery of listed species.

(2) Alternative A

The alternative continues current management. The Northwest MFP does not contain any specific guidance for management of Special Status Species, which would be managed according to BLM policy, applicable laws, and Federal regulations. If actions authorized, funded, or carried out by the BLM may affect any Federally listed species or designated critical habitat, consultation under sec. 7 of the Endangered Species Act would be initiated with USFWS. Proposed permitted or authorized uses that may affect special status species are analyzed through the appropriate NEPA document. Based on this analysis, mitigation is developed to minimize impacts from proposed activities. The resulting mitigation measures are included in the permit that authorizes the use.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

1. Special Status Plants

- Identify botanically unexplored regions within the planning area and prioritize for floristic inventory.
- Inventory project sites for Special Status Species plants on an as-needed basis.
- Monitor Special Status Species plant populations and associated habitats for population trends and threats.
- Contribute data on Special Status Species plant locations, population numbers, and trends (and voucher specimens as needed) to the Northern Plant Documentation Center (University of Alaska Fairbanks Museum Herbarium) and Alaska Natural Heritage Program in a cooperative effort to build a statewide rare plant database.

2. Special Status Fish

- In cooperation with ADF&G, inventory habitat for Special Status fish species, and monitor priority species' population trends according to direction provided in BLM Manual 6840.
- Initiate population trend studies on BLM Sensitive Species arctic char and Dolly Varden found in the Kigluaik Mountain lakes. Establish Fall Creek Lake and Crater Lake fish population monitoring as the primary indices for the trend study.

3. Special Status Wildlife

- Identify specific areas and habitats of importance to Special Status Species, including, but not limited to: spectacled eider, Kittlitz's murrelet, yellow-billed loon, and shorebirds.
- Cooperate with other State and Federal agencies to monitor special status landbird species.

(b) Management Decisions

1. Special Status Plants

- Ensure OHV use on designated trails and OHV designations result in avoidance of locations with known populations of Special Status Species plants.
- Protect habitats of Special Status plant species from disturbance and mitigate impacts to Special Status plants from permitted activities.
- Do not authorize mineral material sales in habitats containing known populations of Special Status Species plants.
- As needed, site-specific actions necessary to manage habitat for Special Status Species plants will be made through activity-level planning, such as ACEC or SRMA management plans, or as mitigation/stipulations on proposed activities.

2. Special Status Fish

- Work with ADF&G and the State Board of Fisheries to protect the populations of Kigluaik arctic char through fishing regulations, if warranted.
- Cooperate with State and other Federal agencies in the development and implementation of recovery plans, management plans, conservation strategies, or assessments for Special Status fish species that occur on BLM-managed lands.

3. Special Status Wildlife

- Cooperate with State and other Federal agencies in the development and implementation of recovery plans, management plans, conservation strategies, or assessments for Special Status Species that occur on BLM-managed lands.
- Lands within the planning area will be managed to protect Federal and State listed, as well as candidate Threatened and Endangered species habitat, and to maintain public land health through avoidance of sensitive habitat.
- Where practical, use will be redirected, as necessary, to protect Federal and State listed and candidate Threatened and Endangered species habitat, to enhance indigenous animal population, and to otherwise maintain public land health through avoidance of sensitive habitat.

(c) Land Use Requirements

All permitted activities would operate under guidelines and stipulations provided in Required Operating Procedures in Appendix A. These procedures were developed through the EIS process and are based on current knowledge of resources in the planning area and current permitting procedures. Oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

e) Fire Management and Ecology

(1) Goals

- Provide appropriate management response on all wildland fires, with an emphasis on firefighter and public safety. Suppression costs must be commensurate with the values to be protected.
- Use wildland fire, prescribed fire, and other treatments to maintain or restore ecological systems and to meet land use and resource management objectives.
- Prevent human-caused fires.
- Reduce risk and costs of uncontrolled wildland fire through wildland fire use, prescribed fire, manual or mechanical treatments.
- Reduce adverse effects of fire management activities.
- Continue interagency collaboration and cooperation.

(2) Alternative A

Current guidance for fire management is provided by the BLM-Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2005c). Under this alternative, BLM would continue to cooperate and collaborate with other Federal, State, and Native land managers, and with other suppression organizations to address issues and concerns related to wildland fire management in Alaska and to implement operational decisions. Fire Management programs would emphasize the protection of human life and site-specific values while recognizing fire as an essential ecological process and natural agent of change to ecosystems. This alternative recognizes wildland fire use for resource benefit as a viable management tool. Vegetative communities would be monitored for cumulative effects of wildland fire, suppression activities, and effects of excluding fire as funding permits. Fuels management projects and prevention programs are proposed and funded on a case-by-case basis.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Monitor the number and size of wildland fires for cumulative impacts on wildlife habitat, particularly caribou winter range.
- Monitor vegetative communities for cumulative effects of wildland fire, suppression actions, and as funding permits, the effects of excluding fire from the landscape to evaluate best management practices.

(b) Management Decisions

- Use the appropriate mix of Fire Management Options and update as needed.
- Identify sensitive areas where special restrictions may be needed for fire monitoring and suppression activities.
- Identify and prioritize values at risk.
- Flight patterns and suppression activities will be prohibited around areas designated "Avoid".
- Determine number of human-caused fires and then implement an appropriate prevention program.

- Implement the most current fire management plan.
- Use wildland fire and fuels treatments to meet desired future conditions.
- The Required Operating Procedures in Appendix A will be implemented during fire management activities.
- The BLM policy for Structure Protection has been updated to clearly state District/Field Office priorities and to facilitate appropriate fire suppression actions on BLM-managed lands in the planning area. The policy can be found in Appendix E.

Site-specific fuels management actions needed to meet desired future conditions, habitat needs, or to meet protection objectives will be made through activity-level plans including:

- Modeling the impact of fire on habitat of the WACH to determine appropriate management strategies.
- Evaluating the number of human-caused fires and implementing an appropriate prevention plan.

(4) Alternative B

The alternative would be similar to Alternative A. Management options would be assessed based resource management and land use objectives. A new structure protection policy would be implemented. Fuels management and prevention programs would be developed as warranted. The need for active fuels management program would increase as the natural fire regime is effected by suppression efforts. Wildland fire use would not be allowed. Decisions in this RMP would supersede decisions in the BLM-Alaska Land Use Plan Amendment for Wildland Fire and Fuels Management (BLM 2005c).

(5) Alternative C

This alternative would be similar to Alternative B except that wildland fire use would be allowed. Management option designations would be reviewed for compliance with land use and resource management objectives identified under this alternative. A new structure protection policy would be implemented. Fuels management and prevention programs would be developed as warranted.

(6) Alternative D

This alternative would be the same as Alternative C.

The preceding information is summarized in the following table.

Table 2-2. Fire Management and Ecology—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Fire Management and Ecology	Allow wildland fire use for resource benefit and to meet land use and resource management objectives.	Do not allow wildland fire use.	Allow “wildland fire use.” Develop an activity-level plan outlining specific prescriptions for wildland fire use.	Same as C.

f) Cultural Resources

(1) Goals

- Protect significant cultural resources on public lands.
- Manage cultural resources for a variety of uses, including scientific use, conservation for future use, public use, traditional use, and experimental use.
- Preserve important cultural resource values through stabilization and data recovery.

(2) Alternative A

Under current management, BLM works with applicants to modify proposed surface-disturbing activities to completely avoid impacts to cultural resources if possible. BLM conducts consultation with the State Historic Preservation Officer, including a determination of eligibility, only when impacts to cultural resources cannot be avoided. This is done for two reasons: it reduces the amount of compliance work needed under sec. 106 of the National Historic Preservation Act (NHPA) and usually allows an applicant to proceed in the timeliest fashion.

Areas would be selected for baseline (non-sec. 106) inventory primarily on the basis of expectations about where development might occur, but with some consideration of where concentrations of cultural resources might be expected to occur. In general, destructive forms of data recovery, such as excavation and extensive testing would be avoided, and non-destructive forms of data recovery, such as surface mapping and limited testing, would be done only as necessary for sec. 106 purposes.

Sites in the planning area would be designated for current research use, with those sites that are accessible to the public being also designated for public use. Sites would be designated for traditional use as the BLM learned about them. Presently no sites are designated for conservation for future use.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Continue to conduct inventory mandated by sec. 110 of NHPA as funds are available.
- Monitor cultural resource sites in danger of alteration or destruction from natural or human-made causes.
- Develop partnerships to achieve these ends.

(b) Management Decisions

- Ensure adequate compliance with sec. 106 of the National Historic Preservation Act for all Bureau undertakings.
- Increase our understanding of the resource base through inventory and data recovery.
- Provide resources for current and future research needs.
- Provide resources for public uses.

(c) Land Use Requirements

All permitted activities would operate under guidelines and stipulations provided in Required Operating Procedures in Appendix A. These procedures were developed through the EIS process and are based on current knowledge of resources in the planning area and current permitting procedures. Oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

(4) *Alternative B*

Alternative B differs from Alternative A chiefly in terms of emphasis. Decisions regarding avoidance versus mitigation would be made in favor of development interests, and priorities for baseline inventory would be developed based on anticipated development. Destructive forms of data recovery would be allowed to accommodate development. Most sites would be designated for current research use, and other uses would be allowed only to the extent compatible with development.

(5) *Alternative C*

This alternative places emphasis on conservation of cultural resources. In carrying out compliance under sec. 106, preference would be given to avoidance over mitigation. Priorities for non- sec. 106 baseline inventory would be developed on the basis of where the greatest concentrations of resources are known or expected to be. Destructive means of data recovery would not be carried out, but non-destructive methods of data gathering would be employed frequently to develop better information about the resource base. At a minimum, a representative sample of cultural resources would be designated for conservation for future use.

(6) *Alternative D*

Under Alternative D, the guiding philosophy for management of cultural resources would be one of balance. Decisions regarding avoidance or mitigation would be developed by trying to weigh the anticipated value of cultural resources against the value of development and the cost of mitigation to applicants. Priorities for baseline inventory would be developed as under Alternative A. Destructive forms of data recovery would be minimized, but non-destructive data gathering would be actively pursued both in response to development and where important sites are involved. A mix of use categories would be assigned to try to provide for all uses of cultural resources in the planning area.

The preceding information is summarized in the following table.

Table 2-3. Cultural Resources—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Avoid or mitigate impacts to significant cultural resources resulting from Bureau undertakings.	Whenever feasible, avoid impacts to cultural resources. Complete Determinations of Eligibility and sec. 106 consultation only when impacts cannot be avoided.	Make decisions regarding avoidance or mitigation based on what is most acceptable to applicants or other development interests.	Avoid impacts to cultural resources in all instances except when it is physically impossible to do so.	Decide between avoidance and mitigation by weighing the relative value of cultural resources and the effects on development interests.
Prioritize areas for non- sec. 106 inventory.	Priority assigned to broad areas because of likelihood of development impacts.	Same as A	Priority assigned based on the value of the resource. Priority will be given to areas known to include important and/or numerous sites.	Assign priorities for inventory based on a combination of expected development activities and resource values.
Determine the extent and nature of data recovery efforts.	No destructive forms of data recovery (excavation and extensive testing) and only very limited collection of artifacts. Non-destructive data recovery (mapping and other forms of recordation) generally done only as necessary for sec. 106.	Same as A, but destructive data recovery allowed to accommodate development. Conduct non-destructive data recovery in areas where development is anticipated.	Destructive data recovery allowed only to address important research topics. Conduct non-destructive data recovery in areas of known or expected high resource values.	Minimize destructive data recovery. Conduct non-destructive data recovery based on a combination of management needs and resource values.
Designate sites on public lands as suitable for current research use and for conservation for future use.	Designate most sites as suitable for current research. Assign sites to multiple use categories.	Designate most sites as suitable for current research use. Allow other uses only to the extent that they do not restrict research use.	Designate a representative sample of sites for current research use. Reserve most sites for conservation for future use.	Designate most sites for current research use. Reserve a representative sample for conservation for future use.
Designate sites on public lands as suitable for public and traditional use.	Designate suitable sites for public use in areas having general public access. Designate sites for traditional use as they are made known to us.	Same as A. Avoid public use designations where that might conflict with other resource development.	Same as A. Avoid uses that would lead to destruction or major changes in sites.	Same as A.

g) Paleontological Resources

(1) Goals

- Preserve and protect significant paleontological resources and ensure that they are available for appropriate uses by present and future generations.
- Ensure that proposed land uses initiated or authorized by BLM avoid inadvertent damage to Federal and non-Federal paleontological resources.
- Promote stewardship, conservation, and appreciation of paleontological resources through educational and outreach programs.

(2) Alternative A

Under current management, the BLM manages paleontological resources in compliance with Federal regulations and in accordance with our internal program guidance (BLM 8720 Manual and Handbook). Paleontological specimens are protected by avoiding impacts to such specimens through project redesign, project abandonment, and/or mitigation of adverse impacts through scientific recovery and analysis. The Northwest MFP does not address management of paleontological resources.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Maintain an inventory of paleontological sites and localities.

(b) Management Decisions

- Require permits for individuals or institutions conducting paleontological investigations for vertebrate fossils on BLM-managed lands and insure that fossils remain in Federal ownership.
- Prior to projects that may result in surface or sub-surface disturbance, conduct an inventory for vertebrate paleontological resources in conjunction with the inventory for cultural resources.
- Comply with Federal regulations for the protection of paleontological remains by avoiding impacts to paleontological remains through project redesign, project abandonment, and/or mitigation of adverse impacts through scientific recovery and analysis.
- Prepare paleontological resource awareness programs designed to enhance public appreciation of paleontological resource values.
- Encourage scientific use of paleontological resources by university field schools.

(c) Land Use Requirements

All permitted activities would operate under guidelines and stipulations provided in Required Operating Procedures in Appendix A. These procedures were developed through the EIS process and are based on current knowledge of resources in the planning area and current permitting procedures. Oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

h) Visual Resources

(1) Goals

- Maintain the scenic qualities of the planning area.
- Manage scenic values in accordance with the objectives established for Visual Resource Management (VRM) classes.

(2) Alternative A

Under continuation of current management, visual resources would be managed on a project-by-project basis as no VRM classes have been established.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

Under all alternatives, visual resources would be managed according to established guidelines for VRM classes as described in the Visual Resources section of Chapter III. Generally, VRM Class I is more protective of scenic values and VRM Class IV is less restrictive. The visual resource contrast rating system would be used during project-level planning to determine whether or not proposed activities will meet VRM objectives.

(b) Management Decisions

Mitigation measures would be identified to reduce visual contrasts, and rehabilitation plans to address landscape modifications would be prepared on a case-by-case basis. VRM classes would be established as shown on Maps 2-1, 2-2, and 2-3. There would be no areas managed as VRM Class I under any alternative.

(c) Land Use Requirements

All permitted activities would operate under guidelines and stipulations provided in Required Operating Procedures in Appendix A. These procedures were developed through the EIS process and are based on current knowledge of resources in the planning area and current permitting procedures. All oil and gas leases would be subject to the Oil and Gas Leasing Stipulations also listed in Appendix A.

(4) Alternative B

Under Alternative B, 91 percent of the lands would be managed as VRM class IV. Smaller areas, including the Squirrel River watershed and the Kigluaik Mountains would be managed as VRM II and III areas. There would be no VRM class I.

(5) Alternative C

Alternative C would have the most restrictive VRM classifications. Approximately 54 percent of the planning area would be managed as VRM class II. Class II areas would include ACECs, the Squirrel River watershed, corridors along major rivers used as access corridors throughout the

planning area, and the Kigluaik Special Recreation Management Area. Approximately 24 percent and 22 percent of the planning area would be managed as class III and class IV respectively. There would be no VRM class I.

(6) Alternative D

Under Alternative D, 41 percent of the planning area would be managed as class III and 52 percent would be managed as class IV. A few areas including Mount Osborn RNA, the Ungalik River, the Kivalina River, and the Squirrel River would be managed as VRM class II (7 percent). There would be no VRM class I.

The preceding information is summarized in the following table.

Table 2-4. Visual Resources—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Visual Resources	No VRM management classes assigned	Class I: 0 acres Class II: 330,000 acres Class III: 804,000 acres Class IV: 11,999,000	Class I: 0 acres Class II: 7,058,000 acres Class III: 3,178,000 acres Class IV: 2,897,000 acres	Class I: 0 acres Class II: 891,000 acres Class III: 5,444,000 acres Class IV: 6,798,000 acres

INSERT 11x17 MAP
2_1_vrm_b

INSERT 11x17 MAP
2_2_vrm_c

INSERT 11x17 MAP
2_3_vrm_d

2. Resource Uses

a) Forest Products

(1) Goals

- Manage forests and woodlands to sustain their health, productivity, and biological diversity.
- Consistent with other resource values, provide forest products for local consumption and opportunities for commercial harvests.

(2) Alternative A

Under continuation of current management, requests for forest resources would be considered on a case-by-case basis as permits were received. Forested lands would be managed for a sustained yield of forest products.

(3) Management Common to All Action Alternatives (B, C, and D)

Forest resources would be managed to ensure biodiversity, long-term productivity, and a wide spectrum of multiple uses, including scenic values, recreation, fish and wildlife habitat, watershed protection, and timber harvest. Forest product permitting would be subject to the Required Operating Procedures found in Appendix A.

(a) Inventory and Monitoring

- Conduct baseline forest inventory of plan area to determine location of both commercial and non-commercial timber, as well as old growth stands. A comprehensive baseline inventory of forest resources in the plan area is needed to provide the location of timber stands, the age and size classes, and current health.
- Coordinate with USDI Forest Service (USFS) to conduct forest health inventory in the planning area to assess the extent and type of insect and disease outbreaks.

(b) Management Decisions

- Issue permits to authorize harvest of personal use firewood and house logs consistent with 43 CFR 5400 on a case-by-case basis.
- Issue free use permits to harvest vegetative products for personal use consistent with 43 CFR 5500 on a case-by-case basis.
- Lands would be managed to maintain or achieve the following desired conditions for forest and woodlands:
 - **Open/Closed White Spruce Forest:** Occupy approximate historic range, recognizing range shifts may occur due to global climate change, and are in stable or improving condition.
 - **Open/Closed Black Spruce Forest:** Occupy approximate historic range, recognizing range shifts may occur due to global climate change, and are in stable or improving condition.

- **Black Spruce Woodland:** Occupy approximate historic range, recognizing range shifts may occur due to global climate change, and are in stable or improving condition.
- Approximately 8 percent of BLM-managed lands within the Kobuk-Seward Peninsula RMP area are forested. Much of this forest and woodland will not be aggressively managed because of lack of access, low productivity due to harsh climate, and little public demand. However, in areas where access, productivity, and public interest in forestlands support more focused management, the following guidelines will be applied:
 - **Timber stands managed for commercial production of white spruce:** These stands occur on floodplains and alluvial terraces on well-drained soils. They would be managed to maintain white spruce as the dominant tree species. This may require thinning to minimize early seral competition from other species. Beetle-killed trees within these stands would be salvaged where possible.
 - **Timber stands managed for improvement of wildlife habitat:** In mixed white spruce-paper birch/balsam poplar stands where wildlife habitat improvement is the primary objective, desired condition will be maintenance of white spruce with a component of paper birch or balsam poplar. These stands would have shrub-dominated early seral stages after harvest and/or wildland or prescribed fire, or after mechanical treatment of mature or beetle-killed white spruce. Timber stands of this type would be expected to return to late seral stage of mixed white spruce-paper birch/balsam poplar after these types of disturbances.
 - **Moose habitat:** Desired condition is a mosaic pattern of upland spruce woodland cover types interspersed with a lower seral expression dominated by alder and willow. Upland woodland cover types are mixed with stream terraces and floodplains dominated by sedges and grasses and mixed age classes of alder and willow.
 - **Caribou habitat:** For summer range, similar to description for moose habitat. For caribou winter range, desired condition is uplands spruce woodland cover type where lichen plus various forbs and graminoids dominate the ground layer.
 - **Dall Sheep habitat:** Open high-elevation grass and forb-dominated plant communities with a minor shrub or tree component.

(4) Alternative B

Under Alternative B, forested lands would be managed to provide a variety of forest products including firewood, house logs, and other forest products. The feasibility of prescribed fire, wildland fire, or salvage logging in localized areas of beetle-killed spruce would be assessed. Requests for forest products would be considered on a case-by-case basis as applications were received. Small commercial logging and firewood sales would be considered, even in special management areas.

(5) Alternative C

Under Alternative C, forested lands would be managed to provide limited personal use firewood and house logs. Stands of beetle-killed spruce would be left to decay naturally. . Allow wildland fire to function in its natural ecological role. Requests for forest products would be considered on a case-by-case basis as applications were received. No commercial logging or firewood sales would be permitted. Additional restrictions on personal use harvest of forest products would apply in special management areas, such as ACECs and suitable rivers.

Personal use firewood and house log gathering would be permitted in the Squirrel River SRMA if consistent with management objectives for the unit.

(6) *Alternative D*

Under Alternative D, forested lands would be managed to provide a sustained yield of firewood and house logs, and other forest products. The feasibility of prescribed fire, wildland fire, or salvage logging in localized areas of beetle-killed spruce would be assessed on a case-by-case basis. Small commercial logging and firewood sales would be considered in some areas, including ACECs. Personal use firewood and house log gathering, and small sales vegetative contracts would be permitted in ACECs and the Squirrel River SRMA if consistent with management objectives for the unit.

The preceding information is summarized in the following tables.

Table 2-5. Forest Products—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Forest Products	Issue permits to authorize personal firewood and house log harvest.	Same as A.	Same as A.	Same as A.
	Consider applications for salvage logging of beetle-killed spruce on a case-by-case basis.	Assess feasibility of prescribed fire or salvage logging in localized areas of beetle-killed spruce timber.	Leave stands of beetle-killed spruce to naturally decay. Allow wildland fire to function in its natural ecological role.	Compare benefits/risks of salvage logging with prescribed fire or wildland fire in localized areas of beetle-killed white spruce timber on a case-by-case basis.
	Address proposals for commercial sales on a case-by-case basis	After baseline forest inventory, assess feasibility of commercial logging in selected areas. If feasible, limited commercial logging and firewood sales would be considered. Small sales vegetative contracts permitted (e.g., commercial harvest of mushrooms, Christmas trees, spruce cones, etc.)	No commercial logging or firewood sales will be permitted within the plan area. Small sales vegetative contracts considered on a case-by-case basis.	Same as B

Table 2-6. Forest Products—Constraints on Specific Areas

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Squirrel River SRMA	Same as remainder of planning area as described in column A above.	Consider commercial forest product sales on a case-by-case basis in the Squirrel River SRMA.	Same as column C. above, consistent with measures identified in the Squirrel River SRMA, except that no commercial sales permitted.	Same as column D. above, consistent with measures identified in the Squirrel River SRMA, except no commercial logging or firewood sales permitted.
ACECs/RNAs	No ACECs/RNAs	No ACECs/RNAs	Limited personal use firewood and house log harvest permitted, consistent with management objectives for ACEC/RNA. No commercial sales permitted.	Same as column D. above, if consistent with management objectives for ACEC/RNA.
Wild and Scenic Rivers	Personal use firewood and house log permits are allowed within the Squirrel River WSR study area.	No rivers determined suitable	No personal use firewood or house log harvest allowed on rivers determined suitable for WSR status. No commercial sales permitted on rivers determined suitable for WSR status.	No rivers determined suitable

b) Livestock Grazing

(1) Goals

- Resolve conflicts between livestock grazing, wildlife, and subsistence.
- Maintain and improve the quality of the range conditions.
- Manage for a sustainable level of livestock grazing with deference given to maintaining habitat needed to support desired populations of wildlife.
- Determine appropriateness of grazing of livestock for species other than reindeer.

(2) Alternative A

Under continuation of current management, livestock grazing would be managed on a case-by-case basis as permits were received. The type of livestock permitted would be limited to reindeer. Incidental grazing by pack animals associated with special recreation use permits would be considered on a case-by-case basis.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Work cooperatively with ADNR, ADF&G, NRCS, NPS, and the Federal Subsistence Program to monitor range conditions to provide the necessary information to manage herding activities. Monitor lichen utilization and condition in open and active allotments. Work with NRCS and others to assess range conditions.
- Inventory habitat to determine priority for wildlife species on an as-needed basis.

(b) Management Decisions

- Decisions identifying lands available, or not available, for livestock grazing may be revisited through a plan amendment or revision if the grazing preference or permit on those lands has been voluntarily relinquished, or if there are outstanding requests to voluntarily relinquish the grazing preference.
- If an evaluation of the Alaska Statewide Land Health Standards identifies an allotment or group of allotments where Alaska Statewide Land Health Standards cannot be achieved under any level or management of livestock use, then decisions identifying those areas as available for livestock grazing need to be revisited.
- Develop allotment management plans for open and actively used allotments that include grazing systems and fire management.
- Allow incidental grazing of pack animals associated with special recreation permits on a case-by-case basis consistent with the permitting process for special recreation use permits, Required Operating Procedures in Appendix A, and the Alaska Statewide Land Health Standards.
- Screen new reindeer or livestock grazing permit applications for potential conflicts with wildlife and subsistence, and reject applications where significant conflicts are likely to occur.
- Grazing permits would be subject to Required Operating Procedures listed in Appendix A.

(4) Alternative B

Under Alternative B, the entire planning area would be open to grazing. Types of livestock permitted would include both reindeer and bison. Incidental grazing by pack animals associated with special recreation use permits would be considered on a case-by-case basis.

(5) Alternative C

Grazing under Alternative C would be limited to the Seward Peninsula (Map 2-4). Two active grazing allotments and two vacant areas, McCarthy's Marsh and the upper Kuzitrin River, would be closed. Grazing allotment boundaries would be modified to exclude ACECs. The type of livestock permitted would be limited to reindeer. Permits for allotments where reindeer have been absent for 10 or more years due to emigration with caribou would not be renewed. Unrenewed allotments would be permanently retired from grazing. Incidental grazing by pack animals associated with special recreation use permits would be considered on a case-by-case basis.

(6) Alternative D

Under Alternative D, grazing would be limited to current use areas (Map 2-5). Two vacant areas, McCarthy's Marsh and the upper Kuzitrin River, would be closed. The type of livestock permitted would be limited to reindeer. Incidental grazing by pack animals associated with special recreation use permits would be considered on a case-by-case basis.

The preceding information is summarized in the following table.

INSERT 8½x11 MAP
2_4_grazing_c

INSERT 8½x11 MAP
2_5_grazing_d

c) Minerals

Lands currently under selection by the State and Native corporations are segregated from locatable mineral entry and location, and from mineral leasing to avoid potential encumbrances on selected lands prior to conveyance. These lands comprise approximately 8,163,000 million acres out of the 13,133,000 million acres currently managed by the BLM. Therefore, decisions made within this land use planning effort to “open” areas for mineral exploration or development by revoking withdrawals would not go into effect unless lands are retained long-term in Federal ownership (i.e., not conveyed to the State or Native corporations).

(1) *Leasable Minerals*

(a) Fluid Leasable Minerals

1. Goals

- The public lands and Federal mineral estate will be made available for orderly and efficient exploration, development, and production of fluid leasable mineral resources (includes oil, natural gas, tar sands, coal bed methane, and geothermal steam), unless withdrawal or other administrative action is justified in the national interest.
- All fluid leasable minerals actions will comply with goals, objectives, and resource restrictions (mitigations) to protect other resource values in the planning area.

2. Alternative A

Currently there are no mineral leases on BLM-managed lands within the planning area. Some BLM lands are closed to leasing because of State or Native selections, Public Land Order (PLO), or underlying ANCSA (d)(1) withdrawals. Under Alternative A, no withdrawal review would occur and all ANCSA (d)(1) withdrawals would remain in place, pending some legislation or unrelated management direction. Map 3-26 shows areas open for mineral leasing, pending State or Native selections. For the purposes of analysis, it is assumed that under Alternative A no leasing would occur, as appropriate NEPA analysis must be completed and approved before Federal oil and gas lease sales can take place. However, where oil and gas is being drained from lands otherwise unavailable for leasing, there is implied authority in the agency having jurisdiction of those lands to grant authority to the BLM to lease such lands.

- Areas open to leasing subject to the terms and conditions of the standard lease form and BLM stipulations and required operating procedures: 2,821,000 acres, of which none is State- or Native-selected.
- Areas open to leasing, subject to minor constraints such as seasonal restrictions: 0 acres (none).
- Areas open to leasing, subject to major constraints such as No Surface Occupancy (NSO): 24,000 acres. These lands include those specified in PLO 6477 : Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, Fish, and west bank of Noatak River.
- Areas closed to leasing: 10,288,000 acres, which includes the Squirrel River Wild and Scenic River Study Area, areas closed by PLO, and those areas closed by ANCSA (d)(1) withdrawals.

3. Management Common to All Action Alternatives (B, C, and D)

a. Management Decisions

- Leasing would be subject to BLM standard lease terms and BLM-Alaska's stipulations and Required Operating Procedures with the exception in Alternative B that seasonal lease stipulations for caribou would not apply (Lease #6 and #7).
- Lands under selection by the State and Native corporations would be segregated from mineral leasing. The categories and constraints identified below only apply on lands retained in long-term Federal ownership.
- Stipulations prescribed for Federal mineral development, in split-estate situations, apply only to the development of the Federal minerals. These stipulations do not dictate surface management.
- Wild river portions of Wild and Scenic River corridors would be closed to the operation of the mineral leasing laws.
- Wild and Scenic Rivers managed as scenic river areas could be available for leasing, exploration, and development, so long as these uses do not adversely affect free flow, water quality, or the river's outstandingly remarkable values.
- Consider all geothermal leasing, Plan of Operations for exploration, or applications for development on a case-by-case basis.
- 24,000 acres of Federal oil and gas leasable lands are subject to NSO per PLO 6477: 300-foot NSO setback in the Pah River, Shaktoolik River, Ungalik River, Inglutalik River, Tubutulik River, Kuzitrin River, Fish River and west bank of Noatak River.
- In areas open to leasing subject to major constraints such as NSO, geophysical, exploration, and other temporary activities would be allowed subject to the BLM-Alaska stipulations and ROPs.
- Through NEPA analysis done at the time of a lease sale, this RMP may be amended to change NSO constraints.
- Coalbed natural gas development would be authorized by the same process as oil and gas.
- Geothermal resources would be available for leasing in areas open to oil and gas leasing. Areas closed to oil and gas leasing are also closed to geothermal leasing.
- All areas closed to fluid mineral leasing would be closed to geophysical exploration.

As described in BLM Manual 1624, Federal oil and gas resources (including coalbed natural gas) fall into one of four categories that become increasingly restrictive:

- **Open Subject to Standard Lease Terms and Conditions:** These are areas where it has been determined through the planning process that the standard terms and conditions of the lease form are sufficient to protect other land uses or resource values. In these areas, the BLM-Alaska's Stipulations and Required Operating Procedures (Appendix A) would also apply unless specifically excluded under a particular alternative.
- **Open Subject to Seasonal or Other Minor Constraints:** These are areas where it has been determined that moderately restrictive lease stipulations may be required to mitigate impacts to other land uses or resource values. Category 2 leases frequently involve timing limitations such as restricting construction activities in designated big game habitats, or controlled surface use stipulations such as creating a buffer zone around a critical resource.
- **Open Subject to NSO or Other Major Constraints:** These are areas where it has been determined through the planning process that highly restrictive lease stipulations are necessary to protect resources. Category 3 leases may prohibit the construction of

well production and support facilities. These areas can be subject to directional drilling, if technologically and economically feasible.

- **Closed to Leasing:** These are areas where it has been determined that other land uses or resource values cannot be adequately protected, and appropriate protection can be ensured only by closing the land to leasing through either statutory or administrative requirements.

b. Implementation Decisions

- Conditions of Approval (COA) for Applications for Permit to Drill would allow necessary impacts in order for development to be technically feasible or economically viable.
- Exceptions to lease stipulations and COAs would be allowed when site-specific analyses showed impacts to sensitive resources were within acceptable limits.
- Well spacing requirements for oil and gas resource protection would defer to the Alaska Oil and Gas Conservation Commission guidance with consideration for surface resource values.

4. Alternative B

- Areas open to leasing subject to the terms and conditions of the standard lease form, and BLM stipulations and ROPs: 13,109,000 acres, of which approximately 8,143,000 acres are State- or Native-selected. Under this alternative, Oil and Gas Leasing Stipulations #6 and #7 (Appendix A) would not apply.
- Areas open to leasing, subject to minor constraints such as seasonal restrictions: 0 acres (none). Under this alternative, Oil and Gas Leasing Stipulations #6 and #7 (Appendix A) would not apply.
- Areas open to leasing, subject to major constraints such as NSO: 24,000 acres. These lands include those specified in PLO 6477: Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River.
- Areas closed to leasing: 0 acres (none).

Map 2-6 shows areas that would be open for fluid mineral leasing, pending State and Native selections.

5. Alternative C

- Areas open to leasing subject to the terms and conditions of the standard lease form, and BLM stipulations and ROPs: 1,764,000 acres, of which 1,428,000 acres are State- or Native-selected.
- Areas open to leasing, subject to minor constraints such as seasonal restrictions: 5,353,000 acres of which approximately 3,592,000 acres are State- or Native-selected.
- Areas open to leasing, subject to major constraints such as NSO: 71,000 acres, 41,000 of which is State- or Native-selected land. These lands include portions of the following rivers that are outside of the closed areas: a) 300-foot setback as specified in PLO 6477; Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River; b) 300-foot setback from bankfull stage on either side of tributaries of above mentioned rivers (including Boston Creek); and c) 300-foot setback from bankfull stage on both sides of the upper portion mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Kivalina, Pick, Kukpowruk, Ipewik, and Nilik rivers, Kiliovilik Creek (Upper Selawik), and Koyuk River including East Fork.

- Areas closed to leasing: 5,945,000 acres, 3,096,000 acres of which are State- or Native-selected. These lands include: a) Nulato Hills; b) WACH insect relief/calving habitat; c) Squirrel River (PLO 5179); d) Kigluaik Mountains; e) McCarthy's Marsh; and f) Upper Kuzitrin River.

Map 2-7 shows areas that would be open to oil and gas leasing, pending State and Native selections.

6. Alternative D

- Areas open to leasing subject to the terms and conditions of the standard lease form and BLM stipulations and ROPs: 6,951,000 acres, 5,067,000 acres of which are State- or Native-selected.
- Areas open to leasing, subject to minor constraints such as seasonal restrictions: 6,144,000 acres, 3,069,000 acres of which are State- or Native-selected. These lands include: a) Squirrel River SRMA; b) caribou, waterfowl, and moose habitat in McCarthy's Marsh, upper Kuzitrin River; c) winter habitat for WACH in south Nulato Hills, and d) calving and insect relief habitat for WACH.
- Areas open to leasing, subject to major constraints such as NSO: 38,000 acres, 20,000 acres of which are State- or Native-selected. These lands include: a) 300-foot setback from bankfull stage on rivers identified PLO 6477 (see Management Common to All Action Alternatives (B, C, and D) on page 2-40); b) 300-foot setback from bankfull stage on Boston Creek, Koyuk River, Peace River, Agiapuk River, and upper Kivalina River.
- Areas closed to leasing: 0 acres.

Map 2-8 displays areas that would be open to oil and gas leasing, pending State and Native selections.

The preceding information is summarized in the following table.

Table 2-8. Fluid Leasable Minerals—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
<p>Closed to Fluid Mineral Leasing</p>	<p>Approximately 10,288,000 acres of Federal oil and gas leasable lands are currently closed to leasing because of State or Native selections, underlying ANCSA (d)(1) withdrawals, or other PLO. This includes about 1 million acres in the Nulato Hills closed under PLO 6477.</p>	<p>0 acres closed to leasing. Revoke all ANCSA (d)(1) withdrawals.</p>	<p>5,945,000 acres closed to leasing. Of this, 3,096,000 acres are selected. In addition to the area identified in Alternative D, the following areas would be closed fluid mineral leasing if retained in Federal ownership: 1) WACH Insect relief/calving habitat 2) Squirrel River (PLO 5179) 3) Kigluak Mountains 4) McCarthy's Marsh 5) Upper Kuzitrin River 6) Nulato Hills</p>	<p>0 acres closed to leasing. BLM would recommend revocation of most ANCSA (d)(1) withdrawals to allow for leasing on land retained in Federal ownership.</p>
<p>Open with No Surface Occupancy (NSO) Stipulations and Similar Major Constraints</p>	<p>24,000 acres open subject to lease stipulations such as NSO. Parts of PLO 6477 would be retained. This PLO implements a 300-foot NSO setback in the Pah River, Shaktoolik River, Ungalik River, Inglutalik River, Tubutulik River, Kuzitrin River, Fish River and west bank of Noatak River. No Federal leases currently occur on BLM-managed lands within the planning area.</p>	<p>24,000 acres open subject to lease stipulations such as NSO and site-specific constraints described in BLM-Alaska's Stipulations and Required Operating Procedures. That part of PLO 6477 described in Alternative A would be retained.</p>	<p>71,000 acres open subject to lease stipulations such as NSO and site-specific constraints described in BLM-Alaska's Stipulations and Required Operating Procedures. That part of PLO 6477 described in Alternative A would be retained. Additional 300-foot NSO setbacks would be established on the following rivers: 1) tributaries of the Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, Fish, and Noatak rivers. 2) on both sides of the upper portion mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Kivalina, Pick, Kukpowruk, Ipewik, and Nilik rivers and Kiliovik Creek (Upper Selawik), Koyuk River including East Fork.</p>	<p>38,000 acres (of this 20,000 acres is selected) open to leasing consideration subject to lease stipulations such as NSO and site-specific constraints described in BLM-Alaska's stipulations and Required Operating Procedures including the following areas: 300-foot NSO setbacks on Boston Creek, Koyuk River, Peace River, Agiapuk River, and upper Kivalina River. That part of PLO 6477 described in Alternative A would be retained.</p>

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Open with Seasonal or other Minor Constraints	No Federal leases currently occur on BLM-managed lands within the planning area.	0 acres (0%)	5,353,000 acres, of which 3,591,000 acres are State- or Native-selected.	6,144,000 acres, of which 3,069,000 acres are State- or Native-selected.
Big Game Seasonal Constraints	No Federal leases currently occur on BLM-managed lands within the planning area.	Oil and gas leasing stipulations #6 and #7 from Appendix A would not apply under this alternative.	WACH winter range and muskox habitat is subject to seasonal constraints. WACH calving and insect relief areas are closed.	Minor constraints would apply in the following areas: 1) Squirrel River SRMA; 2) McCarthy's Marsh; 3) Upper Kuzitrin River; 4) Nulato Hills 5) WACH calving and insect relief habitat. Additional stipulations may be developed through activity plans for WACH habitats.
Open Subject to Standard Lease Stipulations	No Federal leases currently occur on BLM-managed lands within the planning area.	13,109,000 acres, of which 8,143,000 acres are State- or Native-selected.	1,764,000 acres, of which 1,428,000 acres are State- or Native-selected.	6,951,000 acres, of which 5,067,000 acres are State- or Native-selected.

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(b) Solid Leasable Minerals

1. Goals

- The public lands and Federal mineral estate will be made available for orderly and efficient exploration, development, and production of solid leasable mineral resources (includes coal and oil shale, and non-energy leasable minerals (potassium, sodium, phosphate, and gilsonite), unless withdrawal is justified in the national interest.
- All solid leasable minerals actions will comply with goals, objectives, and resource restrictions (mitigations) to protect other resource values in the planning area.

2. Alternative A

There are currently two preferential right coal leases in the planning area. Both are 10-year leases and were issued in 1999. Some BLM lands are closed to leasing because of State or Native selections or underlying ANCSA (d)(1) withdrawals. Under Alternative A, no withdrawal review would occur and all ANCSA (d)(1) withdrawals would remain in place, pending some legislation or unrelated management direction. Map 3-26 shows areas open for mineral leasing, pending State or Native selections. For the purposes of analysis, it is assumed that under Alternative A no leasing would occur as appropriate NEPA analysis must be completed and approved before Federal lease sales can take place.

Under Alternative A, all unleased BLM-managed lands in the planning area would be open to coal exploration and non-energy leasable mineral exploration.

- Areas open to coal exploration and non-energy leasable mineral prospecting: 13,133,000 acres of which 8,163,000 acres are State- or Native- selected.
- Areas closed to exploration and non-energy leasable mineral prospecting: 0 acres (none).

3. Management Common to All Action Alternatives (B, C, and D)

All BLM-managed lands within the planning area subject to leasing under 43 CFR 3400.2 would be open to coal exploration and study. The coal screening process (as identified by 43 CFR 3420.1-4) has not been conducted in this planning area therefore leasing is deferred. Interest in exploration or leasing of Federal coal would be handled on a case-by-case basis. If an application for a coal lease should be received in the future, an appropriate land use and environmental analysis, including the coal screening process, would be conducted to determine whether or not the coal areas are acceptable for development and for leasing under 43 CFR 3425. The Kobuk-Seward RMP would be amended as necessary.

- Leasing would be subject to BLM standard lease terms and BLM-Alaska's stipulations and Required Operating Procedures (Appendix A).
- Coal and oil shale exploration and leasing would comply with the Mineral Leasing Act of 1920, as amended, the Surface Mining Control and Reclamation Act of 1977, the Federal Coal Leasing Amendments Act of 1976, the Mineral Leasing Act for Acquired Land of 1947, as amended, the National Environmental Policy Act of 1969 (NEPA), the Federal Land Policy and Management Act of 1976 (FLPMA), coal regulations, and coal planning criteria.
- The objective for management of the Federal coal resources in the KSP planning area is to provide opportunity for development of Federal coal consistent with the policies of the Federal coal management program, with environmental integrity, with national energy needs, and with related demands. With appropriate limitations and mitigation requirements for the protection of other resource values, all BLM-managed public lands and Federal coal

lands in the KSP planning area, except for those lands identified as closed (see Table 2-9 on page 2-54), would be open to coal resource inventory and exploration to help identify coal resources and their development potential.

- Should coal operations be developed on Federal lands, an agreement would likely be developed between the State and the Office of Surface Mining defining the regulatory role of the State in these mining operations (30 CFR 745).
- Oil shale would be leased on a case-by-case basis. Currently regulations for a commercial oil shale and tar sands leasing program do not exist. The Energy Policy Act of 2005 directs the Secretary to promulgate regulations for a commercial oil shale leasing program and authorizes the Secretary to conduct lease sales in states that show an interest.
- Non-energy leasable minerals exploration and leasing would comply with the Mineral Leasing Act of 1920, as amended, the Mineral Leasing Act for Acquired Land of 1947, as amended, the Federal Land Policy and Management Act of 1976 (FLPMA), the Reorganization Plan No. 3 of 1946, non-energy leasable minerals regulations and planning criteria.
- Non-energy leasable minerals would be leased on a case-by-case basis and subject to 43 CFR 3500.
- Lands under selection by the State and Native corporations would be segregated from mineral leasing. The categories and constraints identified below would only apply on lands retained in long-term Federal ownership.
- Stipulations prescribed for Federal mineral development in split-estate situations would only apply to the development of the Federal minerals. These stipulations would not dictate surface management.
- Identify special conditions, if any, that must be met during subsequent more detailed planning, lease sale, or post-lease activities, including measures required to protect other resource values.
- Only those BLM-managed public lands that have development potential may be identified as acceptable for further consideration for coal leasing.

Unless specifically closed to coal exploration, all unleased BLM-managed public lands within the planning area subject to leasing under 43 CFR 3400.2 would be open for coal exploration through the issuance of an exploration license. Coal exploration would be subject to BLM-Alaska's stipulations and ROPs.

Unless specifically closed to non-energy, all unleased BLM-managed public lands within the planning area subject to leasing under 43 CFR 3503 would be open for prospecting and exploration. Non-energy leasable minerals prospecting and exploration would be subject to BLM-Alaska's stipulations and ROPs.

4. Alternative B

Under Alternative B, all unleased BLM-managed lands in the planning area would be open to coal exploration and non-energy leasable mineral prospecting subject to BLM-Alaska Required Operating Procedures.

- Areas open to coal exploration and non-energy leasable mineral prospecting: 13,133,000 acres of which 8,163,000 acres are State- or Native-selected.
- Areas closed to exploration and non-energy leasable mineral prospecting: 0 acres (none).

5. Alternative C

Under Alternative C, more than half of the BLM-managed lands in the planning area would be open to coal exploration and non-energy leasable mineral prospecting subject to BLM-Alaska Required Operating Procedures (Map 2-9). Approximately 45 percent of the planning area would be closed to provide additional protection to important wildlife habitats and anadromous streams.

- Areas open to coal exploration and non-energy leasable mineral prospecting: 7,117,000 acres, of which approximately 5,018,000 acres are State- or Native- selected.
- Areas closed to exploration: 6,016,000 acres, of which approximately 3,138,000 acres are State- or Native- selected. These lands include: a) All ACECs/RNAs; b) 300-foot setback per PLO 6477: Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River; c) 300-foot setback from bankfull stage on either side of tributaries of above mentioned rivers (including Boston Creek); d) 300-foot setback from bankfull stage on both sides of the upper portion mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Kivalina, Pick, Kukpowruk, Ipewik, and Nilik rivers, Kiliovilik Creek (Upper Selawik), and Koyuk River including East Fork.

6. Alternative D

Under Alternative D, most of the BLM-managed lands in the planning area would be open to coal exploration and non-energy leasable mineral prospecting subject to BLM-Alaska Required Operating Procedures (Map 2-10). About 60 percent of the BLM-managed land in the planning area would be closed to provide additional protection to caribou habitat in the Nulato Hills and several anadromous streams.

- Areas open to coal exploration and non-energy leasable mineral prospecting: 12,074,000 acres, of which approximately 7,906,000 acres are State- or Native-selected.
- Areas closed to coal exploration and non-energy leasable mineral prospecting: 1,059,000 acres, of which approximately 250,000 acres are State- or Native-selected. These lands include: a) northern Nulato Hills; b) 300-foot setback on the following rivers: Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River; c) 300-foot setback from mean high water mark on Boston Creek, Koyuk River, Peace River, Agiapuk River, and upper Kivalina River.

The preceding information is summarized in the following table.

Table 2-9. Solid Leasable Minerals—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Open to coal exploration and non-energy leasable minerals prospecting	13,133,000 acres open (100%)	13,133,000 acres open (100%)	7,117,000 acres open (55%). Of this, 5,018,000 are selected.	12,074,000 acres open (92%). Of this, 7,906,000 acres are State- or Native-selected.
Closed to coal exploration and non-energy leasable minerals prospecting	0 acres closed	0 acres closed	6,016,000 acres closed (45%). Of this 3,138,000 are State- or Native-selected. In addition to those lands identified in Alternative D, the following would be closed if retained in Federal ownership: 1) Kigluiak Mountain ACEC; 2) McCarthy's Marsh ACEC; 3) Kuzitrin ACEC; 4) southern Nulato Hills 5) 300-foot setback on either side of tributaries of Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River; 6) 300-foot setback on both sides of the upper portion mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Kivalina, Pick, Kukpowruk, Ipewik, and Nilik rivers and Kilovilik Creek (Upper Selawik), Koyuk River including East Fork.	1,059,000 acres closed (8%). Of this, 250,000 acres are State- or Native-selected. The following areas would be closed if retained in Federal ownership: 1) northern Nulato Hills; 2) 300-foot setback on the Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River as described in PLO 6477; 3) 300-foot setback on Boston Creek, Koyuk River, Peace River, Agiapuk River, and upper Kivalina River.

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(2) Locatable Minerals

(a) Goals

- Maintain or enhance opportunities for mineral exploration and development while maintaining other resource values.

(b) Alternative A

Under current management, 30 percent of BLM-managed lands are currently open to mineral entry due to PLO 6477, which partially revoked the ANCSA (d)(1) withdrawals. Parts of the Lisburne and Selawik Mining Districts are open to metaliferous mineral entry only (Map 3-29). State and Native selected lands are currently segregated. This plan will not affect segregations against mineral entry due to State and Native selection. Mining activities are currently taking place on some BLM-managed lands because valid existing rights or certain areas were excluded from ANCSA (d)(1) withdrawals or State and Native selections.

Under Alternative A, no withdrawal review would occur and all ANCSA (d)(1) withdrawals would remain in place. The Fairbanks District Office and Anchorage Field Office would continue to administer active claims through Plans of Operations, but potential for future exploration and development on BLM-managed lands would be limited. Map 3-29 shows areas open for locatable mineral entry, pending State or Native selections.

- Areas open to mineral entry: 3,875,000 acres, of which 243,000 acres are State- or Native-selected.
- Areas closed to mineral entry: 9,258,000 acres including the Squirrel River Wild and Scenic River Study Area and areas closed by ANCSA (d)(1) withdrawals.

(c) Management Common to All Action Alternatives (B, C, and D)

- Mining of locatable minerals would be subject to the surface management regulations found in 43 CFR 3809. Surface occupancy under the mining laws would be limited to uses incident to the mining operation. Bonding would be required in accordance with BLM policy.
- Mining related disturbances would be rehabilitated, on active and inactive workings, as required by 43 CFR 3809 and in accordance with BLM policy.
- All operations would require filing a Plan of Operations with BLM. The Plan would have to be approved prior to commencement of on-the-ground activities. Specific measures that would be utilized to minimize surface impacts and to facilitate rehabilitation and revegetation of mined areas can be found in Required Operating Procedures in Appendix A.
- Areas withdrawn from mineral location in which valid existing rights are being exercised would require the filing of a Plan of Operations.
- Mining activities within withdrawn areas, including ANCSA (d)(1) withdrawals, would require proof of a valid discovery for surface-disturbing activities (including occupancy) to occur.

State- and Native-selected lands are currently segregated. This plan would not affect segregations against mineral entry due to State and Native selection.

(d) Alternative B

Under Alternative B, all ANCSA (d)(1) withdrawals would be revoked and the entire planning area would be open to locatable mineral entry and location subject to the 3809 and 3175 regulations and Required Operating Procedures.

- Areas open to mineral entry and location: 13,133,000 acres, of which 8,163,000 acres are State- or Native-selected.
- Areas closed to mineral entry and location: 0 acres (none).

(e) Alternative C

Under Alternative C, about 50 percent of the BLM-managed lands within the planning area would be closed to mineral entry and location to provide additional protection to sensitive areas. In areas identified for closure to mineral entry and location that are under an existing ANCSA (d)(1) withdrawal, the withdrawal would be retained until a new withdrawal for the stated purpose could be implemented. Areas not currently under an existing withdrawal would also be included in the new withdrawal for the stated purpose.

- Areas open to mineral entry and location: 6,498,000 acres, of which 4,652,000 acres are State- or Native-selected.
- Areas closed to mineral entry and location: 6,635,000 acres, of which 3,505,000 acres are State- or Native-selected. These areas include: a) WACH caribou insect relief habitat; b) Squirrel River SRMA; c) Kigluaik ACEC; d) McCarthy's Marsh ACEC; e) Upper Kuzitrin ACEC; f) Nulato Hills ACEC; g) 300-foot setback as specified in PLO 6477 on the Pah, Shaktoolik, Ungalik, Inglutalik, Tubutulik, Kuzitrin, and Fish rivers, and west bank of Noatak River; h) 300 feet on either side of tributaries of above mentioned rivers (including Boston Creek); i) 300 feet on both sides of the mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Kivalina, Pick, Kukpowruk, Ipewik, and Nilik rivers, Kiliovilik Creek (Upper Selawik), Koyuk River including East Fork.

Map 2-11 shows areas that would be open to locatable mineral entry and location, pending State and Native selections.

(f) Alternative D

Under Alternative D, less than 1 percent of the BLM-managed lands within the planning area would be closed to mineral entry and location to provide additional protection to sensitive areas. In areas identified for closure to mineral entry and location that are under an existing ANCSA (d)(1) withdrawal, the withdrawal would be retained until such time as a new withdrawal for the stated purpose can be implemented. Areas not currently under an existing withdrawal would also be included in the new withdrawal for the stated purpose.

- Areas open to mineral entry and location: 13,034,000 acres, of which 8,067,000 acres are State- or Native-selected.
- Areas closed to mineral entry and location: 99,000 acres, of which 89,000 acres are State- or Native-selected. These areas include: a) Mount Osborn RNA; b) 300-foot setback from bankfull stage on either side of the Ungalik River as identified in PLO 6477; c) 300-foot setback from bankfull stage on both sides of Boston Creek and upper Kivalina River.

Map 2-12 shows areas that would be open to locatable mineral entry and location, pending State and Native selections.

The preceding information is summarized in the following table.

Table 2-10. Locatable Minerals—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Closed Areas	<p>About 70% of the BLM lands are currently withdrawn from mineral entry and location due to ANCSA (d)(1) withdrawals or State and Native selections. This plan would not affect segregations against mineral entry and location due to State and Native Selection. Mining activities are currently taking place on some BLM-managed lands because of valid existing rights or because certain areas were excluded from ANCSA (d)(1) withdrawals or State and Native selections.</p>	<p>0 acres closed</p> <p>Revoke all ANCSA (d)(1) withdrawals.</p> <p>Open all areas, subject to 3809 surface regulations.</p>	<p>6,635,000 acres closed (50%). Of this, 3,505,000 acres are State- or Native-selected.</p> <p>Add the following to the list in D:</p> <ol style="list-style-type: none"> 1) Squirrel River SRMA; 2) Kigluak ACEC (includes the Mount Osborn RNA); 3) McCarthy’s Marsh ACEC; 4) Upper Kuzitrin ACEC; 5) Nulato Hills ACEC; 6) 300 feet on the: Pah, Shaktoolik, Inglutalik, Tubutulik, Kuzitrin, Fish, and west bank of Noatak River as specified in PLO 6477; 7) 300 feet on either side of tributaries of above mentioned rivers; 8) 300 feet on both sides of the mainstems and tributaries of the following rivers: Agiapuk, Buckland, Squirrel, Omar, Pick, Kukpowruk, Ipewik, and Nilik rivers, Kiliovilik Creek (Upper Selawik), and Koyuk River including East Fork. (Map 2-11). 	<p>99,000 acres closed (1%). Of this, 89,000 acres are State- or Native-selected.</p> <p>The following areas would be closed to mineral entry and location:</p> <ol style="list-style-type: none"> 1) Mount Osborn RNA 2) 300-foot setback on both sides of the Ungalik River as identified in PLO 6477 3) 300-foot setback both sides of Boston Creek and upper Kivalina River. <p>All (d)(1) withdrawals outside of these areas that exclude mineral entry would be modified or revoked to allow locatable mineral entry. (Map 2-12).</p>
Open Areas	<p>All BLM-managed lands not closed by PLO or segregation (about 30% of BLM lands in plan area)</p>	<p>13,133,000 acres open (100%), of which 8,163,000 are State- or Native-selected.</p>	<p>6,498,000 acres open</p>	<p>13,034,000 acres open (99%). Of this 8,067,000 area are State- or Native-selected.</p>

Resource	Alternative A	Alternative B	Alternative C	Alternative D
<p>Areas Open to Metaliferous Mineral Location Only</p>	<p>Under current PLOs, 243,000 acres in the Lisburne and the Selawik Mining Districts are open to metaliferous location only. (Map 3-29)</p>	<p>All lands presently closed to non-metaliferous location will be opened to entry and location for all locatable minerals. (Map 3-29)</p>	<p>Lands in the Selawik Mining District currently closed to non-metaliferous location will be opened to entry and location for all locatable minerals. Lands in the Lisburne Mining District will remain closed to non-metaliferous entry and location.</p>	<p>Lands presently closed to non-metaliferous location will be opened to entry and location except in the areas identified above as closed.</p>

INSERT 11x17 MAP
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2_12_minerals_locate_d

3) Mineral Materials

(a) Goal

Make lands, including Federally administered surface/minerals and split estate, available for mineral material disposal.

(b) Alternative A

Under current management, lands, including Federally administered surface/minerals and split estate, are available for disposal for salable mineral materials (sand, gravel, etc.) unless specifically closed by Public Land Order. Mineral material sales are considered on a case-by-case basis, with specific operating terms and conditions developed through the NEPA process, except for small sales (less than 50,000 cubic yards) which are categorically excluded.

(c) Management Common to All Action Alternatives (B, C, and D)

- Mining of salable material would be subject to the Mineral Materials Disposal regulations found in 43 CFR 3600. Bonding would be required in accordance with BLM contract regulations.
- All operations are required to file a Plan of Operations with BLM. The Plan would have to be approved prior to commencement of on-the-ground activities.
- Plans of operations would incorporate the appropriate guidelines listed in the Required Operating Procedures (ROPs).
- Mineral material sales on selected lands would require concurrence of the potential, future landowner and proceeds from the sale placed into escrow.
- Free use permits would not be issued for resources on selected lands.
- Material sales on certificated Native allotments are the purview of the Bureau of Indian Affairs (BIA) and its successor agency.
- Material sales on un-certificated Native allotments would not be permitted (43 CFR 3601.1-2(b)).
- Material sales on split estate would require concurrence of the surface owner.
- Mineral materials sales are not permitted on pre-1955 mining claims (POL-167) and subject to non-interference with the mining operation on post 1955 mining claims.

(d) Alternative B

Under Alternative B, approximately 13.1 million acres (100 percent) of BLM-managed lands, including Federally administered surface/minerals and split estate would be made available for salable mineral material disposal. Mineral material sales would occur in accord with the terms and conditions of the sales contract/permit, which would incorporate applicable Required Operating Procedures in Appendix A.

(e) Alternative C

Under Alternative C, approximately 12,861,500 acres (98 percent) of BLM-managed lands, including Federally administered surface/minerals and split estate would be made available for salable mineral material disposal. Mineral material sales would occur in accord with the terms and conditions of the sales contract/permit, which would incorporate applicable Required Operating Procedures in Appendix A. Sale of mineral materials from riverbed, ocean beach/lagoon and lakeshore would not be permitted. In addition, the following areas would be

excluded from mineral material sale or development: BLM-managed land in McCarthy’s Marsh ACEC and Kigluaik ACEC (429,100 acres).

(f) Alternative D

Under this alternative, mineral materials would be managed in the same way as described under Alternative B.

The preceding information is summarized in the following table.

Table 2-11. Mineral Materials—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Mineral Materials	All lands are available unless closed by PLO.	13,133,000 acres open (100%)	12,861,500 acres open (98%) 271,500 acres closed (2%)	Same as Alternative B
	Sale of mineral materials from riverbed, ocean beach/lagoon and lakeshore will be permitted on a case-by-case basis.	Same as Alternative A	Sale of mineral materials from riverbed, ocean beach/lagoon and lakeshore will not be permitted.	Same as Alternative A

d) Recreation Management

(1) Goal

On BLM-managed lands, improve access to appropriate recreation opportunities, ensure a quality outdoor experience, and enjoyment of natural and cultural resources, and provide for and receive fair value in recreation.

(2) Alternative A

This alternative would continue current management as identified in the Northwest MFP. The area would be managed for dispersed recreational use. Recreational activities would be monitored on a casual basis. Public use trail shelters may be constructed if funding is available. No special recreation management areas would be designated. Conflicts due to increasing recreational use levels in the Squirrel River and other areas would not be addressed. The Iditarod National Historic Trail (INHT) management plan would be implemented. The Salmon Lake Campground would continue to be maintained.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Inventory lands for recreational opportunities and monitor changes in use patterns. Priority areas for monitoring would include Special Recreation Management Areas (SRMA), rivers determined suitable for designation as wild or scenic, the Iditarod NHT, and identified recreation management zones within the Extensive Recreation Management Area (ERMA).
- Monitor special recreation permit holders and sport uses affecting game resources for their effect on recreation opportunity.
- Monitor dispersed recreation within the planning area for any resource damage or user conflicts.

(b) Management Decisions

- Implement the Iditarod NHT Management Plan.
- Maintain the Salmon Lake Campground and access road.
- Outside of SRMAs and Recreation Management Zones, applications for Special Recreation Permits (for commercial use) would be handled on a case-by-case basis.
- Public use shelters would be considered on a case-by-case basis. Existing structures would be evaluated and if determined suitable, considered for public use shelters. New cabins may also be constructed.
- The Squirrel River would be designated as an SRMA.

(4) Alternative B

Under Alternative B, most of the planning area would be an ERMA managed for dispersed recreational use. The vast majority of the planning area would be managed as semi-primitive non-motorized Recreation Opportunity Spectrum class. Public use shelters or other recreation facilities may be constructed on a case-by-case basis. The Iditarod NHT management plan would be implemented.

The Squirrel River would be designated as an SRMA (859,000 acres) and conflicts between users would be addressed by limiting the number of guides and outfitters allowed to operate in the area (Map 2-13). The number of visitor use days associated with guides and outfitters would be limited.

(5) *Alternative C*

Management under this alternative would be similar to Alternative B except for in the areas discussed below (Map 2-14).

(a) Squirrel River SRMA

The Squirrel River would be designated as an SRMA (859,000 acres). Conflicts between users would be addressed using a variety of methods: 1) the number of guides, outfitters, and air transporters would be limited; 2) the number of commercial and non-commercial visitor use days would be limited between August 1 and September 30; and 3) all visitors to the SRMA would be required to obtain a permit August 1-September 30.

(b) Salmon Lake/Kigluaik SRMA

The Kigluaik Mountains and Salmon Lake campground would be designated as an SRMA (290,000 acres). The SRMA would be managed as a semi-primitive motorized area, except those portions adjacent to the Nome road system, which would be managed as roaded natural. Existing facilities would be maintained, and new facilities, such as shelter cabins, trails and interpretive signs, to enhance visitor use and safety might be developed. Helicopter and fixed-wing aircraft use would be allowed to provide for recreation use unless user conflicts require mitigation. Limitations might be placed on visitor use levels through development of an activity-level plan. Transporters would not be required to obtain a permit if requirements under 43 CFR 2932.12(a) are met.

(c) Extensive Recreation Management Area

The remainder of the planning area would be an ERMA that would be classified as semi-primitive motorized and managed for dispersed recreational use. Within the ERMA additional management attention on commercial recreational use would be focused on the following areas, based upon current use levels, safety, resource impacts, operator tolerance, and quality of recreational experience: Koyuk, Inglutalik, Ungalik, Agiapuk, and Buckland rivers, Nulato Hills, Fish River/McCarthy's Marsh, and Bendeleben Mountains (Map 2-14). Management actions in these areas might include limiting the number of visitor use days associated with Special Recreation Permits, requiring transporters to obtain a permit, and limiting development of facilities to enhance visitor use.

(6) *Alternative D*

Management under this alternative would be similar to Alternative B except for in the areas discussed below (Map 2-15).

(a) Squirrel River SRMA

The Squirrel River (859,000 acres) would be managed as semi-primitive motorized under the Recreation Opportunity Spectrum system. A Recreation Area Management Plan (RAMP) would

be developed to address recreational use, taking into consideration current use levels, safety, resource impacts, operator tolerance, and quality of recreational experience. Using a public process, the BLM would develop management objectives and strategies for the Squirrel River, such as: limitations on total number of visitor use days and number of commercial operators; instituting additional permitting requirements; instituting seasonal closures or limitations on OHV use; and determining the appropriate level of facility development.

During the interim between approval of this RMP and the development of the RAMP, outfitters and guides would be managed at the 2004/2005 use level (10 guides). Other users (transporters and general public) would have no set limits on use during this interim period.

(b) Salmon Lake/Kigluaik SRMA

The Salmon Lake/Kigluaik SRMA would be managed the same as under Alternative C except that no limits on visitor use days would be implemented.

The following table summarizes the preceding information. Appendix C summarizes overall management for proposed SRMAs.

The preceding information is summarized in the following table.

Table 2-12. Recreation Management—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Special Recreation Management Areas	No SRMAs currently designated.	859,000 acres (7%) Designate the following: 1) Squirrel River SRMA	1,149,000 acres (9%) Designate the following: 1) Squirrel River SRMA (859,000 acres) 2) Salmon Lake-Kigluaik SRMA (290,000 acres)	Same as C
Squirrel River SRMA	No SRMA designated The Squirrel River watershed would be managed for dispersed recreational use. No major actions would be taken to enhance recreational opportunities or to limit visitor use days.	The Squirrel River SRMA would be managed as semi-primitive motorized. Major actions include: -Limit number of commercial guiding operations to 10. -Limit number visitor use days for commercial guiding operations to 1,400 from August 1 to September 30. -No limits on VUD remainder of the year. -Develop appropriate method to allocate guiding permits, such as lottery, sealed bid, or ranking criteria. Would revise if commercial services board takes measures that effectively resolve the conflicts.	The Squirrel River SRMA would be managed as semi-primitive motorized. Major actions include: - August 1-September 30: require all users to obtain permit (maximum 2,000 visitor use days (VUD) during this time period). -August 1-September 30: Allocate 840 VUD to commercial guiding and 1,160 VUD to air taxi and non-commercial uses. -No limits on VUD remainder of the year. -Density goals based on 1 camp per 10 river miles in river corridor and three per township in upland areas -Limit number of commercial guiding operations to 6. -Require air taxi operators to obtain permit and limit number of air taxi operators to 5 per year. -Develop appropriate method to allocate air taxi operator and guiding permits, such as lottery, sealed bid, or ranking criteria.	The Squirrel River SRMA would be managed as semi-primitive motorized under ROS. Major actions include: Develop Recreation Area Management Plan (RAMP) w/in 5 years to address recreational use taking into consideration current use levels, safety, resource impacts, operator tolerance, and quality of recreational experience. Using a public process, develop management objectives and strategies, such as limitations on total number of visitor use days; limiting number of camps/river mile or per upland area; permitting requirements; limitations on number of commercial operators; seasonal closures or limitations on OHV use; and facility development. Interim management: Manage for 2004/2005 use levels of 10 guides.

Resource	Alternative A	Alternative B	Alternative C	Alternative D
<p>Salmon Lake-Kigluaik Mountain SRMA</p>	<p>No SRMA designated No major actions would be taken to enhance recreational opportunities or to limit visitor use days.</p>	<p>Same as A</p>	<p>Salmon Lake-Kigluaik SRMA: 1) Salmon Lake campground managed as roaded natural under ROS. Existing facilities may be enhanced to provide for increased visitor use. 2) Kigluaik Mountains: -managed as semi-primitive motorized and roaded natural. - permit facilities to enhance visitor use and safety. In portions of the SRMA, facilities would be limited to foot and pack animal trails, cross-country ski trails, and interpretative signs. -Helicopter and fixed-wing aircraft use would be allowed to provide for recreation use until user conflicts required mitigation; -May implement limits on number of visitor use days through activity-level plan. -Transporters would not be required to obtain a permit if requirements under CFR 43 2932.12(a) are met.</p>	<p>Salmon Lake-Kigluaik SRMA: 1) Salmon Lake campground managed as roaded natural. Existing facilities may be enhanced to provide for increased visitor use. 2) Kigluaik Mountains managed as semi-primitive motorized and roaded natural. - permit facilities to enhance visitor use and safety. In portions of the SRMA, facilities would be limited to foot and pack animal trails, cross-country ski trails, and interpretative signs. -Helicopter and fixed wing aircraft use would be allowed to provide for recreation use until user conflicts require mitigation. -No limits on visitor use days -Transporters would not be required to obtain a permit if requirements under CFR 43 2932.12(a) were met.</p>

Resource	Alternative A	Alternative B	Alternative C	Alternative D
<p>Extensive Recreation Management Area (ERMA)</p>	<p>The planning area would be managed for dispersed recreational use.</p>	<p>The ERMA will be classified as semi-primitive motorized and managed for dispersed recreational use.</p>	<p>ERMA will be classified as semi-primitive motorized and managed for dispersed recreational use. Additional management attention will be focused on the following areas.</p> <p>Koyuk, Inglutalik, Ungalik rivers; Nulato Hills, Fish River/McCarthy's Marsh, Bendeleben Mountains:</p> <ul style="list-style-type: none"> - limit number of SRP user days (up to 120 VUD per area) based upon current use levels, safety, resource impacts, operator tolerance, and quality of recreational experience. -Require transporters to obtain a permit. -No facilities would be developed or permitted to enhance visitor use. <p>Agiapuk and Buckland rivers:</p> <ul style="list-style-type: none"> -limit number SRP user days (up to 100 VUD per area) based upon current use levels, safety, resource impacts, operator tolerance and quality of recreational experience. -No facilities would be developed or permitted to enhance visitor use. <p>(Map 2-14)</p>	<p>Same as B</p>
<p>Iditarod National Historic Trail (INHT)</p>	<p>Manage under existing cooperative agreements and the INHT Management Plan</p>	<p>Same as A. In addition, acquire trail segments or easements from willing sellers as funding permits.</p>	<p>Same as B</p>	<p>Same as B</p>

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e) Travel Management/OHV

(1) Goals

- Manage trails to provide access to public lands, recreation, and subsistence resources.
- Manage the use of OHVs to minimize resource impacts and reduce user conflicts.

(2) Alternative A

Under this alternative, current management of OHVs would continue. No OHV designations would be in place as required by BLM Handbook and Executive Orders 11644 and 11989. Use of OHVs weighing more than 2,000 pounds would require a permit. No OHV management plans would be developed.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

- Inventory trails and conduct condition assessments on BLM-managed lands to identify existing trails and assess resource impacts. This information would be used in implementation-level designation of specific trails and to prioritize trail maintenance needs.
- Monitor use to ensure OHV designations and regulations under 43 CFR 8341.1 are adhered to.
- Priority areas for inventory and monitoring would include: SRMAs, RNAs, ACECs, and suitable rivers.

(b) Implementation-level Planning

Implementation level plans would be completed for areas designated as SRMAs and ACECs. These plans would include an inventory of trails in the area, and describe specific resource concerns or conflicts, as well as specific trail designations and limitations. The process used to develop these plans would include public participation and coordination with the State, Boroughs, Native corporations, and other Federal agencies.

(c) Management Decisions

- Determine OHV area designations of Open, Limited, or Closed to OHV activities.
- Manage OHVs consistent with 43 CFR subpart 8341.1 Conditions of Use.
- Develop informational brochures on OHV restrictions and designations.

(d) Land Use Requirements

Permitted activities and uses that involve cross-country use of vehicles exceeding the maximum GVWR, or in areas limited to existing or designated trails, would include stipulations that minimize impacts to resources. Specific operating procedures related to OHVs can be found in Required Operating Procedures in Appendix A.

(e) Access

1. ANCSA 17(b) Easements

The BLM would continue to review and reserve sec. 17(b) easements under the law and regulations to ensure legal access to publicly owned lands while the remainder of the ANCSA corporations' land entitlements are conveyed. On-the-ground management of easements is the responsibility of the public landowner the easement accesses; i.e.. the BLM, National Park Service, or the U.S. Fish and Wildlife Service. The State of Alaska accepts management of 17(b) easements accessing its lands on a case-by-case basis, but has not done so in this planning area.

The BLM is committed to working with the landowner, State and other Federal agencies. Subject to availability of funds, personnel, and approval, the BLM would locate, mark, and monitor easements and help educate easement users to understand the rights reserved to the United States and the rights of the private landowner, with priority based on:

- Easements accessing lands that will be permanently managed by the BLM or that are important to BLM programs.
- Easements receiving high use.
- Easements required to implement an activity or implementation plan.
- Easements where landowners support the activity allowed by the easement.
- Easements where maintenance or education would mitigate environmental damage to the easement or BLM-managed lands.

These criteria would be used to prioritize other discretionary actions, such as maintenance on 17(b) easements. Realignment of reserved 17(b) easements will be considered on a case-by-case basis to resolve on-the-ground issues.

Authorization from the BLM is not usually necessary prior to use of a 17(b) easement. However, it must be kept in mind that 17(b) easements are reserved on specific routes for specific kinds of vehicles, sometimes with seasonal restrictions. For example, summer use of a winter-use-only easement, driving off an easement, or using a vehicle not allowed on the easement is a trespass against the Native corporation, not against the BLM.

Some 17(b) easements are made discontinuous by private lands, usually Native allotments. Acquisition of easements across or around these lands would be from willing landowners on a case-by-case basis as the need or opportunity arose, and as funds allowed.

2. R.S. 2477

The State of Alaska recognizes approximately 650 R.S. 2477 routes statewide. The assertion of these routes has not been recognized by the United States and current BLM policy is to defer any processing of R.S. 2477 assertions except where there is a demonstrated, compelling, and immediate need to make a determination. In such cases, the Secretary of Interior would make the determination in consultation with the BLM. Land use planning does not affect valid R.S. 2477 rights or future assertions.

R.S. 2477 ROWs that were determined valid by a court of competent jurisdiction, or recognized administratively by the Department of the Interior, would be noted to the Master Title Plats as appropriate.

All proposals for OHV management would be consistent with sec. 811(b) of ANILCA, which allows for "...appropriate use for subsistence purposes of snowmobiles, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation."

(4) Alternative B

Under this alternative, the entire planning area would be designated as "limited" to OHV use. The limitations would consist of seasonal weight restrictions. Between June 1 and October 31, cross-country use of OHVs having a GVWR of 2,000 lbs or less would be allowed. Between November 1 and May 31, cross-country OHV use would be allowed during periods of adequate snow/ice conditions with no weight restriction. Qualified subsistence users would have to comply with OHV designations. Both State- and Native-selected lands would have the same OHV designations as unencumbered BLM lands. No travel management areas are identified.

(5) Alternative C

Under this alternative, the entire planning area would be designated as "limited" to OHV use (Map 2-16). Between May 15 and October 31, OHVs would be limited to designated trails with a maximum 2,000 pound GVWR limitation. Use of OHVs off of designated trails would be allowed for subsistence harvests by qualified subsistence users. Between November 1 and May 14 cross-country use of OHVs weighing 2,000 pounds or less GVWR would be allowed during periods of adequate snow and ice conditions. Both State- and Native-selected lands would have the same OHV designations as unencumbered BLM lands. Within designated ACECs, additional OHV limits might be developed in area-specific plans based on resource values and management objectives for each unit. Limitations could include limiting use to designated trails, seasonal restrictions or closures, and weight limits. Travel Management Areas for Alternative C are shown in the following table.

Table 2-13. Travel Management Areas for Alternative C

Travel Management Area	RMP Decision	Implementation Decisions
Squirrel River SRMA (859,000 acres)	Limited OHV designation	May 15-October 31: closed to OHV use -November 1-May 14: Cross-country use of OHVs weighing 2,000 pounds or less GVWR would be allowed during periods of adequate snow/ice conditions. -guides and outfitters would not be allowed to use OHVs May 15-October 31
Kigluaik ACEC	Limited OHV designation	-May 15-October 31: OHVs would be limited to designated trails with a maximum 2,000 lb GVWR limitation. -November 1-May 14: Cross-country use of OHVs weighing 2,000 pounds or less GVWR would be allowed during periods of adequate snow/ice conditions.
WACH calving/insect relief ACEC	Limited OHV designation	Deferred to activity plan
Nulato Hills ACEC	Limited OHV designation	Deferred to activity plan
McCarthy's Marsh ACEC	Limited OHV designation	Deferred to activity plan

Travel Management Area	RMP Decision	Implementation Decisions
Kuzitrin River ACEC	Limited OHV designation	Deferred to activity plan
Remainder of BLM lands	Limited OHV designation	-May 15-October 31: OHVs would be limited to designated trails with a maximum 2,000 lb GVWR limitation. -November 1-May 14: Cross-country use of OHVs weighing 2,000 pounds or less GVWR would be allowed during periods of adequate snow/ice conditions.

(6) Alternative D

Under this alternative, the planning area would be designated as “limited” to OHV use (Map 2-17). Outside of ACECs, RNAs or SRMAs, cross-country use of OHVs having a GVWR 2,000 pounds or less would be allowed yearlong. Use off of designated or existing trails would be allowed for subsistence harvests by qualified subsistence users. Interim management would apply to selected lands until conveyances were completed. Any lands selected by the State or Native Corporations would be managed as “limited” to OHV use that is consistent with the State’s current Generally Allowed Uses regulations (11 AAC 96.020 and 96.025), which limit OHVs to 1,500 lbs "curb weight" and direct OHV users to stay on existing trails whenever possible and to minimize surface damage and disturbance of vegetation and soils. Travel Management Areas for Alternative D are shown on Map 2-15 and in the following table.

Table 2-14. Travel Management Areas for Alternative D

Travel Management Area	RMP Decision	Implementation Decisions
Squirrel River SRMA (859,000 acres)	Limited OHV designation	Deferred to activity plan. Develop a RAMP that will include appropriate limitations on OHV use in the Squirrel River. Limitations may include limiting use to designated or existing trails, seasonal restrictions or closures, and weight limits. State-selected lands would be managed consistent with the State’s Generally Allowed Uses.
Salmon Lake-Kigluaik SRMA	Limited OHV designation	Deferred to activity plan. Initially under interim management for selected lands, OHV use would be consistent with the State’s current Generally Allowed Uses regulations. If substantial lands remain in BLM management after conveyances, an OHV management plan would be developed. Limitations may include limiting use to designated or existing trails, seasonal restrictions, seasonal closures, and weight limits.
Remainder of BLM lands	Limited OHV designation	-Cross-country use of OHVs having a GVWR of 2,000 lbs or less would be allowed yearlong. - Any lands selected by the State or Native corporations would be managed as “limited” to OHV use that is consistent with the State’s current Generally Allowed Uses regulations (11 AAC 96.020 and 96.025). -Additional OHV limits may be developed in area-specific plans based upon resource values and management objectives for each unit. Limitations may include limiting use to designated or existing trails, seasonal restrictions or closures, and weight limits.

The preceding information is summarized in the following table.

Table 2-15. Travel Management/OHV—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
<p>Assign OHV designations in the Planning Area</p>	<p>The planning area would remain undesignated (13,133,000 acres)</p> <p>The current MFP requires a permit for use of OHVs with a gross vehicle weight rating (GVWR) greater than 2,000 lbs.</p>	<p>The planning area would be designated as "limited" (13,133,000 acres).</p> <p>June 1-October 31: Cross-country use of OHVs having a GVWR of 2,000 pounds or less would be allowed.</p> <p>November 1-May 31: Cross-country OHV use would be allowed during periods of adequate snow/ice conditions with no weight restriction.</p>	<p>The planning area would be designated as "limited" (13,133,000 acres).</p> <p>May 15-October 31: OHVs would be limited to designated trails with a maximum 2,000 lb GVWR limitation.</p> <p>November 1-May 14: Cross-country use of OHVs weighing 2,000 pounds or less GVWR would be allowed during periods of adequate snow/ice conditions.</p> <p>ACECs: Additional OHV limits may be developed in area-specific plans based on resource values and management objectives for each unit. Limitations may include limiting use to designated or existing trails, seasonal restrictions or closures, and weight limits.</p>	<p>The planning area would be designated as "limited" (13,133,000 acres).</p> <p>Yearlong: Outside of ACECs, RNAs or SRMAs, cross-country use of OHVs having a GVWR of 2,000 pounds or less would be allowed.</p> <p>ACECs, RNAs, and SRMAs: Additional OHV limits may be developed in area-specific plans based upon resource values and management objectives for each unit. Limitations may include limiting use to designated or existing trails, seasonal restrictions or closures, and weight limits.</p>
<p>Allow the use of OHVs for subsistence purposes</p>	<p>Qualified subsistence users would have to comply with OHV designations</p>	<p>Use off of designated or existing trails would be allowed for subsistence harvests by qualified subsistence users.</p>	<p>Same as C</p>	<p>Same as C</p>

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Assign OHV Designations to State- and Native-Selected Lands in the Planning Area	Selected lands within the planning area would remain undesignated.	Selected lands would have the same OHV designations as unencumbered BLM lands (as described above).	Selected lands would have the same OHV designations as unencumbered BLM lands (as described above).	Selected lands within the planning area would be designated as "limited" During Interim Management: Any lands selected by the State or Native corporations would be managed as "limited" to OHV use that is consistent with the State's current Generally Allowed Uses regulations (11 AAC 96.020 and 96.025), which limit OHVs to 1,500 lbs "curb weight," and direct OHV users to stay on existing trails whenever possible and minimize surface damage and disturbance of vegetation and soils. (8,163,000 acres under interim management)
Sign existing roads/trails	None	None	Existing/Designated trails would be marked within five years of plan approval.	Same as C
Monitoring	Monitor use to ensure OHV weight limits and regulations under 43 CFR subpart 8341.1 are adhered to.	Same as A	Monitor use to ensure OHV weight limits and regulations under 43 CFR subpart 8341.1 are adhered to. Additional monitoring and enforcement capability to keep use on designated trails.	Monitor use to ensure OHV weight limits and regulations under 43 CFR subpart 8341.1 are adhered to. Additional monitoring efforts will be needed.

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f) Renewable Energy

(1) Goals

Make BLM-managed lands available for development of renewable energy sources.

(2) Alternative A

Currently the BLM has no permits issued for these types of facilities. Two areas have been classified for hydropower, both on the Seward Peninsula south of Imuruk Basin. Salmon Lake was designated a power site in 1950 by Power Site Classification 403 as amended by PLO 2061. Power Site Reserve 726 designated Pass Creek as a Powersite Reserve in 1919. Both sites are selected by either or both the State and Native corporations. Requests for permits to develop renewable energy sources would be considered on a case-by-case basis.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Management Decisions

As described in Chapter III, potential exists within the planning area for development of renewable energy sources. Currently, the BLM has no permits or leases issued for these types of facilities within the planning area. However, two sites have been classified for hydropower. Applications for permits or leases to develop renewable energy sources on BLM-managed lands would be considered on a case-by-case basis, subject to requirements described under Lands and Realty, Management Common to All Action Alternatives (B, C, and D) on page 2-92.

(b) Land Use Requirements

Permits for development of renewable energy would include stipulations that minimize impacts to resources. Specific operating procedures can be found in Required Operating Procedures in Appendix A.

g) Lands and Realty Actions

(1) Goals

- Meet public needs for use authorizations such as ROW, leases, and permits while minimizing adverse impacts to other resource values
- Retain public lands with high resource values in public ownership
- Adjust land ownership to consolidate public land holdings, acquire lands with high public resource values, and meet public and community needs
- Acquire and maintain access to public lands where needed to improve management efficiency, facilitate multiple use, and promote the public's enjoyment of these lands in coordination with other Federal agencies, State and local governments, and private landowners

(2) Alternative A

Under Alternative A, the Lands and Realty program would continue in its current role of supporting other BLM programs, providing for land use authorizations, and supporting the BLM-Alaska State Office in conveyances. No specific lands would be identified for disposal, exchange, or acquisition. Land use authorizations such as FLPMA leases and permits would continue to be dealt with on a case-by-case basis, as would other unauthorized uses, such as trespass cabins. Withdrawal review would not occur for ANCSA (d)(1) withdrawals or other smaller administrative withdrawals. Some uses would continue to be constrained by such withdrawals. There are two legislatively designated corridors within the planning area: from Deering to Nome-Taylor Highway (ANILCA Sec. 201(2)); and Bornite to the Dalton Highway (ANILCA 201(4)(b)).

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Land Disposals

1. FLPMA Sales

Public lands meeting one of more of the following criteria could be disposed of through FLPMA sales:

- A tract that was acquired for a specific purpose and that is no longer required for that or any other Federal purpose.
- A tract whose disposal would serve important public objectives. This could include, but is not limited to, expansion of communities and economic development. Disposal would proceed only when such objectives could not be achieved prudently or feasibly on other than public lands and when such objectives outweighed other public objectives and values (e.g., recreation and scenic values) that might justify maintaining such a tract in Federal ownership.
- A tract that, because of its location or other characteristics, is difficult and uneconomic to manage and is not suitable for management by another Federal agency. Note: Lands identified for disposal under this authority that were selected by either the State or a Native corporation would have to be adjudicated before the BLM would entertain a sale. By identifying these lands for disposal, we are merely saying that if these lands become

unencumbered by selections within the life of the plan, then they would then become suitable for disposal under this authority, having been properly identified through the planning process.

Lands not to be disposed of include:

- Lands withdrawn from the public land laws or segregated by State or Native selection.
- Land within mining claims of record under sec. 314 of FLPMA.
- Land specifically identified for retention.

(b) Other Disposals

1. Recreation and Public Purposes Act

- Selected lands identified for disposal under this authority would have to be fully adjudicated before BLM would entertain a sale. By identifying these lands for disposal, we are merely saying that if these lands become unencumbered within the life of the plan, then they would be suitable for disposal under this authority.
- In most instances, BLM would first lease lands under this act and would only convey the lands after the project was constructed in compliance with an approved development and management plan. One important exception to this is tracts for proposed sanitary landfills, which would always be sold; not leased.
- Application for tracts to be used as sanitary landfills would only be conveyed with a clause that would prohibit reversion to the Federal government.
- Existing leases would be converted to patents if the lands were used for sanitary landfills.

2. Airport and Airway Improvement Act of September 3, 1982

Process Airport conveyances as requested by the Federal Aviation Administration (FAA). Each conveyance would contain appropriate covenants and reservation requested by FAA. As a condition to each conveyance, the property interest conveyed would revert to the Federal government in the event the lands were not developed for airport or airway purposes or were used in a manner inconsistent with the terms of the conveyance.

3. Exchanges

BLM will strive to process mutually benefiting public interest land exchanges. Exchanges are authorized in Alaska by FLPMA, ANCSA, and ANILCA. When considering public interest, full consideration would be given to efficient management of public lands and to important objectives including: protection of fish and wildlife, cultural resources, wilderness and aesthetic values, enhancement of recreational opportunities, consolidation of mineral and timber holdings for more logical and efficient management, expansion of communities, promotion of multiple-use values, and fulfillment of public needs. Exchanges would not be actively sought until State and Native entitlements were fulfilled.

4. Acquisitions

Acquire private lands through purchase or exchange with willing owners. Acquisition would be pursued within areas identified for long-term Federal management and retention when such acquisition advanced the programs of the Secretary, including access. Consider acquisition of parcels along the Iditarod NHT through purchase or exchange with willing owners. When feasible, BLM would acquire less than fee title to property if management goals could be

achieved. BLM would acquire access for discontinuous 17(b) easements as the need and opportunity arose.

(c) Land Use Authorizations

1. FLPMA Leases

All FLPMA leases would be at fair market value. Cabins or permanent structures used for private recreation could not be authorized under this authority. Proposals to lease cabins used for commercial uses (such as guiding or trapping) would be subject to the following criteria:

- Proximity to other private property or existing authorized structures.
- Proximity to existing transportation routes or systems.
- Documentation of the profitability/reliance of the trapping lifestyle.

2. R&PP Leases

R&PP leases would not be issued for sanitary landfill purposes. Existing leases for sanitary landfill purposes could be converted to patents without a reverter clause.

3. Permits

Permits cover occupancy, use, or development of a site. Specific exclusion areas are listed in Table 2-16 on page 2-97. In general: Cabin or permanent structure permits could not be issued for private recreation uses.

Trapping shelters would be authorized by short-term (three years maximum) sec. 302 permits renewable at the discretion of the BLM and tied to the applicant's ability to show actual use for profitable trapping purposes. Guide shelters would only be authorized in conjunction with Special Recreation Permits issued under FLPMA authority. The same criteria described above for cabin leases would be used during consideration of issuance of such permits. Military maneuver permits would be considered on a case-by-case basis.

4. Unauthorized Use, Occupancy, or Development

Trespass cabins may become the property of the U.S. Government and be managed as administrative sites, as emergency shelters, or as public use cabins. Possible management actions on trespass cabins include:

- Removal of the structure.
- Relinquishment to the United States for management purposes.
- Authorization by lease or permit for legitimate uses if consistent with identified area goals and objectives.
- Under numbers 2 and 3, the criteria listed above for cabins under Lease and Permits would be used. Criteria for prioritizing unauthorized cases would be as follows:
 - Situations involving new trespass, public safety, public complaints.
 - Areas identified for long-term Federal management: highest priority, or other unencumbered lands.
 - Selected lands on which resources are being removed without authorization or where resource damage is occurring.
 - Other selected lands.

5. Rights-of-way

Rights-of-way (ROWS) would be located near other ROW or on already disturbed areas to the extent practical.

6. Selected Lands

Regarding use authorizations, selected lands would be treated as follows:

- **Native-selected:** Prior to issuance of a use authorization, the applicant would be required to obtain the non-objection of the Native corporation. If the corporation objected to the proposal, BLM would proceed with issuance only if the State Director deemed the proposal to be in the public good.
- **State-selected:** In accordance with 906(k) of ANILCA, BLM would request concurrence from the State prior to issuance of any use authorization. BLM could then incorporate comments in the terms and condition of the use authorization if such comments comply with Federal laws and regulations. If the State objected, BLM would not issue the use authorization. If the proposal were on land which was not available within the meaning of the Statehood Act but which had been top-filed by the State pursuant to 906 (e) of ANILCA, a letter of concurrence would not be required.

7. Required Operating Procedures

Land use authorizations would be subject to measures identified in the Required Operating Procedures in Appendix A.

(4) Alternative B

Alternative B, would be very similar to Alternative A in that most land use authorizations would be dealt with on a case-by-case basis. No areas would be identified for permit or lease avoidance or exclusion. Tracts of land meeting the criteria outlined in Management Guidance Common to All Alternatives would be available for disposal except where prohibited by PLO or where lands were identified for retention. Once conveyances were completed, large blocks of BLM lands would be retained in Federal ownership (Map 2-18). BLM would consider acquisition of parcels along the Iditarod NHT through purchase or exchange with willing owners. Exchanges would not be actively sought out until land conveyances were completed. All BLM-managed lands would be available for occupancy permits except where prohibited by PLO. The Red Dog-Kuchiak Mine Corridor would be designated (Map 2-19). ANCSA (d)(1) withdrawals would be revoked throughout the planning area. The lands in the Squirrel River would be opened to mineral entry and leasing. No areas would be identified for ROW avoidance or exclusion. Communication site ROWs would be considered on a case-by-case basis. Hot springs leases would be considered.

(5) Alternative C

Under Alternative C, land use authorizations would be limited, particularly in ACECs and rivers determined to be suitable for designation as wild and scenic. No lands would be available for disposal through FLPMA sales, R&PP disposal, or other FLPMA disposals. FLPMA and R&PP leases would be authorized on a case-by case basis except in designated ACECs. Occupancy permits would not be authorized in ACECs or suitable rivers except for administrative sites, government use, or research. ANCSA (d)(1) withdrawals would be revoked except in those

areas identified for withdrawal from locatable minerals (Map 2-11). In these areas, (d)(1) withdrawals would be retained until a new withdrawal for the stated purpose was completed. The Squirrel River would continue to be closed to mineral entry and leasing. ACECs and NSO areas on anadromous streams would be designated as ROW avoidance areas (Map 2-7). Communication site ROWs would be limited to existing sites. Hot springs leases would be prohibited.

(6) *Alternative D*

Under this alternative, land use authorizations would generally be allowable on BLM-managed lands and would be considered on a case-by-case basis subject to Required Operating Procedures. Any lands remaining in BLM management in the immediate vicinity of Nome and Kotzebue after conveyances were completed would be available for disposal through FLPMA sale. Specific tracts meeting the criteria outlined in Management Guidance Common to All Alternatives would be available for disposal under other disposal authorities except for those lands identified for retention. Once conveyances were completed, large blocks of BLM land would be retained in Federal ownership (Map 2-18). FLPMA and R&PP leases would be authorized on a case-by case except in designated ACECs and RNAs. Occupancy permits would not be authorized in ACECs, RNAs, or suitable rivers except for administrative sites, government use, or research. ANCSA (d)(1) withdrawals would be revoked except in those areas identified for withdrawal from locatable minerals (Map 2-12). In these areas, (d)(1) withdrawals would be retained until a new withdrawal for the stated purpose was completed. The Squirrel River would be opened to mineral entry and leasing. The Nulato Hills ACEC would be designated as a ROW avoidance area (Map 2-21). Communication site ROWs would be limited to the three existing sites within the Kigluaik Mountains. In other parts of the planning area, communication site ROW would be considered on a case-by-case basis. As in Alternative C, hot springs leases would be prohibited.

The preceding information is summarized in the following table.

Table 2-16. Lands and Realty—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
R&PP Disposal	Lands may be disposed of following the petition/classification procedures in 43CFR 2740.	Same as A	No lands available for R&PP disposal	Same as A
FLPMA sales	No lands currently identified for disposal. Under PLO 6477 300-foot setbacks on the Pah, Noatak, Shaktoolik, Ungalik, Inglutalik Tubutulik, Kuzitrin, and Fish rivers are withdrawn from sale.	Specific tracts meeting the criteria outlined in Management Guidance Common to All Alternatives would be available for disposal except where prohibited by PLO or where lands are identified for retention.	No land available for FLPMA sales	Any tracts remaining in BLM ownership within the following townships around Nome and Kotzebue would be available for sale: Kateel, T17N, R18W; T17N R17W; T18N R17W; T11S, R33W; T11S, R34W.
Other FLPMA Disposals	No lands currently identified for disposal. Under PLO 6477 300-foot setbacks on the Pah, Noatak, Shaktoolik, Ungalik, Inglutalik Tubutulik, Kuzitrin, and Fish rivers are withdrawn from sale.	Specific tracts meeting the criteria outlined in Management Guidance Common to All Alternatives would be available for disposal except for those lands identified for retention.	No lands will be available for disposal	Same as B
Lands Identified for retention	None	Once conveyances are complete, retain large blocks of BLM land and the Iditarod NHT (Map 2-18) 9,089,000 acres for retention, of which 4,420,000 acres is selected	Same as B	Same as B

Resource	Alternative A	Alternative B	Alternative C	Alternative D
FLPMA and R&PP Leases	Considered case-by-case. Leases are excluded from 300-foot setbacks on the Pah, Noatak, Shaktoolik, Ungalik, Inglutalik Tubutulik, Kuzitrin, and Fish rivers under PLO 6477.	Allow on a case-by-case basis except where prohibited by PLO.	Allow FLPMA and R&PP leases on a case-by-case basis except where prohibited by PLO and in ACECs/RNAs (approximately 5.6 million acres of ACECs)	Same as C
Occupancy Permits	Considered case-by-case except where prohibited by PLO.	All lands available for permits on a case-by-case basis except where prohibited by PLO.	Make occupancy permits available on a case-by-case basis except in ACECs/RNAs (approximately 5 million acres) and rivers determined to be suitable for designation as wild and scenic. Within ACECs and suitable rivers, occupancy permits may be issued for administrative sites, government use, or research.	Same as C
ANCSA (d)(1) Withdrawals	ANCSA (d)(1) withdrawals in place on selected lands. Closed to mineral location or leasing.	Revoke all (d)(1) withdrawals and make the lands available to the full spectrum of the land laws.	Revoke (d)(1) withdrawals except in those areas identified for withdrawal from locatable minerals. In these areas, (d)(1) withdrawals would be retained until a new withdrawal for the stated purpose is completed.	Revoke (d)(1) withdrawals except in those areas identified for withdrawal from locatable minerals. In these areas, (d)(1) withdrawals would be retained until a new withdrawal for the stated purpose is completed.
Rights-of-way corridors	Two legislatively designated routes from Deering to Nome - Taylor Highway (ANILCA Sec. 201(2); Bornite to the Dalton Highway (ANILCA 201(4)(b))	Same as A, plus designate Red Dog-Kuchiak Mine Corridor (as proposed by ASRC)	Same as A.	Same as A

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Rights-of-way exclusion or avoidance areas	None designated	Same as A	Designate the following areas as avoidance areas (5,602,000 acres): 1) ACECs/RNAs 2) 300-foot NSO setbacks on rivers (not to preclude crossing of rivers.) 3) locatable mineral withdrawals on identified streams	Designate the Nulato Hills ACEC (2,044,000 acres) as an avoidance area.
Communication site ROW	Considered case-by-case	Same as A	Limit to existing communication sites.	Limit to the three existing sites within the Kigluaik Mountains. Consider elsewhere on case-by-case basis.
Squirrel River Withdrawal	Withdrawn for study as wild and scenic river. Withdrawal expires 11/17/2007. Unselected lands become subject to PLO 5179, which segregates against mineral entry and leasing.	Open lands in the Squirrel River to mineral entry and leasing.	Keep PLO 5179 in place	Same as B
Hot Springs leases	Considered case-by-case	Same as A	Prohibit leases	Same as C

INSERT 11x17 MAP
2_18_lands_retention

INSERT 8½x11 MAP
2_19_lands_corridor

3. Special Designations

a) Areas of Critical Environmental Concern and Research Natural Areas

(1) Goals

To highlight areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish or wildlife resources or other natural systems or processes through designation of Areas of Critical Environmental Concern (ACECs) or Research Natural Areas (RNAs).

(2) Alternative A

Under this alternative, there are no designated ACECs or RNAs.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Management Decisions

- Designation of an ACEC or RNA would not encumber selected lands within the proposed boundary. Selected lands would be managed to maintain the resource values of the lands until conveyance. The ACEC or RNA management prescription would not attach to conveyed lands. Following adjudication of all selections, special management area boundaries might need to be adjusted.
- Additional site-specific actions or monitoring needed to manage ACECs would be made through ACEC-specific planning.
- Over the short-term, the Kigluaik Mountains would not be designated as an ACEC or RNA. After conveyances were completed, if sufficient lands remained in BLM ownership, it would be designated.
- A mining Plan of Operations would be required on any mining activity within an ACEC.

(4) Alternative B

Under this alternative, no areas would be proposed for designation as ACEC or RNA.

(5) Alternative C

Under this alternative, 5,591,000 acres would be designated as ACECs in five separate areas (Map 2-20).

(a) Kigluaik Mountains

The Kigluaik Mountains would be designated as an ACEC to include 298,000 acres, most of which is currently selected by the State. In addition to measures described in Appendix A: Required Operating Procedures, measures identified within the ACEC to protect scenic,

cultural, botanical, and geological values would include the following (see also Table B-1 in Appendix B): 1) OHVs would be limited to designated trails May 15 to October 31; 2) the area would be closed to locatable and leasable mineral entry, and mineral material disposal; 3) commercial recreational use would be limited; 4) the area would be designated as a ROW avoidance area; 5) communication site ROW would be limited to the existing sites; 6) once conveyances were completed, remaining lands would be retained in Federal management; and 7) the area would be closed to grazing.

(b) Western Arctic Caribou Herd Calving and Insect Relief Habitat

The WACH calving and insect relief habitats would be designated as an ACEC to include approximately 2,893,000 acres, 70 percent of which is currently State- or Native- selected. In addition to measures described in Appendix A: Required Operating Procedures, measures identified within the ACEC to protect caribou habitat would include the following (Table B-2 in Appendix B): 1) OHVs would be limited to designated trails May 15 to October 31; 2) the area would be closed to locatable and leasable mineral entry; 3) the area would be designated as a ROW avoidance area; 4) once conveyances were completed, remaining lands would be retained in Federal management; and 5) the area would be closed to grazing.

(c) Nulato Hills

The Nulato Hills would be designated as an ACEC to include approximately 2,044,000 acres, most of which is unencumbered BLM land. In addition to measures described in Appendix A: Required Operating Procedures, measures identified within the ACEC to protect caribou and anadromous fish habitats would include the following (Table B-5 in Appendix B): 1) OHVs would be limited to designated trails May 15 to October 31; 2) the area would be closed to locatable and leasable mineral entry; 3) commercial recreational use would be limited; 4) the area would be designated as a ROW avoidance area; 5) FLPMA and R&PP leases would not be allowed; 6) lands would be retained in Federal management; 7) the area would be closed to grazing; and 8) a fire management plan would be developed to protect lichen habitats for caribou winter range.

(d) McCarthy's Marsh

McCarthy's Marsh would be designated as an ACEC to include approximately 131,000 acres, most of which is currently selected by the State. In addition to measures described in Appendix A: Required Operating Procedures, measures identified within the ACEC to protect wildlife habitats and botanical values would include the following (Table B-3 in Appendix B): 1) OHVs would be limited to designated trails May 15 to October 31; 2) the area would be closed to locatable and leasable mineral entry; 3) the areas would be closed to mineral material sales; 4) commercial recreational use would be limited; 5) the area would be designated as a ROW avoidance area; 6) once conveyances were completed, remaining lands would be retained in Federal management; 7) the area would be closed to grazing; 8) a fire management plan would be developed to protect lichen habitats for caribou winter range; and 9) FLPMA & R&PP leases would not be allowed.

(e) Kuzitrin River

The Kuzitrin River would be designated as an ACEC to include approximately 141,000 acres, 89 percent of which is currently selected by the State. In addition to measures described in Appendix A: Required Operating Procedures, measures identified within the ACEC to protect wildlife habitats and botanical values would include the following (Table B-4

in Appendix B): 1) OHVs would be limited to designated trails May 15 to October 31; 2) the area would be closed to locatable and leasable mineral entry; 3) FLPMA & R&PP leases would not be allowed; 4) the area would be designated as a ROW avoidance area; 5) once conveyances were completed, remaining lands would be retained in Federal management; and 6) the area would be closed to grazing.

(6) *Alternative D*

Under this alternative, approximately 4.9 million acres would be designated as ACECs in five separate areas, and 84,000 acres would be designated as an RNA (Map 2-21).

(a) Mount Osborn (Kigluaik Mountains)

Under this alternative, instead of designating the Kigluaik Mountains as an ACEC, the Mount Osborn area would be designated as an RNA (84,000 acres). Because almost the entire area is currently selected by the State, the RNA designation would not attach until conveyances were complete or the selections were dropped. At that time, if there were sufficient land remaining in BLM ownership, it would be designated as a RNA. In addition to measures described in Appendix A: Required Operating Procedures and Oil and Gas Leasing Stipulations, measures identified within the RNA to protect scenic, cultural, botanical, and geological values would include the following (Table B-1 in Appendix B): 1) The area would be designated as "limited" OHV designation. Until conveyances were completed, OHVs would be managed consistently with the State's generally allowable uses. Once conveyances were complete or the selections were relinquished, an OHV management plan would be developed to outline limitations on OHV use; 2) the area would be closed to locatable mineral entry; 3) FLPMA and R&PP leases would not be allowed; 4) communication site ROW would be limited to the existing sites; 5) remaining lands would be retained in Federal management.

(b) Western Arctic Caribou Herd Calving and Insect Relief Habitat

The WACH calving and insect relief habitats would be designated as an ACEC to include 2,893,000 acres, approximately 70 percent of which is currently State- or Native- selected. In addition to measures described in Appendix A: Required Operating Procedures and Oil and Gas Leasing Stipulations, measures identified within the ACEC to protect caribou habitat would include the following (Table B-2 in Appendix B): 1) OHVs would be limited to 2,000 pounds GVWR; 2) the area would be open to leasable mineral entry subject to seasonal restrictions and additional stipulations that would be developed through activity-level planning; 3) FLPMA and R&PP leases would not be allowed; 4) once conveyances were completed, remaining lands would be retained in Federal management; 5) the area would be closed to grazing; 6) an ACEC management plan would be developed to include more specific measures and leasing stipulations to protect caribou and their habitat from future development activities, such as ROW and leasable mineral exploration and development. This plan would be developed through a public process and provide opportunity for public input into proposed management actions.

(c) Nulato Hills

Under this alternative, four separate ACECs would be designated in the Nulato Hills, most of which is unencumbered BLM land. The northern part of the Nulato Hills would be designated as the Nulato Hills ACEC for caribou. The southern end of the Nulato Hills would be designated as the Ungalik River ACEC, the Inglutalik River ACEC, and the

Shaktoolik River ACEC. The measures described in Required Operating Procedures and Oil and Gas Leasing Stipulations in Appendix A, (Table B-5 in Appendix B), would apply to all four ACECs.

Nulato Hills ACEC (1,081,000 acres): Additional measures identified within the ACEC to protect caribou habitat would include the following: 1) OHVs would be limited to 2,000 pounds GVWR; 2) the area would be open to leasable mineral entry subject to stipulations that would be developed through activity-level planning; 3) FLPMA and R&PP leases would not be allowed; 4) lands would be retained in Federal ownership; 5) lands not within existing grazing allotments would be closed to grazing; 6) an ACEC management plan would be developed to include more specific measures to protect caribou and their habitat. This plan would also include recommendations on fire management to protect lichen habitats from fire; and 7) the area would be designated as a ROW avoidance area.

Ungalik River ACEC (264,000 acres), Inglutalik River ACEC (466,000 acres), and Shaktoolik River ACEC (234,000 acres): Additional measures identified within the ACEC to protect anadromous fish habitat would include the following: 1) OHVs would be limited to 2,000 pounds GVWR; 2) a 300-foot setback along the Ungalik River would be withdrawn from locatable mineral entry; 3) FLPMA and R&PP leases would not be allowed; 4) 300-foot NSO setbacks for leasable minerals would be established on both sides of all three rivers and their tributaries; 5) lands would be retained in Federal management; and 6) lands not within existing grazing allotments would be closed to grazing.

The preceding information is summarized in the following table and in Appendix B.

Table 2-17. Areas of Critical Environmental Concern and Research Natural Areas—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Special Areas Considered	No ACECs or RNAs currently designated	No ACECs or RNAs proposed	Proposed ACECs: 5,591,000 acres (43%) (Map 2-20)	Proposed ACECs: 4,938,000 acres (38%) Proposed RNA: 84,000 acres (Map 2-21)
Kigluaiik Mountains	No designation	No designation	Designate the Kigluaiik ACEC (382,000 acres) to protect scenic, cultural, botanical, and geologic values. -Mostly State-selected land north of Nome	If substantial lands remain BLM ownership after conveyances are complete, designate the Mount Osborn RNA (84,000 acres) to protect scenic, geologic, and botanical values. -Mostly State-selected land north of Nome
WACH calving and Insect Relief Habitat	No designation	No designation	Designate the WACH calving and insect relief habitat as an ACEC (2,893,000 acres) to protect the calving grounds and important insect relief habitats. -Mixture of unencumbered BLM, State- and Native-selected lands west of NPR-A	Same as C. As discussed under management common to all alternatives, designation of an ACEC would not encumber selected lands within the boundary. -Mixture of unencumbered BLM, State- and Native-selected lands west of NPR-A
Nulato Hills	No designation	No designation	Designate the Nulato Hills ACEC (2,044,000 acres) to protect core winter range for the Western Arctic caribou herd and anadromous fish habitat. Mostly unencumbered BLM land east of the Seward Peninsula	Designate the following areas as ACECs: 1) Nulato Hills ACEC (1,081,000 acres) to protect core winter range for the WACH 2) Shaktoolik River ACEC (234,000 acres) to protect anadromous fish habitat 3) Ungalik River ACEC (264,000 acres) to protect anadromous fish habitat 4) Inglutalik River ACEC (466,000 acres) to protect anadromous fish habitat. Mostly unencumbered BLM land east of the Seward Peninsula
McCarthy's Marsh	No designation	No designation	Designate the McCarthy's Marsh ACEC (131,000 acres) to protect caribou, moose, anadromous fish, and waterfowl habitat. -Mostly State-selected lands south of Bendeleben Mountains	No designation
Upper Kuzitrin River	No designation	No designation	Designate the Upper Kuzitrin River ACEC (141,000 acres) to protect caribou, moose, and waterfowl habitat. -Mostly State-selected lands adjacent to Bering Land Bridge NP	No designation

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INSERT 11x17 MAP
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b) Wild and Scenic Rivers

(1) Goals

- Pursuant to the BLM's interim management policies, manage the Squirrel WSRA Sec. 5(a) study river to protect wild river values until fall 2007 while Congress considers the study's recommendation and finding that the river is not suitable for designation as a component of the National Wild and Scenic Rivers System.
- Identify and recommend for designation any rivers in the planning area that are suitable for designation as components of the National Wild and Scenic Rivers System.
- Identify and develop protection strategies for outstanding river-related values in the planning area.
- Protect water quality.

(2) Alternative A

Under this alternative, no rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act. Pursuant to the BLM's interim management policies, the BLM would continue to manage the Squirrel River WSRA Sec. 5(a) study river to protect wild river values until fall 2007 while Congress considers the study's recommendation and finding that the river is not suitable for designation as a component of the National Wild and Scenic Rivers System.

(3) Management Common to All Action Alternatives (B, C, and D)

(a) Inventory and Monitoring

Continue monitoring in cooperation with other programs to protect the outstandingly remarkable values in the Squirrel River study area through summer and fall of 2007.

(b) Management Decisions

Pursuant to the BLM's interim management policies, manage the Squirrel River WSRA Sec. 5(a) study river to protect wild river values until fall 2007 while Congress considers the study recommendation and finding that the river is not suitable for designation as a component of the National Wild and Scenic Rivers System.

(4) Alternative B

Under this alternative, no rivers would be recommended as suitable for designation under the Wild and Scenic Rivers Act.

(5) Alternative C

Under this alternative, the rivers listed in Table 2-18 on page 2-115 and shown on Map 2-22 would be recommended as suitable for designation as wild under the Act.

(6) *Alternative D*

This alternative would be the same as Alternative B.

The preceding information is summarized in the following table.

Table 2-18. Wild and Scenic Rivers—Summary of Alternatives

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Squirrel River WSRA Sec 5(A) study area	Continue existing management to protect outstandingly remarkable values until Congress makes a decision on the non-suitability finding (2007)	Same as A	Same as A. Plus increase field patrols and level of monitoring of commercial operators, including hunting guides and air-taxi operators. Establish monitoring protocols for campsites.	Same as A
Protect outstandingly remarkable values on rivers other than the Squirrel River.	Continue existing management	Same as A	Monitor sensitive river areas. Withdraw sensitive high-value river corridor areas from mining and surface occupation for oil and gas development.	Same as A
Eligible rivers suitable for designation	None	None recommended as suitable	Recommend the following rivers as worthy additions to the National Wild and Scenic Rivers System: Kivalina River, Fish River (McCarthy's Marsh), Upper Buckland and Fish River (tributary of upper Buckland), Ungalik, Shaktoolik, Inglutalik, Koyuk/Peace/East Fork, Tubutulik, Agiapuk, Kiliovilik, and Niik/Ipewik/Kukpik to be managed as wild river areas.	Same as B
Rivers determined suitable for designation	None	No suitable rivers	Withdraw suitable river areas from mining and surface occupation for oil and gas development. Gage suitable rivers to establish instream flow baselines. Apply for water rights to protect instream flows in suitable rivers.	No suitable rivers
Free-flowing rivers	Continue existing management	Same as A	Prohibit dams and significant diversions throughout public lands in the planning area.	Same as A
Protect water quality in streams	Continue existing management	Continue existing management	Increase monitoring and enforcement of Clean Water Act. Develop and implement a water quality monitoring plan for suitable river areas. Consider if there are areas where ground-water monitoring or modeling would be appropriate to identify and anticipate effects on stream water quality due to draw-down or pollution of ground water.	Develop and implement a water quality-monitoring plan for high-value river areas.

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4. Social and Economic

a) Public Safety

(1) Abandoned Mine Lands and Hazardous Materials Management

(a) Goals

- Protect public health and safety and environmental resources by minimizing environmental contamination from chemical, biological and radiological sources on public lands and BLM-owned or -operated facilities.
- Comply with Federal and State oil and hazardous materials management laws and regulations.
- Maintain the health of ecosystems through location, assessment, cleanup, and restoration of contaminated sites.
- Manage oil and hazardous materials related risks, costs and liabilities
- Integrate environmental protection and compliance with all environmental statutes into all BLM activities.

(b) Alternative A

The BLM would continue to comply with Federal and State oil and hazardous materials management laws and regulations. As sites were discovered, they would be remediated. The Northwest MFP does not provide any guidance on hazardous materials management or abandoned mine lands.

(c) Management Common to All Action Alternatives (B, C, and D)

- Work cooperatively with other Federal and State governmental agencies, Tribal governments, general public, Native corporations, industry, and advocacy groups to protect public health and safety and environmental resources.
- Prioritize known sites for cleanup, making sites on lands awaiting conveyance a high priority.
- Conduct remediation actions on identified sites in accordance with applicable laws and policy.
- Comply with all appropriate laws and regulations regarding hazardous materials.
- Do not permit unauthorized storage, treatment, or disposal of hazardous waste on public lands.
- Respond to hazardous materials incidents and sites using standard operating procedures.
- Develop appropriate stipulations and required operating procedures for BLM-permitted activities to minimize the probability of contamination of public lands with hazardous materials

5. *Subsistence*

a) **Goals**

Maintain and protect subsistence opportunities. Determine how the management actions, guidelines, and allowable uses prescribed in response to the other issues will affect both subsistence opportunities and resources and the social and economic environment.

- Maintain sufficient quality and quantity of habitat to support healthy populations of important subsistence species of fish and wildlife.
- Through the Federal Subsistence Board and Office of Subsistence Management effectively manage subsistence harvests (by working with the local Regional Advisory Councils and subsistence users), including a strategy to implement/enforce a “rural priority” should one be necessary.
- Ensure that rural residents engaged in subsistence use have reasonable access to subsistence resources on public lands.
- To the extent possible, minimize displacing resources from traditional harvest areas (displacement that occurs as a result of permitted activity, such as oil and gas exploration, and extensive research projects, etc.).
- Avoid and minimize user conflicts over multiple-use resources (i.e., sport, commercial, subsistence).

b) **Alternative A**

Under this alternative the BLM would continue to manage subsistence in accordance with sec. 802 of ANILCA. Before the BLM approves any action, the effect of such use, occupancy, or disposition on subsistence uses and needs would be evaluated in compliance with Sec. 810 of ANILCA. The Northwest MFP does not provide any specific direction on subsistence management other than compliance with sec. 810. However, the decision under wildlife to protect wildlife habitat and to mitigate impacts of other uses on wildlife provides support for the subsistence program. Under this alternative, most activities would be analyzed on a case-by-case basis and few uses would be limited or excluded. This alternative provides few constraints on activities that have the potential to negatively affect subsistence resources.

c) **Management Common to All Alternatives (A, B, C, and D)**

Subsistence is an atypical resource/program in that the opportunity for subsistence uses by rural residents on public lands in Alaska is assured by law [sec. 802(1) of ANILCA]. As a result, decisions made in this RMP will not affect the BLM’s role in administration of subsistence on Federal public lands. Under all alternatives, the BLM would continue to carry out or participate in the following administrative functions.

Involve Subsistence Users in Issues Identification: Ten Regional Advisory Councils were established in sec. 100.22 of the Subsistence Management Regulations for Public Lands in Alaska as an administrative structure to provide a “meaningful voice” for subsistence users in the management process. BLM field staff members, along with those

of other agencies, meet twice each year with the Regional Councils to identify emerging issues in conservation, allocation, and appropriate regulation of subsistence harvests.

Manage Land/Habitat, Assess Impacts to Subsistence: ANILCA sec. 810 establishes a distinct set of requirements for assessment of potential impacts to subsistence from Federal land decisions. These supplement the discussion of potential impacts to subsistence resources and uses found as part of conventional NEPA environmental reviews.

Monitor Resource Populations Use for Subsistence Purposes: When these monitoring efforts are focused on key subsistence resources, they are a major contribution to the quality of subsistence management efforts.

Develop Interagency Subsistence Management Regulations and Policies: With heavy reliance on Regional Council input and interagency coordination, the development of subsistence regulations is a multi-step process.

Manage Subsistence Harvests: Although regulatory authority for subsistence management rests with the Federal Subsistence Board, implementation and enforcement of Federal subsistence hunting and fishing opportunities rests largely on local Federal agency field staff. Tasks include distribution of Federal regulation booklets, responding to questions, issuing Federal subsistence permits, contacting hunters in the field, and assisting in tallying permit and harvest reports.

d) Management Common to All Action Alternatives (B, C, and D)

(1) Inventory and Monitoring

Work cooperatively with State and other Federal agencies to inventory and monitor habitats and populations of important subsistence species to provide the necessary information to develop subsistence regulations and bag limits on Federal lands, as required by the Federal Subsistence Board.

(2) Management Decisions

- Through the BLM-Alaska's Stipulations and Required Operating Procedures (ROPs) create mitigation measures for permitted activities that serve to minimize impacts to subsistence. Mitigation may include avoidance of specific areas or limitations on season of use.
- Work with the State and other Federal agencies to obtain information from local residents on the cultural significance and relative importance of BLM lands for subsistence purposes.
- Require infrastructure be constructed in such a way that it does not impede access (i.e., pipelines, roads, buildings, etc.).
- Create mitigation measures and/or required operating procedures for permitted activities so as to minimize displacement of subsistence resources.
- Set a limit on the number of hunting guide permits to be issued within the Squirrel River and upper Koyuk River.
- Create "good neighbor" recreational guidelines.
- Create non-extractive commercial use permit Stips and ROPs.
- Through OHV designations, ensure reasonable access for subsistence use.

C. Summary and Comparison of Effects on Resources by Alternatives

Table 2-19 summarizes the direct, indirect, and cumulative effects under each alternative for all resources, where effects were found (refer to Chapter IV).

Table 2-19. Summary and Comparison of Effects on Resources by Alternatives

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON AIR QUALITY			
<p>Overall, impacts to air quality would be low and air quality should remain in attainment throughout the planning area. Smoke from wildland fire would have short-term effects on air quality and visibility. Mining may have localized impacts on air quality due to dust and airborne deposition of heavy metals.</p>	<p>Impacts to air quality would be low and air quality should remain in attainment. Impacts would be higher than under Alternative A as the amount of mineral development would increase. However, the amount of locatable mineral development would still be low and impacts would be minor and localized. Oil and gas development would occur, potentially leading to air quality impacts from the emissions of hydrocarbons and byproducts of combustion or wind-borne particulates. In situ burning as part of a cleanup of spilled crude oil or diesel fuel would temporarily adversely affect air quality. Emissions in the general area of ongoing North Slope oil production have not been shown to violate air quality standards; emissions resulting from this alternative would be small compared to the emissions from Prudhoe Bay and Kuparuk oil field production and would account for a minimal percentage of the emissions generated by current North Slope oil production.</p>	<p>The level of impact would be similar to Alternative A. Impacts to air quality would be low and air quality should remain in attainment throughout the planning area. No oil and gas development would occur and other mining activity would be limited to a few small placer mines.</p>	<p>The level of impact would be similar to Alternative B. Overall, impacts to air quality would be low, and air quality should remain in attainment throughout the planning area. Mining, and oil and gas development would occur at the same level as under Alternative B and impacts from these activities would be the same.</p>
<p>Cumulative Effects: Cumulative air quality impacts may result from the emissions of hydrocarbons and byproducts of combustion. These impacts may be regionally additive (e.g., increased concentrations of specific pollutants) or synergistic (e.g., chemical reactions that form ozone), and could degrade air quality. Ambient air quality on the North Slope of Alaska, however, is relatively pristine even though oil and gas exploration, development, and production have been under way for more than 30 years. Oil and gas development under this plan would be small compared to Prudhoe Bay and Kuparuk oil field production; projected emissions from the alternatives would account for only a small percentage of current and projected emissions on the North Slope. Development of regional roads and access would have impacts along the entire length of road, including increased airborne particulates, especially during construction.</p>			

Alternative A	Alternative B	EFFECTS ON SOIL RESOURCES	Alternative C	Alternative D
<p>Given the low level of surface disturbing activities and recreational use, impacts to soils would be minor. Potential impacts from mining include disturbance and redistribution of gravel, overburden, and soil materials. The structure of the soil profile and the stability of the floodplain can be destroyed and require decades to recover. Where OHV trails traverse wetlands, repeated use may lead to thermokarst subsidence, water diversions, and ponding. Where trails cross streams, riparian soil may be altered or destroyed, increasing soil loss and sedimentation.</p>	<p>Effects would be similar to Alternative A but, would occur over a larger area as mineral development would increase. Locatable mineral development would still be low and impacts minor and localized. Potential impacts of oil development include melting of permafrost (thermokarst), disruption of natural drainage patterns, increased erosion and sedimentation, and removal of gravel. Heavy traffic and digging associated with spill cleanup damages soil when the ground surface is not frozen. Impacts from cleanup when the tundra is unfrozen may be greater than the impact of the spilled oil. OHV designations would be less restrictive, allowing for the use of heavier vehicles during the winter. Impacts would be greater than under Alternative A but still small and localized, given the low level of OHV use.</p>	<p>Given the low level of surface disturbing activities and recreational use, impacts to soils would be minor. OHVs would be limited to designated roads and trails. Impacts from OHV use would still occur but would be lower than under Alternative A.</p>	<p>Impacts would be similar to Alternative B. Anticipated mineral development and associated impacts would be the same. Impacts from OHV use would be similar to Alternative A and somewhat less than under Alternative B as OHVs greater than 2,000 pounds GVWR would not be allowed. In addition, OHVs may be limited to existing or designated trails in some areas, further reducing the potential for impacts.</p>	<p>Cumulative Effects: Effects to soil resources would largely result from surface disturbing activities that degrade the vegetative cover over the ice-rich permafrost soils, resulting in thermokarst erosion and subsidence. This is especially true in wetland soils, along the stream banks, and lakeshores, where water would accelerate the removal of the melting ice-rich soil, resulting in increased sediment erosion and changes to stream channel and bed morphology. Thermokarst erosion could also result from the cumulative effect of seismic and exploration activity when less than ideal snow conditions expose tussock tundra to surface disturbance during winter months. In oil spill cleanups, heavy traffic and digging are common, resulting in damaged soils. Oil-spill cleanup mitigates impacts on soils only if cleanup methods and operations are carefully controlled and they minimize surface disturbance. The impacts to soil resources from surface disturbing activities during oil-spill cleanup when the tundra is unfrozen may be greater than the impact of the spilled oil, as the area affected may not be limited to that area immediately adjacent to and covered by the spill. Impacts from thermokarst may take years to develop; it could be decades before the impacts to soils are ameliorated. Adherence to the Stips and ROPs for all permitted operations would prevent the unnecessary long-term disturbance to soils. Development of regional roads and access would have impacts including soil compaction and thermokarst erosion, stream diversions, impoundments, and increased sediments runoff.</p>

Alternative A	Alternative B	Alternative C	Alternative D
<p>Impacts to water would be localized and minor. Mineral development has the potential to impact water resources through disturbance to soils. Soil removal can increase stream sedimentation and turbidity and decrease stream channel stability. The stability of the floodplain can be destroyed and may require decades for recovery. Where OHV trails traverse wetlands thermokarst subsidence, water diversions, and ponding may occur. Where trails cross streams, riparian soil and vegetation may be altered or destroyed, increasing soil loss and sedimentation into aquatic habitats and resulting in diminished water quality. Impacts from other types of activities would be negligible under this alternative.</p>	<p>Effects would be similar to Alternative A but, would occur over a larger area as mineral development would increase. Locatable mineral development would still be low and impacts minor and localized. Impacts from oil development include water withdrawal from lakes, removal or compaction of snow cover on lakes and rivers, contamination of water from temporary surface storage of drilling mud and cuttings, disturbance of stream banks or shorelines and subsequent melting of permafrost (thermokarst), blockages of natural channels and floodways that disrupt drainage patterns, increased erosion and sedimentation, and removal of gravel from rivers and lakes. Improper location of gravel-removal operations can result in alteration of stream channel or lake configuration, stream-flow hydraulics or lake dynamics, erosion and sedimentation, and ice damming and aufeis formation. A large oil spill would have negative impacts on water quality if the oil reached a tundra pond or river.</p>	<p>Effects would be similar to Alternative A. Implementation of the ROPs would help mitigate impacts to water resources. Impacts from OHV use would be somewhat less as OHVs would be restricted to designated roads and trails during the snow-free period. This alternative has the most restrictive OHV designations.</p>	<p>Effects would be similar to Alternative B. Implementation of the ROPs would help mitigate impacts to water resources. Impacts from OHV use would be somewhat less as OHVs weighing more than 2,000 pounds GVWR would not be allowed, and additional OHV limitations may be applied in ACECs and SRMAs.</p>
EFFECTS ON WATER RESOURCES			
<p>Cumulative Effects: Overall, effects of oil spills on water resources on the North Slope, because the spills have been small and cleanup and rehabilitation efforts have generally been successful, have not been significant. Small spills could exceed the acute-toxic level a day or less and chronic criteria could be exceeded for less than a month. Development of regional roads and access would impact water resources. These impacts would occur along the entire length of road and include stream diversions, impoundments, increased sediments runoff, especially during construction.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>Mineral development may negatively impact vegetation by removing the vegetative mat, re-routing stream flow, covering vegetation with gravel, and compacting soils. Long-term surface disturbance increases the potential for introduction of noxious and invasive plants. OHV use may destroy the vegetation mat, compact soils, accelerate permafrost melt, and lead to soil erosion and ponded water, crushing plants and degrading their habitats. Livestock grazing may negatively impact vegetation by trampling, cratering to organics or mineral soil, and over-browsing. These impacts would be localized and minor. Impacts from other activities would be negligible.</p>	<p>Effects would be similar to Alternative A but, would occur over a larger area as the level of mineral development would increase. Locatable mineral development would still be low with localized impacts. Potential impacts of oil development include: compression of the vegetation mat; broken shrubs and crushed tussocks from seismic activity; mortality of plants due to oil spills; compression of the tundra mat and localized die-off of plants under ice roads and pads; and destruction of vegetation on up to 417 acres from facility development. OHV designations would be less restrictive, allowing for the use of heavier vehicles slightly increasing the potential for impacts. More lands would be open to grazing and alternative forms of livestock would be considered. Overall, there could be a small increase in grazing pressure and trampling effects on riparian and tundra vegetation. The potential for introduction and spread of noxious and invasive weeds could increase somewhat.</p>	<p>Impacts to vegetation from mineral development would be similar to Alternative A. Some areas would be closed to mineral entry and location, reducing the potential for impacts. Impacts from OHV use would be somewhat less than under Alternative A because OHVs would be restricted to designated trails. Impacts from grazing would be the lowest under this alternative. Grazing would be limited to a smaller area as four grazing allotments would be closed and grazing would be restricted to the Seward Peninsula.</p>	<p>Impacts to vegetation from mineral development would be the same as Alternative B. Impacts from OHV use would be similar to Alternative A and somewhat less than under Alternative B as OHVs greater than 2,000 pounds GVWR would not be allowed. In addition, OHVs may be limited to existing or designated trails in some areas, further reducing the potential for impacts. Impacts from grazing would be limited to a smaller area as two grazing allotments would be closed, and grazing would be limited to the Seward and Baldwin peninsulas. Reindeer would be the only type of livestock allowed.</p>
EFFECTS ON VEGETATION MANAGEMENT			
<p>Cumulative Effects: Increased levels of mineral development on State and private lands, combined with similar activities on BLM-managed lands could result in cumulative surface disturbance with adverse effects on riparian and tundra vegetation over the long-term. Dispersed recreation effects from gradual increases in amount and frequency of OHV travel, remote landing sites for bush aircraft, campsites, plus potential new recreation facilities and trails may have minor adverse and cumulative impacts to riparian and tundra vegetation on BLM-managed lands throughout the planning area. The potential for displacement of native vegetation by noxious and invasive weeds will increase as the level of surface disturbance to once-intact habitat rises.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>Mineral development, road construction, fire, and OHV use may impact fish. Erosion into streams and rivers from surface disturbance leads to increased turbidity and sedimentation, which can inhibit feeding and spawning success. Activities associated with mining may increase erosion and disrupt water flow patterns, and has the potential to increase pollution in streams. Fire can cause increased siltation, higher water temperature, altered water quality, changes in nutrient input, and changes in permafrost, leading to altered hydrology. OHV impacts come from increased stream bank disturbance which decreases stream bank stability, and additional trails, which may gather runoff and rut, thereby leading to increased erosion and subsequent sedimentation into streams. These impacts would be localized and most likely minor.</p>	<p>EFFECTS ON FISH</p> <p>Effects from mineral development would be similar to Alternative A, but would occur over a larger area as the level of mineral development would increase. Locatable mineral development would still be very limited and impacts would most likely be minor. Impacts to fish from seismic activities include stress and damage to overwintering habitat. Impacts from pad, road, and pipeline construction associated with oil development include increased erosion and sedimentation, subsurface and surface flow disruption, and increased pollution in runoff. These impacts would be localized and would most likely not have population level effects. Given the small volume of oil typically involved in spills, as well as the safety requirements and stringent clean-up protocols, oil spills would most likely not have a measurable long-term impact on fish populations. Impacts from fire would be the same as Alternative A.</p>	<p>Effects from mineral development and fire would be the same as Alternative A. Impacts from OHV use would be somewhat less than under Alternative A because OHVs would be restricted to designated trails.</p>	<p>Impacts to fish from mineral development would be the same as Alternative B. Impacts from OHV use would be similar to Alternative A and somewhat less than under Alternative B as OHVs greater than 2,000 pounds GVWR would not be allowed. In addition, OHVs may be limited to existing or designated trails in some areas, further reducing the potential for impacts. Impacts from fire would be the same as Alternative A.</p>
<p>Cumulative Effects: A continuation of current water and land use practices, by private, State, and other Federal agencies would continue to affect fish habitat within the planning area. Higher intensity OHV use and mineral development or exploration on lands upstream from BLM-managed lands within a watershed could continue to be a concern due to sediment and water quality issues that influence the quality of fish habitat downstream from the source. Habitat improvement gains through more intensive management of recreation activities as proposed under Alternatives C and D could be offset or enhanced by regulatory sport-fishing changes made by ADF&G. Coordinating with regional planning actions and conducting interagency watershed planning efforts could help protect important fisheries values in watersheds such as the Kigluaik Mountains, Kivalina River, and Squirrel River.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON WILDLIFE			
<p>Low levels of harvest of forest products, livestock grazing, mineral exploration, land use authorizations, and dispersed recreational and OHV use would have minor localized effects on wildlife. Impacts would include stress and disturbance of wildlife, and degradation of habitat. Impacts would not have population level effects.</p>	<p>Increased mineral exploration and development would increase the level of impacts to wildlife and their habitat. Impacts from placer mining would be minor (up to 50 acres) but greater than under Alternative A. Oil and gas development (517 acres long term disturbance) would occur, resulting in impacts to wildlife and habitat, particularly caribou. Impacts from recreation would be the same as Alternative A. Impacts from OHV use would be similar to Alternative A but slightly higher as heavier vehicles may be used during the winter. Impacts from grazing would be increased as the area open to livestock allowed would include both bison and reindeer, increasing the potential for disease transmission to wildlife.</p>	<p>Impacts to wildlife would be the lowest under this alternative. No mineral development would occur thus there would be no impacts to wildlife. Impacts from recreation and OHV use would be reduced compared to Alternative A as OHVs would be restricted to designated trails. Within SRMAs, levels of recreational use would be limited, resulting in fewer impacts to wildlife. Impacts from livestock grazing would be the lowest of any alternative as several areas would be closed to grazing. Several ACECs would be designated to provide additional management emphasis in important wildlife habitats.</p>	<p>Impacts would be the same as Alternative B except for impacts from livestock grazing which would be reduced. The lands open to grazing would be larger than under Alternative C but less than under Alternative A and B. Class of livestock allowed would be limited to reindeer, reducing the risk of disease transmission. Several ACECs would be designated to provide additional management emphasis in important wildlife habitats.</p>
<p>Cumulative Effects: The combination of ongoing and future oil and gas development occurring on both State and Federal lands on the North Slope, oil and gas development in the northern portion of the planning area, and possibility of solid mineral exploration and development in the same region, would have cumulative impacts on the WACH. Depending on the location of development, these impacts may include: short or long-term disturbance to caribou calving habitat, insect relief habitat, and migratory routes; disruption of caribou movements; stress and disturbance impacts to caribou during all seasons of the year; possible reductions in herd productivity. Any new development would result in additive impacts to the herd. If significant activity occurred within the calving grounds or important insect relief habitat, these impacts could be significant. Construction of a road in the Howard Pass area would also affect caribou movements and if open to public use, would greatly increase access into caribou habitat. Privatization of State or Native Corporation lands has the potential to negatively affect wildlife and wildlife habitat by opening up areas to private development. Development of regional roads would have the potential to negatively affect wildlife, particularly caribou and other big game species. These impacts would include habitat fragmentation, increased access into wildlife habitats, increased disturbance impacts, increased potential for mortality (road kills), and possible alteration of behavior or movement patterns of wildlife.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p align="center">Alternative B EFFECTS ON FIRE MANAGEMENT AND ECOLOGY</p> <p>The biggest potential impact to Fire Management is in areas where fire exclusion is being attempted. Long-term fire suppression in the boreal forest results in additional biomass being added to the organic layer and the creation of large homogeneous stand of flammable fuels, usually black spruce. The end result is larger more severe fires that may be outside the range of natural variability. Attempts at fire exclusion impacts other resources long-term and with potentially high impact effects. For example, attempts at fire exclusion in the range of the WACH wintering range could result in significant portions of their range burning in one fire event, limiting the carrying capacity of their range. If fuels management projects are proposed in the future, the impact on the fire program would be in the form of time commitment for preparation and budgetary for implementation.</p>			
<p>Cumulative Effects: Wildland fire management is done on an interagency basis and across administrative boundaries. There are several areas in that are in the Full and Critical Management Options that are adjacent to BLM-managed lands. How fire is managed on these lands over the long-term may influence the effects of fires on adjacent BLM land.</p>			
Alternative A	Alternative B	Alternative C	Alternative D
<p align="center">Alternative B EFFECTS ON CULTURAL RESOURCES</p> <p>Impacts from uses other than mineral development would be negligible. Impacts from mineral development would be greater than under Alternative A. Development of oil resources would result in surface disturbance that could impact cultural resources (417 acres disturbed by construction of oil field facilities plus 50-100 acres disturbed through extraction of gravel) An additional 4,979 acres of short-term disturbance would result from gathering lines, delineation wells, and distribution pipeline. Most of these features would be built during the winter, minimizing surface disturbance, but drilling for Vertical Support Members and any sections of buried pipeline would have potential for disturbance or destruction of cultural resources. This development would occur in the northern part of the planning area, where numerous prehistoric sites are known to be located.</p>			
<p>Federal undertakings and unauthorized uses may cause irreversible disturbance and damage to cultural resources. Few impacts are anticipated from authorized activities due to the remoteness of most BLM-managed lands and the nature of most permitted activities. Mining activity is limited to small placer mines. Impacts to cultural resources from authorized uses would be avoided through project redesign or mitigated through data recovery. There is some potential for impacts from unauthorized activities, but it is difficult to estimate the extent, as the cost of monitoring is prohibitive.</p>	<p>Impacts to cultural resources would be the same as Alternative A.</p>	<p>Impacts to cultural resources would be the same as Alternative A.</p>	<p>Impacts to cultural resources would be the same as Alternative B.</p>
<p>Cumulative Effects: Cumulative impacts to cultural resources could occur through incremental degradation of the resource base from a variety of sources which reduce the information and interpretive potential of historic and prehistoric properties, or which affect traditional cultural values important to Native Americans. Much of the anticipated development within the planning area would occur on lands that are not covered by Federal cultural resource laws. As a result, there could be losses to the regional resource base that could potentially limit management options within the planning area.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
Alternative B			
EFFECTS ON PALEONTOLOGICAL RESOURCES			
<p>Federal undertakings and unauthorized uses may cause irreversible disturbance and damage to paleontological resources. Impacts from authorized use would be mitigated through project redesign and specimen recovery. Geologic formations with exposures containing vertebrate and non-vertebrate fossils would be impacted from natural agents, unauthorized public collection, and vandalism. Impacts would stem almost exclusively from unauthorized uses and natural causes. Lack of knowledge about paleontological resources in the planning area, makes it difficult to estimate the extent and nature of impacts.</p>	<p>Impacts to paleontological resources from uses other than mineral development would be negligible. Anticipated development associated with leasable and locatable minerals, especially in the northern part of the planning area, could have adverse impacts on paleontological resources. Development of oil and gas resources would result in up to 517 acres of surface disturbance that could result in damage to paleontological resources. Given that this development would occur in the northern portion of the planning area, where almost all of the known paleontological occurrences on BLM-managed lands are located there is clear potential for impacts.</p>	<p>Impacts to paleontological resources would be the same as Alternative A.</p>	<p>Impacts to paleontological resources would be the same as Alternative B.</p>
<p>Cumulative Effects: Cumulative impacts to paleontological resources could result from development on non-BLM managed lands and from natural agents and unauthorized uses throughout the area.</p>			
Alternative A		Alternative D	
EFFECTS ON VISUAL RESOURCES			
<p>Visual resources would be managed on a project-by-project basis as no visual management classes have been established. Surface disturbing activities such as fire, mineral development and OHV use, and authorizations that result in facility or infrastructure construction such as powerlines or roads can negatively impact visual resources. Few impacts are anticipated from authorized activities due to the remoteness of most BLM-managed lands and the nature of most permitted activities.</p>	<p>Alternative B anticipates the greatest amount of resource development and adopts the least-restrictive VRM classes. Effects to visual resources could occur over a larger area than under Alternative A due to increased mineral developed. Impacts from activities associated with the development of oil and gas would primarily be associated with the construction of support facilities. Gravel mining to support such development would have additional impacts. Impacts for visual resources from authorized activities may be higher under this alternative because it has the least restrictive VRM management classes.</p>	<p>Alternative C anticipates the lowest level of resource development and adopts VRM classes that would be the most restrictive. Impacts would be the lower than under Alternative A because VRM management classes have been established. Impacts would be lower than Alternative B or D because more restrictive VRM management classes have been established and very little mineral development would occur.</p>	<p>Impacts to visual resources would be similar to Alternative B but somewhat less because VRM management classes are slightly more restrictive.</p>
<p>Cumulative Effects: Continued development of OHV trails, roads, recreational facilities, mining activities, overland explorations, and fire management may lead to changes to existing visual resources by altering basic visual elements of form, line, color and texture at the landscape level. These changes will influence the design of similar projects on adjacent BLM lands where repeating these basic elements is an objective of the visual resource management class.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON WILDERNESS CHARACTERISTICS			
<p>Due to the remoteness of BLM lands, and the low levels of authorized activities, wilderness characteristics would be maintained on the vast majority of BLM-managed lands. Impacts to wilderness characteristics would be minimal and site specific. Authorized activities may negatively affect wilderness characteristics. Activities that alter the watershed, such as mineral development, would negatively affect naturalness. Activities that involve large numbers of people, aircraft, or vehicles would negatively affect opportunities for solitude, and or primitive/ unconfined recreation. Generally, these effects would be short-term, lasting only until the activity is over.</p>	<p>Due to the remoteness of BLM lands, and the low levels of authorized activities, wilderness characteristics would be maintained on most BLM-managed lands. Impacts to wilderness characteristics would increase somewhat compared to Alternative A primarily due to the projected increase in mineral development. Oil and gas development would result in year-long human activity. Impacts would be the most intense at and around development and production facilities during construction. After construction, structures, human presence, and associated activity and noise would have adverse impacts on solitude, naturalness, or primitive/unconfined recreation. Because production would occur over a long period, impacts would be long-term. These long-term, adverse impacts are expected to be greatest within 2 miles of facilities.</p>	<p>Impacts to wilderness characteristics would be similar to Alternative A but somewhat less as VRM management classes would be adopted and OHV use would be limited to designated trails. Under this alternative, 11 river systems would be determined suitable for designation as wild. Interim management of these rivers to maintain values would have a positive impact on naturalness. Management actions implemented in designated ACECs would have a positive impact on naturalness.</p>	<p>Impacts to wilderness characteristics would be similar to Alternative B but may be somewhat less as more restrictive VRM management classes and OHV designations would be adopted. Management actions implemented in designated ACECs would have a positive impact on naturalness.</p>
<p>Cumulative Effects: Short-term impacts, such as green trails and disturbance from noise and other activities would not accumulate. Impacts from long-term or permanent facilities such as roads, major trails, pipelines and gravel road/pads, would accumulate and would result in the long-term loss of solitude, naturalness, or primitive/unconfined recreation. Under Alternative B, long-term impacts would be expected to affect an area of approximately 108,000 acres, or 1% of BLM-managed lands in the planning area. Considering past, present and future development, total cumulative impacts could affect an area one to three times greater. This would depend on many factors, some of which are unforeseen at this time. Cumulative impacts the Squirrel River and other popular rivers in the planning area, will be more significant than impacts elsewhere.</p>			

Alternative A	Alternative B	EFFECTS ON FOREST PRODUCTS	Alternative C	Alternative D
<p>Locatable and salable mineral development may result in minor to moderate impacts to forested lands in the East Ambler, Central Omar-Kiana, and South Seward Peninsula areas by clearing of trees as part of mine site development. Impacts would be minimal as little mining is anticipated. Recreational use will have low-level impacts on forests such as firewood harvest and use of standing dead or live trees for camp structures. OHV use will cause damage to low-growing tree seedlings and saplings, especially white and black spruce. Impacts to forest subsistence include a slight increase of firewood and house log use, plus a low negative impact on tree seedling and sapling growth from OHV use, particularly snowmachine use. Under this alternative, forested areas could be allowed to burn or considered for protection from wildland fire to achieve specific forestry objectives. Risk of human-caused wildfire may increase slightly.</p>	<p>Impacts from locatable and salable minerals would be similar to Alternative A but possibly greater in extent because slightly more mining activity is anticipated (additional 30-50 acres of disturbance). Impacts from OHV use would be similar to those occurring under Alternative A. Impacts from fire and fire management would be similar to those discussed under Alternative A, except that the application of wildland fire use would not be allowed. The overall impact to availability of forest products due to the difference in management practices would be minimal as prescribed fire could be used to meet specific forestry objectives.</p>	<p>Impacts from mining would potentially be lower than Alternative A as areas closed to mineral entry would include proportionally more forested lands. Impacts from recreation would be the same as Alternative A, except use of firewood and standing dead or live trees may decrease slightly due to limitations on visitor use in some areas. More restrictive limits on OHV use would decrease the potential for negative impacts to seedlings and saplings. This change would be minimal as additional limitations would not apply to snowmachines. Management of the Nulato Hills ACEC would be beneficial to forest resources. Impacts from fire would be similar to Alternative A. The emphasis on allowing wildland fire to function in its natural ecological role, may reduce protection of forest harvest sites from fire. Opportunity for house log harvest may be slightly less. Opportunities for harvest of morel mushrooms may be slightly higher.</p>	<p>Impacts from mining would be the same as Alternative B. Impacts from recreation would be the same as Alternative C. Due to the development of specific OHV limitations within ACECs and SRMAs the overall negative impact to tree seedlings and saplings and forest soils from OHV use may decrease slightly. Impacts from fire would be the same as Alternative A.</p>	<p>Impacts from mining would be the same as Alternative B. Impacts from recreation would be the same as Alternative C. Due to the development of specific OHV limitations within ACECs and SRMAs the overall negative impact to tree seedlings and saplings and forest soils from OHV use may decrease slightly. Impacts from fire would be the same as Alternative A.</p>
<p>Cumulative Effects: Ongoing spruce beetle damage and the potential for more intense wildland fires may shift forest stand composition towards a higher percent of young trees, and a more diverse mix of tree ages within stands. Early seral shrub-dominated plant communities may increase, interspersed with recovering forest communities. The overall amount of mature forest timber will likely decrease during the life of the plan. An increase in number and sophistication of OHVs will result in a small amount of continued damage to naturally revegetating or colonizing tree seedlings and saplings. As village populations rise the use of firewood and house logs will also increase. Increased mineral development on adjacent State and Native-owned lands may result in conversion of forested plant communities to tundra landscapes of sparse grasses, sedges, forbs, or shrublands. This could shift subsistence and wildlife use of forest product resources more strongly towards BLM-managed forest habitats.</p>				

Alternative A	Alternative B	Alternative C	Alternative D
<p>Most authorized uses would have negligible impacts on grazing. Subsistence activities have a minor impact as reindeer are occasionally killed by hunters looking for caribou. Fire management could impact reindeer range. Lichens, primary winter forage for reindeer, are slow to recover from fires. There may be an opportunity to reduce impacts to lichens through fire management. Social and economic conditions have the potential to strongly impact livestock grazing. Conditions may develop that are much more or much less favorable to herding. These conditions are largely unrelated to BLM management. The most important factor impacting reindeer grazing is the distribution of the WACH. When the caribou migrate north, reindeer are apt to migrate with them. Reindeer numbers have an inverse relationship with the number of caribou in the region. This is an impact outside of BLM's control.</p>	<p>Impacts from most other authorized uses and fire would be the same as Alternative A. Approximately 13.1 million acres of BLM managed lands throughout the planning area would be open for consideration of livestock grazing, which would include bison as a class of livestock. If supported by social and economic conditions, and the distribution of the WACH, the opportunity for grazing businesses could increase slightly over the life of the plan. Leasable mineral development could negatively affect grazing by destroying habitat and displacing free-ranging livestock, if livestock were to be in the area of development. There are currently no livestock in the portion of the planning area where development is forecasted, but under this alternative livestock grazing could be permitted in these areas.</p>	<p>Impacts from activities other than grazing management would be the same as Alternative A. Opportunities for grazing businesses would be reduced compared to Alternative B as only 3.3 million acres of BLM-managed lands on the Seward Peninsula would be open to grazing. The remainder of the planning area would be closed. Reindeer grazing permit renewals and new applications would be rejected where significant conflicts with wildlife or subsistence are likely to occur. Permits for allotments that have not had reindeer for 10 or more years due to conflicts with caribou would not be renewed and the allotments would be permanently retired.</p>	<p>Impacts would be similar to Alternative B, except bison would not be an allowable class of livestock. Opportunities for grazing businesses would be higher than Alternative C and lower than Alternative B. Grazing would be considered on 4.1 million acres of BLM-managed land on the Seward Peninsula. The remainder of the planning area would be closed. Reindeer grazing permit renewals and new applications would be rejected where significant conflicts with wildlife or subsistence are likely to occur. Allotments that have not had reindeer for 10 or more years would not be permanently retired.</p>
<p>EFFECTS ON LIVESTOCK GRAZING</p> <p>Cumulative Effects: There would be no cumulative impacts on grazing.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>The lack of NEPA analysis and retention of ANCSA (d)(1) withdrawals would preclude oil and gas leasing. Under this alternative no oil and gas exploration and development would occur, rendering these resources unavailable for future generations.</p>	<p>Alternative B provides the greatest opportunity for leasable mineral development. Approximately 13.1 million acres (+99% of BLM-managed land) would be open to mineral entry subject to the ROPs and Stips. Oil and Gas Stips #6 and #7 would not apply, suggesting zero acres would be open with minor constraints, such as timing or seasonal limitations. About 23,800 acres would be subject to NSO, the total of individual 300-foot setbacks on select rivers. Setbacks may limit exploration and development. The added cost of directional drilling could render the project uneconomical or it could be technically unfeasible. Consequently, these resources would be unavailable for future generations. None of the planning area would be closed to oil and gas leasing. Areas with moderate to high potential for oil and gas which are State- or Native-selected, may be conveyed to the selecting entities. However, potential does exist for the leasing of oil and gas on BLM-managed lands.</p>	<p>Under Alternative C, land restrictions would significantly diminish interest in the fluid mineral resources. Only 1.8 million acres (13% of BLM-managed land) would be open subject to the ROPs and Stips. About 5.4 million acres (41%) would be open subject to minor constraints on caribou winter range and muskox habitat. About 181,000 acres (1%) would be open to leasing subject to NSO, the total of individual 300-foot setbacks on select rivers. As in Alternative B, these NSO areas could limit exploration and development. Approximately 5.8 million acres (44%) would be closed to oil and gas leasing. Closing these areas to leasing would preclude oil and gas development and render these resources unrecoverable. Given these constraints, no oil and gas development would occur under this alternative.</p>	<p>Alternative D provides the second greatest opportunity for leasable mineral development. About 7 million acres (53% of BLM-managed land) would be open subject to the ROPs and Stips. About 6.1 million acres (47%) would be open subject to minor constraints. Some of the acreage subject to minor constraints includes lands that have a high oil and gas occurrence potential rating. These constraints would limit exploration and development during specific time periods and increase recovery costs. Approximately 38,000 acres (less than 1%) would be subject to NSO Impacts from NSO would be the same as Alternative B.</p>
<p style="text-align: center;">EFFECTS ON FLUID LEASABLE MINERALS</p> <p>Cumulative Effects: Impacts would be greatest under Alternatives B and D as no leasing would occur in Alternative A, and high potential areas are closed in Alternative C. There could be a reduction in lease value resulting from the application of stipulations and regulations and increased operating costs. Restrictions on Federal leases could impact leasing and development of adjacent non-Federal leasable minerals. An area on the cusp of showing economical development could become non-profitable by imposing restrictive guidelines, resulting in the displacement mineral activities to adjacent landowners. On the other hand, under Alternatives B and D leasing of Federal minerals, could encourage leasing of private or State minerals. Roads resulting from exploration and development could increase interest in exploration on BLM-managed lands.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>Alternative B is the same as Alternative A except exploration and prospecting would be subject to the ROPs. With no closure restrictions to the lands under this alternative, coal exploration and general resource inventories would be maximized to their full potential.</p>	<p>Restrictions on exploration and development would diminish interest in such activities. About 7.2 million acres (55%) would be available for coal exploration and non-energy leasable mineral prospecting subject to the ROPs. Closed lands encompass nearly 5.9 million acres (45%), including ACECs and a 300-foot setback on selected rivers. These closures would eliminate potential exploration in areas that possess geologic potential for coal and other non-energy leasable minerals. Consequently, these resources would be unrecoverable. Given these constraints, it is assumed that little to no coal exploration or non-energy leasable mineral prospecting would take place under this alternative.</p>	<p>Restrictions on exploration and development would diminish interest in such activities. About 7.2 million acres (55%) would be available for coal exploration and non-energy leasable mineral prospecting subject to the ROPs. Closed lands encompass nearly 5.9 million acres (45%), including ACECs and a 300-foot setback on selected rivers. These closures would eliminate potential exploration in areas that possess geologic potential for coal and other non-energy leasable minerals. Consequently, these resources would be unrecoverable. Given these constraints, it is assumed that little to no coal exploration or non-energy leasable mineral prospecting would take place under this alternative.</p>	<p>About 12.0 million acres (92%) would be available for coal exploration and non-energy leasable mineral prospecting subject to the ROPs. About 1.1 million acres (8%) would be closed to coal exploration, including 300-foot setbacks on selected rivers and the Nulato Hills ACEC. These closures could have a negative effect on the exploration for non-energy leasable minerals by precluding access to a known energy resource. In areas where solid leasable minerals overlap with closures, the resource would be unrecoverable. However, areas of overlap are not considered to be substantial. Exploration and prospecting could occur under this alternative.</p>
<p>Cumulative Effects: Cumulative impacts to coal exploration and non-energy leasable mineral prospecting could occur through development of infrastructure by adjacent land owners. Infrastructure would be provided if coalbed natural gas exploration and development were to occur on non-BLM lands. Up to 11 coalbed natural gas wells could be drilled on non-BLM lands with the produced gas piped to a nearby village.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>No withdrawal review would occur and current ANCSA (d)(1) withdrawals would remain in place on about 70% of BLM-managed lands. The potential for future exploration and development on BLM-managed lands would be limited. Once the conveyance process is completed, these withdrawals would continue to discourage mining interests and prevent exploration and evaluation of mineral potential. Much of this land has been unavailable for mineral assessment for more than 30 years. In the meantime markets for new commodities have developed, ore deposit theory has advanced significantly, and new mining and milling processes which are less expensive, more efficient and environmentally friendly have been developed.</p>	<p>EFFECTS ON LOCATABLE MINERALS</p> <p>This alternative would have the fewest impacts on locatable mineral development. About 13.1 million acres would be opened to mineral entry. Revocation of withdrawals would result in increased exploration and development activity, pending State and Native conveyances. Development of mineral deposits on State and private lands could encourage exploration onto adjacent Federal land. Given the limited mineral potential on Federal lands, and mining operation locations mostly on private and conveyed lands, it is expected that no more than 5 new, small placer mines would develop over the life of the plan. It is further expected that no new hard rock mines on Federal land would develop to production, mostly due to the long (more than 20 years) development time needed to bring a hard rock mine from discovery to production. Administration of Notices and Plans of Operations, compliance, and mine reclamation would continue.</p>	<p>Less potential exists for mineral exploration and development under Alternative C due to recommended withdrawals of ACECs, RNAs, and 300-foot setbacks along selected rivers. About 6.5 million acres would be open to locatable mineral entry. Some mining activity could continue to occur on valid existing claims, but new development would be doubtful based on proposed area-wide constraints. Restrictions would discourage further expenditure of funds in the planning area. The BLM would continue to regulate surface disturbing activities on valid Federal claims through Notices and Plans of Operations, and ROPs would be implemented. Before a plan of operations could be approved on withdrawn lands, a validity examination would have to be conducted to verify that there is a discovery of a valuable mineral deposit on the claims in question.</p>	<p>About 13 million acres would be open to mineral entry. Impacts would be similar to Alternative B except for 99,000 acres proposed for withdrawal. This includes setbacks on three rivers and the Mount Osborn RNA. Potential for development of known graphite occurrences in the Kigluaiik Mountains would be curtailed by withdrawal of this RNA. The Ungalik River contains known placer gold occurrences and the proposed setback cuts through a producing placer province. Potential for development of known mineral resources would be curtailed.</p>
<p>Cumulative Effects: Impacts that are individually minor may cumulatively reduce exploration and production of commodities from BLM-managed land. Factors that affect mineral extraction and prospecting, such as permitting and permitting delays, regulatory policy, public perception, travel management, transportation, mitigation measures, proximity to sensitive areas, low commodity prices, taxes, and housing and other necessities for workers are mostly issues over which the BLM has no control. These factors result in additional costs and/or permitting delays that can individually or cumulatively add additional costs to projects. Lack of access could reduce the amount of mineral exploration and development that may occur. Mineral resources in other ownerships may not be developed if the adjacent BLM lands are withdrawn from mineral entry because the deposit may not be economically feasible to develop if only a portion is available for development. Overall, Alternative C would be the most restrictive to mineral development and could result in the most cumulative impacts. Alternative C proposes the most acres be withdrawn from mineral entry, the most areas limited or closed to motorized travel, and the highest protection to other resources to the preclusion of use of locatable mineral deposits, both placer and hard rock, on BLM-managed lands.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>Development of mineral materials sites would not be constrained except as restricted by interim management guidelines for selected lands. No unencumbered Federal lands would be closed to mineral material sales and permits.</p>	<p>Impacts would be the same as Alternative A except the ROPs would apply to mineral material sales.</p>	<p>EFFECTS ON MINERAL MATERIALS Development of mineral materials sites on BLM-managed lands would most likely be severely constrained under Alternative C. Some Federal lands (271,500 acres) would be closed to mineral material sales and permits. More importantly limitations on the type of mineral material deposit that could be developed would amount to a de-facto closure of public lands to the operation of this program.</p>	<p>Impacts would be the same as Alternative B.</p>
<p>Cumulative Effects: Under Alternative C the closure of two ACECs to sale/permit of mineral materials as well as the additional restriction on types of mineral material deposits that may be mined would essentially close all BLM-managed land to mineral materials development and production.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>No SRMAs would be designated under Alternative A. Recreational opportunities would be primarily limited to independent remote backcountry experiences and through guided tours. Semi-primitive motorized recreation opportunities would be maintained on lands currently undesignated for OHV use.</p>	<p>Under Alternative B, more land would be available for mineral development which could potentially affect recreation opportunity and experience. Given the limited amount of mineral development anticipated, effects would be minor. In the Squirrel River SRMA, the number of special recreation permits (SRP) issued would be limited, impacting the sport hunter who relies upon guided hunts. Limiting use levels could also enhance the experience for the sport hunter desiring a more primitive experience. This could also negatively impact commercial service providers by limiting their potential client base. OHV designations allowing for the use of larger vehicles would benefit users wanting to use those types of vehicles. It could also have negative impacts on other users who prefer a more primitive experience.</p>	<p>SRMAs would be designated in the Squirrel River and Kigluaik Mountains. Impacts to recreation in would be similar to those in Alternative B but would affect a larger area. The establishment of visitor use limits in specific areas would help ensure the quality of recreation experiences for commercial and non-commercial users. However, establishment of visitor use limits may limit recreational opportunities for some as well as opportunities for commercial development for others. Impacts to commercial recreation in the Squirrel River would be similar Alternative B but more restrictive. OHVs would be limited to designated trails, diminishing the opportunity for free and unrestricted OHV use.</p>	<p>As in Alternative C, SRMAs would be designated in the Squirrel River and Kigluaik Mountains. The establishment of visitor use limits in these areas would help ensure the quality of recreation experiences for commercial and non-commercial users. But may also limit opportunities. Specific limitations would be developed in RAMPs, making the impact somewhat unknown at this time. OHV designations would preserve semi-primitive motorized recreation opportunities in most of the planning area.</p>
<p style="text-align: center;">EFFECTS ON RECREATION MANAGEMENT</p> <p>Cumulative Effects: The planning area currently provides a diversity of recreation opportunities which are expected to continue over the life of the plan regardless of the alternative selected. The largest influence on recreation experience is use of OHVs. Without management and some limitations on OHV use, recreation experiences will trend towards semi-primitive motorized and roaded natural. However, much of the planning area is dominated by steep topography, wetlands, dense vegetation and remote settings with no road infrastructure, making it inaccessible to most OHVs. These areas will continue to provide for primitive recreation experiences, regardless of which alternative is selected. Helicopter-supported commercial recreation ventures and winter snowmachine use have the potential to alter experiences in some of these areas. There continues to be a need for facilities to provide positive recreation experiences for motorists traveling the Nome Road System. The State continually struggles with funding to support construction and maintenance of facilities such as waysides and outhouses. Facilities for remote and dispersed recreation safety and comfort (such as remote cabin facilities) are also in need. Alternatives C and D may address these needs, but without a well-funded State or Federal recreation program, this rapidly growing need would not be met.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>There are no OHV designations in place in the planning area. Use of vehicles over 2,000 pounds GVWR requires a permit.</p>	<p>The planning area would be designated as "Limited" to OHV use. The lifting of the 2,000 pound GVWR limit during the winter months will increase the potential for travel by allowing use of larger OHVs in an unrestricted environment. This is the only alternative where vehicles larger than 2,000 pounds could travel on BLM-managed lands without a permit. More lands would be open to mineral entry under this alternative, potentially creating improved access. Given the level of mineral development anticipated, these effects would be minor.</p>	<p>EFFECTS ON TRAVEL MANAGEMENT/OHV</p> <p>The planning area would be designated as "Limited" to OHV use. OHV use would be restricted to designated trails during the snow-free period and keep the current maximum 2,000 pound GVWR limit during the winter. The current free and unrestricted OHV use in the planning area would be diminished. Proposed restrictions would impact users by strictly limiting OHV use where no limits have been in place before. There may be areas users will have difficulty reaching due to the lack of designated trails. In designated ACECs or SRMAs, further limitations may be placed upon OHV use. Non local users who visit the planning area primarily during the summer/fall months would be affected the most. This alternative would impact OHV and travel use more than any other alternative.</p>	<p>The planning area would be designated as "Limited" to OHV use. A maximum 2,000 pound GVWR would apply yearlong. Selected lands would be managed consistent with the ADNR's Generally Allowable Uses on State Lands. In designated ACECs, RNAs, and SRMAs further limitations may be placed on OHV use. The current fee and unrestricted OHV use would be somewhat diminished compared to Alternative A. Impacts from mineral development would be the same as Alternative A.</p>
<p>Cumulative Effects: OHV use and travel in the planning area is somewhat restricted due to limits on State and BLM-managed lands, and land ownership patterns. There is limited public access to BLM-managed lands and there is little in this plan that will help alleviate this situation. While a small road system outside of Nome exists, it accesses largely private and State lands. Common to all alternatives, access to public lands could become more difficult as Native corporation entitlements are met and they exercise their private property rights. The BLM would maintain existing 17(b) easements and would extend those easements across Native-selected lands where trails currently exist to ensure reservation of easements when conveyance occurs. Future access is somewhat contingent on the resolution of State-recognized R.S. 2477 routes, particularly where they cross Native lands. Whether or not access routes to public land would be maintained in the long-term as a result of those determinations cannot be resolved in this planning effort.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON LANDS AND REALTY			
<p>Management of vegetation, fish, wildlife, special status species, cultural and paleontological resources may result in restrictions or additional mitigation, increasing the cost of projects. A permit is required for the use of vehicles exceeding 2,000 pounds GVWR. Historically, demand for these permits has been low. Lands proposed for disposal need to be inventoried for the presence of hazardous materials. The presence of contaminants may lead to modification or abandonment of a disposal action, or remediation in the form of cleanup and removal of the contaminants.</p>	<p>Impacts would be similar to Alternative A. In addition, requirements to meet VRM management classes could increase project cost. VRM classes are the least restrictive under this alternative. More lands would be available for mineral development, potentially resulting in a greater demand for land use authorizations such as ROW. Possible commercial harvest of forest resources may increase the need for land use authorizations. However, given the level of development likely to occur, these additional impacts would be minor. ROPs and Stips would restrict land uses in certain areas. Emphasis for land acquisition would be the Iditarod National Historic Trail (INHT).</p>	<p>Impacts would be similar to Alternative A. VRM management classes are the most restrictive under this alternative. OHV use is most restricted under this alternative thus more permits would be required for the use of larger vehicles. ROPs and Stips would restrict land uses in certain areas. Emphasis for land acquisition would be the INHT.</p>	<p>Impacts would be similar to Alternative A. Impacts from VRM would be less than Alternative C but more than Alternative D. Impacts from mineral development would be the same as Alternative B. ROPs and Stips would restrict land uses in certain areas. Emphasis for land acquisition would be the INHT.</p>
<p>Cumulative Effects: Effects from disposal, acquisition, and exchange proposals described for BLM-managed lands in any alternative are minor compared to conveyances to Native corporations and the State of Alaska. The recently signed Alaska Lands Transfer Acceleration Act (P.L. 108-452) will facilitate the conveyance process, with a target of completing conveyances by 2009. Once entitlements are met, land exchanges may be considered to consolidate land ownership patterns. The number of land use authorizations, particularly rights-of-way and permits, is a function of demand for these uses. Additional future development of adjacent Federal, State, and private lands would likely result in additional requests for and approval of land use authorizations for facilities such as roads, utilities, and communication sites.</p>			
Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON AREAS OF CRITICAL ENVIRONMENTAL CONCERN AND RESEARCH NATURAL AREAS			
<p>No ACECs or RNAs exist in the planning area.</p>	<p>No ACECs or RNAs are proposed.</p>	<p>Five ACECs would be managed to protect relevant and important values (Appendix B). Impacts to these values are discussed under the various resource management programs such as Fish and Wildlife Management.</p>	<p>Five ACECs and one RNA would be managed to protect relevant and important values (Appendix B). Impacts to these values are discussed under the various resource management programs such as Fish and Wildlife Management.</p>
<p>Cumulative Effects: Cumulative impacts could have a wide range of effects on the different resources that are intended to benefit from the various ACECs and RNAs proposed. These impacts largely stem from actions that are not guided by BLM management decisions. Values within certain ACECs could be diminished by cumulative impacts in the unlikely scenario in which numerous development projects occur within or adjacent to them.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>The Squirrel River Study Area will be managed to monitor and protect wild river values until fall of 2007, pursuant to BLM interim management policies, while congress considers the study recommendation finding the river area non-suitable for addition to the national wild and scenic rivers system.</p>	<p>EFFECTS ON WILD AND SCENIC RIVERS</p> <p>The Squirrel River Study Area will continue to be managed under interim management until released by Congress. No other river segments would be considered suitable.</p>	<p>The Squirrel River Study Area will continue to be managed under interim management until released by Congress. Eleven river segments would be considered suitable for designation as wild. Outstandingly remarkable values in these rivers would be protected.</p>	<p>Impacts would be the same as Alternative B.</p>
<p>Cumulative Effects: No cumulative impacts are anticipated under any alternative.</p>			
Alternative A	Alternative B	Alternative C	Alternative D
<p>The Iditarod National Historic Trail (INHT) would continue to be managed under existing cooperative agreements and comprehensive management plan. OHV use, particularly during the snow-free season could impact the trail itself. If damage to the trail is sufficient to cause concern, trail improvement work may be undertaken. Potential impacts to the INHT would be avoided or mitigated to the extent possible.</p>	<p>EFFECTS ON IDITAROD NATIONAL HISTORIC TRAIL</p> <p>In addition to continuation of current management, BLM would consider acquisition of parcels along the INHT. There would be beneficial impacts from consolidation of trail ownership. VRM management classes would be established, further protecting the viewshed along the trail.</p>	<p>Impacts would be the same as Alternative B.</p>	<p>Impacts would be the same as Alternative B.</p>
<p>Cumulative Effects: No cumulative impacts are anticipated under any alternative.</p>			
Alternative A	Alternative B	Alternative C	Alternative D
<p>EFFECTS ON PUBLIC SAFETY (ABANDONED MINE LANDS AND HAZARDOUS MATERIALS MANAGEMENT)</p> <p>Economic conditions can lead to the abandonment of mining activities, resulting in abandonment of potentially hazardous substances, solid wastes and petroleum products mine sites. These products and wastes result in potential environmental liabilities and physical hazards. Federal funds may be expended to clean up and remediate an abandoned site or reclamation claims being made against a bond if available. Any increase of human activity has the potential for increasing the likelihood of spills or unauthorized waste disposal activities. Additional future impacts to lands are associated with negotiation of alternative cleanup levels for existing hazardous materials management sites. Under this process, less stringent cleanup levels are authorized by the State. Often these may also include institutional controls such as a long-term monitoring program or land use restrictions based on contaminants that still may be present.</p>			
<p>Cumulative Effects: No cumulative impacts are anticipated under any alternative.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON SOCIAL AND ECONOMIC CONDITIONS			
<p>Income generated by BLM expenditures and reindeer grazing would have minimal effects on the regional economy.</p>	<p>In addition to BLM expenditures and livestock grazing, oil development will have economic effects, particularly in the North Slope Borough. Within the Borough up to 60 new jobs could result during the oil field development stage. Up to 600 jobs could accrue to the rest of Alaska and 200 to non-resident workers. Up to 50 new jobs may be created due to locatable mineral development. Although, the benefit on the local economy would likely be low, since non-area residents may hold a majority of these jobs. These increases in employment will have a low effect statewide, as the addition to the 300,600 jobs comprising the total State employment for November 2005 (ADLWD 2005b) is only about 2 tenths of 1%. Royalties and tax revenue from leases and operations may partially offset revenue decreases the North Slope Borough experiences as other oil fields age.</p>	<p>Impacts would be the same as Alternative A.</p>	<p>Impacts would be essentially the same as Alternative B.</p>
<p>Cumulative Effects: Under Alternatives B and D, oil development in northwest Alaska, outside of NPR-A would generate additional revenue to the Boroughs, the State, and the Federal government. The cumulative gains in direct employment would include additive jobs in petroleum exploration, development, and production, plus oil-spill cleanup activities. The direct employment would generate indirect and induced employment and associated personal income for all the workers. As much as 30% of the North Slope workforce in the classification of oil and gas workers commutes from outside Alaska. Workers commuting to residences outside the State would not generate economic effects of indirect and induced employment or expenditure of income in the State and would have a negligible effect on the economy of the rest of the U.S. Other developments in the planning area resulting from forestry, recreation, grazing, and mining are considered to have little cumulative economic effect under any alternative.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
<p>Activities restricting subsistence practices, access, and resources would affect a large percentage of the local population. Arguably, creation of jobs and income provide positive effects on the environmental justice population. Under all alternatives the effects of recreation, forestry, and grazing would be similar.</p>	<p>Oil and gas development would likely result in long term temporary or permanent changes to the land and added facilities such as roads or activity sites. If these cause a relocation of subsistence resources such as caribou, local minority and low income populations would be pressed to travel to follow the resource. Mineral development would occur on a small scale and be very unlikely to cause any change in subsistence activity or effect environmental justice populations.</p>	<p>Impacts would be the same as Alternative A.</p>	<p>Impacts would be the same as Alternative B.</p>
<p style="text-align: center;">EFFECTS ON ENVIRONMENTAL JUSTICE</p> <p>Cumulative Effects: Alaska Iñupiat Natives, a recognized minority, are the predominant residents of northwest Alaska, the area potentially most affected by activities under Alternative B and D and other activities associated with cumulative projects on the North Slope and northwest Alaska. Environmental Justice effects on Alaska Natives could occur because of their reliance on subsistence foods, and potential effects that could impact subsistence resources and harvest practices. Potential cumulative effects from noise, disturbance, and oil spills on subsistence resources and harvest practices, and sociocultural patterns would focus on Iñupiat communities throughout the planning area. Cumulative socio-cultural impacts have occurred on the North Slope and the Iñupiat culture has undergone a noticeable change. The influx of money from wage employment has added benefits and raised the standard of living, but has also given rise to an array of social pathologies, including increased alcoholism. Expanded oil and gas development in North Slope or northwest Alaska, would expand the extent of disturbance effects on subsistence species and harvest patterns. While each individual project would likely be a small incremental increase, the cumulative effect would eventually become more and more repressive to the subsistence lifestyle. In addition to potentially diverting, deflecting, or disturbing subsistence species, oil and gas development could affect subsistence harvest by causing subsistence hunters to avoid certain areas. The North Slope still has vast undisturbed areas, yet the general subsistence hunting environment continues to change in response to increased development. Transportation facilities and activities would also contribute to cumulative effects to subsistence resources and, consequently, to the Native population. A new permanent road connection from Nuiqsut and the National Petroleum Reserve-Alaska would also facilitate petroleum development, and could provide an additional public travel route to northwest Alaska. Contamination and oil spills could affect the food chain in the area of development and subsistence harvest. If this were experienced, the effects would fall largely on indigenous people.</p>			

Alternative A	Alternative B	Alternative C	Alternative D
EFFECTS ON SUBSISTENCE			
<p>Impacts from authorized activities such as mining, leases, and permits, and OHV use may include temporary displacement of wildlife from harvest areas, access constraints, or increased competition for resources. These impacts would be minimal. Conflicts due to increasing recreational use levels would not be addressed. Wildlife used for subsistence purposes may be temporarily stressed or displaced. Direct impacts to subsistence use result from increased competition for resources by sport hunters and guides in heavily-used areas such as the Squirrel River, as well as other units in the planning area. Subsistence hunters may be reluctant to hunt in areas used either for development purposes or for intensive recreational activities. Subsistence users tend to shift away from their traditional harvest areas when too much activity from outside sources occurs.</p>	<p>Impacts to subsistence would occur on a larger area than under Alternative A as more lands would be open to mineral entry and leasing, OHV designations would be slightly less restrictive, and more land would be open to livestock grazing. Oil development would occur under this alternative. Activities associated with exploration may cause temporary displacement of wildlife from traditional harvest areas or limitations on access to traditional use areas. Potential effects of development activities include direct and indirect habitat loss, and changes in local distribution of subsistence species, potentially making them more difficult and expensive to locate and harvest. These effects would continue until animals were habituated to development and associated structures. Access by subsistence users could be hindered by pipelines or other infrastructure. Subsistence users may be reluctant to harvest animals that have become habituated to development, due to health and other concerns. Limits would be set on commercial recreational use in the Squirrel River, thus lowering the potential impacts to subsistence users.</p>	<p>Impacts to subsistence users would be similar to Alternative A for most authorized activities. Potential for impacts from grazing would be reduced as the area open to grazing would be the most limited under Alternative C. Limits would be set on recreational use in the Squirrel River and other areas, reducing impacts from recreation compared to Alternative A. OHV designations would be the most restrictive under this alternative, with OHVs limited to designated trails during the snow-free months. This would provide beneficial impacts to subsistence use, in that wildlife would not be displaced and wildlife habitat would not be degraded. OHV use off designated trails would be allowed for subsistence harvest by qualified subsistence users. Management of proposed ACECs would provide additional protection to wildlife habitats within these areas, reducing the potential for impacts to subsistence resources.</p>	<p>Impacts from grazing would be similar to Alternative A. Impacts from mineral development would be the same as Alternative B. Impacts in the Squirrel River would initially be similar to those discussed under Alternative A. However, limits on recreational use levels in the Squirrel River would be established through a RAMP to be developed within five years of plan approval, which may result in a decrease in impacts to subsistence. Impacts to subsistence from travel management and OHV management would be same as Alternative B; however, there would be less of an impact to subsistence in designated ACECs, RNAs, and SRMAs where OHV use may be further limited. Use of designated trails would be allowed for subsistence harvest by qualified subsistence users.</p>
<p>Cumulative Effects: Mineral development, privatization of land, and development of regional infrastructure would have cumulative impacts on subsistence. These activities have the potential to negatively affect wildlife resources, and thus subsistence. Development of regional infrastructure such as roads, may improve access for non-local hunters, increasing competition for subsistence resources. Improved access may concentrate hunting efforts, depleting subsistence resources and potentially altering harvest.</p>			

Chapter III: Affected Environment

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Chapter III: Affected Environment

A. How to Read This Chapter

This chapter provides background information on the various resources, resource uses, and programs within the Kobuk-Seward Peninsula Planning Area, and describes their condition and trend. The chapter is organized into four sections: Resources, Resource Uses, Special Designations, and Social and Economic Conditions. Each of these four sections is split further into resources or program areas. Each section includes a discussion of the presence, condition, and trend of the topic area.

B. Resources

1. *Air Quality*

Air quality throughout the planning area is pristine or nearly so, except for periods in the summer when forest fires may increase the airborne particulates or high winds may blow exposed sand and gravel from large river bars or dust associated with reindeer herding activities. Smoke from naturally-occurring forest fires may exceed U.S. Environmental Protection Agency (EPA) limits for airborne particulates; however, little can be done to affect these impacts as smoke can originate from as far away as Canada or Siberia. The Alaska Department of Environmental Conservation (ADEC) has statutory authority for air quality in Alaska. Written authority is required from ADEC for any controlled burn of 40 or more acres (see the Fire Management and Ecology section beginning on page 3-105 for more information on fire management).

Rural villages often use diesel power generation stations and oil or wood for heating houses, uses that may cause local increases in particulates during periods of still air. Air quality within the planning area meets the National Ambient Air Quality Standards and Alaska air quality laws and regulations. Concentrations of regulated air pollutants are far less than the maximum allowed levels. The EPA classifies the areas that comprise the planning area as attainment areas because they meet the standards of the Clean Air Act.

The air resources of the planning area are constantly changing as winds and climatic systems move air masses across Alaska. Three internal or geographic factors that determine climate in Alaska are latitude, continentality, and elevation. To understand how these factors affect air quality, a brief discussion, taken largely from the Alaska Climate Research Center (2004), follows.

The amount of solar radiation varies with latitude: the higher the latitude, the greater the range of seasonal variability. Areas at or north of the Arctic Circle (66°33') experience long summer days when the sun does not set, but remain in darkness for much of the winter. These conditions create periods of relatively warm temperatures during the constant summer sunlight,

followed by a long, very cold winter. In contrast, spring and fall are often very short periods of rapidly changing weather. These areas are said to have an Arctic climate.

Continentality refers to the influence of the ocean waters and sea ice on climate. Those areas closest to the coast (e.g., much of the Seward Peninsula) are considered to have a maritime climate since proximity to the ocean limits diurnal and seasonal temperature variability, creates high humidity, and results in relatively high precipitation and wind. In contrast, areas of continental climate further inland (e.g., the upper Kobuk Valley) are not affected by the moderating influence of the ocean waters. They exhibit much larger daily and annual temperature variations, lower humidity, and relatively low precipitation and wind. Sea ice can alter this pattern by limiting the moderating effects of open water during the winter, creating more extreme continental conditions once the ocean has frozen over. These areas may be referred to as transitional, with a maritime climate in the summer and early fall, and a continental or Arctic climate in winter and early spring.

The normal effect of elevation is a decrease in ambient temperature with increasing elevation. While this is true in the summer, areas of low elevation, such as large river valleys, often exhibit extremely low temperatures during the winter. The low temperature inversion occurs during cold, clear, calm weather when radiative cooling in the atmosphere traps pockets of cold air near the ground. Hills that are only a few hundred feet high may be 20-30° F warmer than the valley bottom. This can occur in the planning area wherever topography and wind (or lack thereof) are favorable to forming inversions. While seldom a problem in the coastal, urban areas of Nome or Kotzebue, these inversions in the Interior can be long lasting (up to several weeks) and can trap smoke and other pollutants, often resulting in exceedances in air quality standards in major urbanized basins such as Fairbanks.

While these internal factors generally produce more or less predictable long-term weather patterns, there are a number of other factors that result in significant climatic variability, including the position of the polar jet stream, winds over the north polar region, and water temperatures in the Pacific Ocean. The following discussion is taken largely from Papineau's *Understanding Alaska's Climate Variation* (2004).

The polar jet is a mass of strong upper-level winds that circulate from west to east across the North Pacific. The position of these winds, often simply called the jet stream, is important because air temperatures are often 10-20° F cooler to the north of the polar jet than air to the south. While the path of the polar jet often follows a seasonal pattern (north of the Alaska Peninsula in summer and south towards the Gulf of Alaska in winter), the jet can shift large distances in a few days, altering storm tracks and producing major weather changes. At other times, the jet may remain stationary for several weeks or more, blocking weather changes. During the winter, this can produce extremely cold, calm weather in Interior Alaska. In 2004, this weather pattern resulted in a warm dry summer and major wildland fires, with resulting smoke blanketing central Alaska from the Canadian border to the Seward Peninsula.

The winds over the North Polar Region at an elevation of 20-30 miles blow in a counter-clockwise direction. Variation in the strength and position of these winds is termed the Arctic Oscillation. These variations can alter storm track winds in the lower atmosphere, changing the position and strength of local or regional weather patterns. The greatest effects have been noted in the western Arctic.

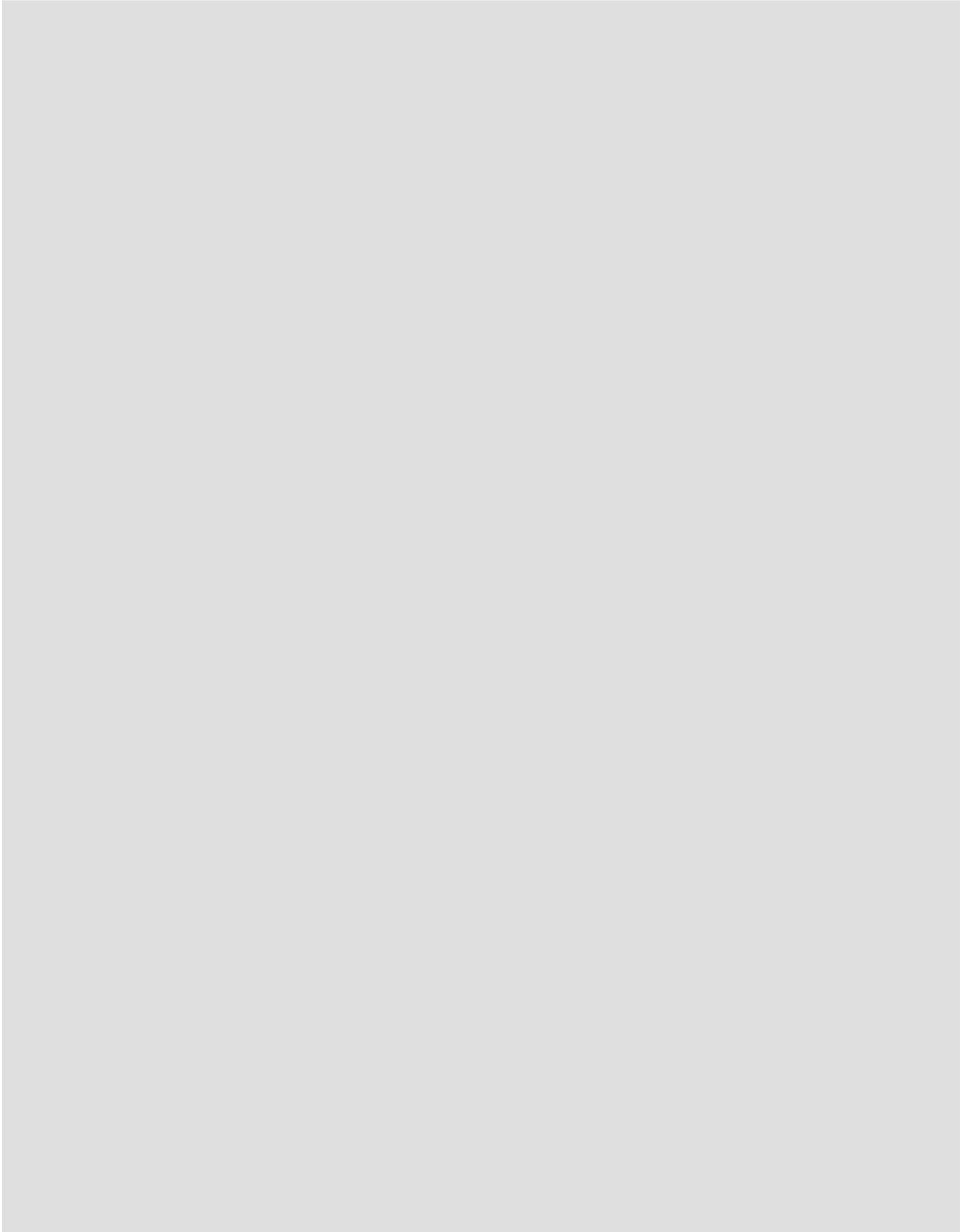
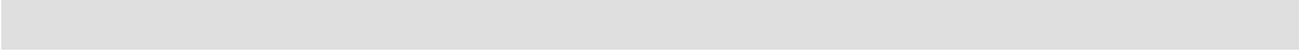
Probably the most publicized external factors in climate variation are long-term fluctuations in water temperature in the Pacific Ocean. The Pacific Decadal Oscillation (PDO) is a roughly 20-

year fluctuation in sea-surface temperatures in the North Pacific Ocean. A similar variation in the central and equatorial oceans is termed El Niño/La Niña. A period of warmer than normal water temperature is a positive PDO or El Niño, while a period of cooler than normal water temperature is a negative PDO or La Niña. While a positive PDO or El Niño is generally characterized by warmer than normal temperatures and higher precipitation in Alaska, the specific effects of El Niño depends on the phase of the PDO. Generally, a negative PDO or La Niña produces cooler and drier than normal conditions. Rarely, a La Niña will occur during a positive PDO, where the effects can be highly variable in different regions of the state.

Another factor that affects air quality is airborne particulates from outside Alaska. During the winter and spring, winds transport pollutants from industrial Europe and Asia across the Arctic Ocean to Arctic Alaska (Rahn et al. 1982). These pollutants cause a phenomenon known as Arctic haze. The haze is mostly comprised of sulfates mixed with carbon, and of other by-products from coal burning and metal smelting (ADEC 2002). Despite this seasonal long-distance transport of pollutants into the Arctic, the planning area is still considered an attainment area because it meets the standards of the Clean Air Act.

A final factor in climate variation is climate warming. The mean annual temperature in Alaska has increased 2.7° F for the period of 1971 to 2000; the temperature increase was determined from the trend of the best-fit linear regression line through the 1971 to 2000 average annual temperatures for all representative Alaska stations (Alaska Climate Research Center 2006). It is uncertain whether this increase is a result of phase shift in one or more of the external weather factors, such as the PDO and El Niño/La Niña cycles, or whether it is due to an increase in greenhouse gases, combustion products of fossil fuels that trap a greater amount of solar radiation (Papineau 2004).

In summary, the air quality in the planning area is pristine or nearly so, largely due to the lack of large cities or industrial development. While certain internal geographic factors determine the three climatic regions within the planning area, various external weather factors can significantly alter these expected patterns. The observed increase in temperatures during the last 30 years may be a result of phase shift in one or more of the external weather factors or to an increase in greenhouse gases that trap a greater amount of solar radiation.



[State of the Arctic Report] indicate that during 2000 to 2005 the Arctic system showed signs of continued warming. However, there are a few indications that certain elements may be recovering and returning to recent climatological norms (for example, the central Arctic Ocean and some wind patterns). These mixed tendencies further illustrate the sensitivity and complexity of the Arctic physical system.”

The preceding discussion highlights the uncertainty of how global climate change will affect the planning area. As noted by Hinzman et al. (2005) the effects of climate change are complex, do not express themselves equally in time or space, and thresholds, feedback and resilience make predictions very tenuous. Global climate change will affect surface resources in the planning area. The level of effect occurring during the life of the plan (15-20 years) is unknown and will vary depending upon the resource of concern.

Anticipated effects of climate change specific to the planning area are discussed in Chapter IV, Cumulative Effects and under specific resources that may be affected.

3. Geology

a) Physiographic Regions

The planning area includes terrain ranging from coastal lowlands to mountainous regions with greater than 3,000 feet of local relief (Wahrhaftig 1965). Continuous permafrost underlies the majority of the planning area to an estimated depth of 1,000 feet (Map 3-2). Thermokarst topography and other cryogenic processes present within the planning area include tussock tundra, thermokarst lakes, pingos, and patterned (polygonal) ground. An active layer exhibiting seasonal thaw up to 4 feet thick is present at the surface. Wahrhaftig’s description of Alaska’s physiographic provinces remains the authoritative reference, portions of which are selected below.

(1) Arctic Coastal Plain

The Arctic Coastal Plain Province extends south from the Arctic Ocean, rising gradually to a maximum elevation of 600 feet. The smooth plain is underlain by permafrost and permafrost landforms are ubiquitous. The area is poorly drained, with numerous lakes and marshy areas. A scarp 50-200 feet tall locally separates the Arctic Coastal Plain Province from the Arctic Foothills Province to the south. The Arctic Coastal Plain is underlain by Quaternary to Tertiary sedimentary units.

(2) Arctic Foothills

The Arctic Foothills Province occupies the area between the Arctic Coastal Plain Province and the area north and west of the Western Brooks Range (as part of the Arctic Mountains Province). Rolling plateaus and low linear mountains rise from 600 feet in the north to over 3,000 feet in the south. Upland tundra plateaus are typically dissected by north-flowing braided streams. Although not covered by glaciers, the area is entirely underlain by permafrost and exhibits frozen ground morphologies. The Arctic Foothills Province bedrock consists of Quaternary to Devonian sedimentary units and mafic intrusives, with structural over-thrusting to the north.

(3) Arctic Mountains (Western Brooks Range)

The Baird and De Long mountains and the intervening lowland occupied by the Noatak River comprise the Arctic Mountains Province in the planning area. Sharp, glaciated peaks in mountainous areas rise abruptly to 2,500-4,500 feet in altitude and are cored by Paleozoic metasediments (Baird Mountains) and Devonian to Cretaceous sediments (De Long Mountains). Massive diabase dikes intrude the De Long Mountains and are prominent cliff-forming features. Structural trends are predominantly east-west to northeast-southwest. The Noatak River Valley and adjacent rolling uplands host numerous morainal and thaw lakes. Primary drainage for the province is via the south-flowing Noatak River; the south slopes of the Baird Mountains drain into the Kobuk River.

A small area near Ambler and Kobuk in the eastern portion of the planning area is covered by intensely glaciated ridges along the abrupt southern front of the Brooks Range. Ridges in the Ambler area are composed of Mesozoic metamorphosed basalts (greenstone), while intervening valleys are underlain by folded Cretaceous sediments.

(4) Bering Shelf

The Bering Shelf Province occupies a limited (less than 250,000 acres) portion of the planning area adjacent to the coastal village of Shaktoolik on Norton Sound. The Bering Shelf Province is extensively covered by quaternary sand and silt. Local bedrock exposures range from Cretaceous and Tertiary volcanic units (chiefly basalts) to older Paleozoic crystalline rocks. The Bering Shelf Province, along with the Seward Peninsula and Western Alaska provinces, was part of the ice-free Beringia Corridor that connected Alaska to northeast Asia during the last glaciation.

(5) Seward Peninsula

The entire Seward Peninsula Province is contained in the Seward Peninsula area, and as such represents the largest portion of the planning area. The Seward Peninsula Province is approximately 200 miles wide in an east-west direction, 140 miles long in a north-south direction, and is bordered on the west by the Bering Strait Province and to the east by the Western Alaska Province. The Seward Peninsula Province consists of an extensive upland area with interior basins and coastal lowlands. The uplands portion ranges from mainly broad-sloping hills up to 2,000 feet in altitude; isolated groups of glaciated peaks below 4,700 feet in elevation are concentrated in the south. Interior basins are drained through narrow canyons which cut the uplands, transitioning into meandering streams which cross the lowlands to the ocean. Paleozoic bedrock is predominant on the Seward Peninsula, consisting of metasediments and metamorphosed volcanic rocks, all cut by later granitic intrusives. Quaternary lava flows occupy the north-central portion of the province.

(6) Western Alaska

The Western Alaska Province covers the southeast-quarter of the planning area. The province is dominated by the Kobuk-Selawik Lowlands and Nulato Hills, and numerous smaller lowland and hill areas. Most of the area drains into Kotzebue Sound via the Kobuk and Selawik rivers, although streams draining the western slopes of the Nulato Hills discharge to Norton Sound. Thaw lakes are common in lowland areas. Local relief in the Nulato Hills area is 500-1,500 feet, with peaks that reach to 2,500 feet in elevation. Most of these low, rolling hills have been

spared from recent glaciations and were part of the ice-free Beringia Corridor linking North America and Asia. The Nulato Hills are cored by tightly folded Cretaceous sediments and minor volcanics. The Selawik Hills, which rise abruptly from the Kobuk-Selawik Lowlands to as much as 3,300 feet in elevation, have gently sloping to flat summits. Geology in the Selawik Hills is typified by Paleozoic and Mesozoic metavolcanic and granitic rocks.

4. Soil Resources

The soil information for the planning area and Map 3-1 was largely derived from the U.S. Department of Agriculture (USDA) Soil Conservation Service's *Exploratory Soil Survey of Alaska* (Rieger et al. 1979). That exploratory soil survey resulted from the need for general soil information to be used for land use planning. Exploratory survey and field mapping was initiated in 1967 and completed in 1973. Field mapping was done at a scale of 1:500,000, while most topographic maps are available at a scale of 1:250,000 or better. Largely derived from existing soil maps and reports, supplemental field observations were made from the air to identify and map distinctive landscape patterns. Soils within each landscape segment were described and classified; relationships between the soils, the native vegetation, and landforms were noted; and the proportion of the area occupied by each major type of soil was estimated. It is important to recognize that this exploratory survey did not provide the level of information required for intensive use of a particular area, as would be available in a more detailed soil survey.

A dominant factor in defining soils is the presence or absence of permafrost. Permafrost is defined as soil, sand, gravel, or bedrock that has remained below 32° F for two or more years (Muller 1945). Almost continuous throughout the planning area, permafrost can exist as massive ice wedges and lenses in poorly drained soils or as a relatively dry matrix in well-drained gravel or bedrock. During the short Arctic summer, these soils thaw, forming a shallow unfrozen zone termed the active layer. Permafrost forms a confining barrier that prevents infiltration of surface water and keeps the active layer of soils saturated. Permafrost also provides the structural integrity to hillsides and stream channel banks. Map 3-2 shows the distribution of permafrost in the planning area.

While permafrost is an integral component of the soils of the planning area, any surface disturbance, including wildland fires, that removes the overlying vegetation can initiate melting of ice-rich permafrost and result in surface subsidence (termed thermokarsting), drastically altering the surface topography, hydrological regime, and temperature of the underlying soils. As permafrost begins to thaw near the surface, it warms to greater depths, forming thaw ponds, gullies, and beaded streams. The hydrologic and thermal regime of the soil is the primary factor controlling the vegetation. These changes to the thermal regime of the soil initiate a long process of recovery with perhaps 20-50 years of cumulative impacts (Hinzman et al. 2000).

As noted on page 3-5 in the Air Quality section, the mean annual temperature in Alaska has increased about 2.7° F for the period of 1971 to 2000 (Alaska Climate Research Center 2006). Romanovsky et al. (2004) have shown that the permafrost temperatures and active-layer thickness along a transect of sites in Arctic and northwestern Alaska have increased. The largest changes occurred near the coast, as compared to sites further inland. This suggests that either coastal areas are more sensitive to change or that the forces driving the process of warming are greater in coastal areas. Osterkamp and Romanovsky (1999) also found that discontinuous permafrost is warming and thawing and extensive areas of thermokarsts terrain are now developing as a result of climatic change. Any long-term climate warming may accentuate these processes.

Major Land Resource Areas (MLRAs) are geographically-associated land resource units classified by the dominant physical characteristics: land use, elevation and topography, climate, water, soils, and vegetation. The USDA Natural Resources Conservation Service (NRCS) recently revised the MLRA map of Alaska in 2003 (NRCS 2003). Ten MLRAs have been identified in the planning area: Yukon-Kuskokwim Highlands; Upper Kobuk and Koyukuk Hills

and Valleys; Interior Brooks Range Mountains; Nulato Hills-Southern Seward Peninsula Highlands; Seward Peninsula Highlands; Northern Seward Peninsula-Selawik Lowlands; Western Brooks Range Mountains, Foothills, and Valleys; Northern Brooks Range Mountains; Arctic Foothills; and Arctic Coastal Plain. Each MLRA has a unique pattern of topography, climate, vegetation, and soils. A brief description of each of these areas follows.

The **Yukon-Kuskokwim Highlands MLRA** is present in only a small, eastern portion of the planning area. The area includes hills and low mountains between the central Yukon River and Bristol Bay. The deep, narrow valleys separate the ridges to the north, while more rolling hills interlaced with streams, sloughs, lakes, and marshes occupy the southern area. The fine-grained alluvial sediments, rich in organic materials, and coarse alpine soils are generally shallow over ice-rich permafrost. The well-drained south-facing hill sides and river terraces may be permafrost free.

The **Upper Kobuk and Koyukuk Hills and Valleys MLRA** occupies most of the upper Kobuk Valley and surrounding uplands. This area includes mostly rounded to steep hills and narrow valleys. Soils are derived from silty, colluvial sediment and loess blown from the floodplains of the larger rivers. Permafrost is almost continuous and shallow, and is more pervasive on lowlands and north-facing slopes than on well-drained southern exposures.

The **Interior Brooks Range Mountains MLRA** occupies a small, northeastern portion of the planning area. Most of the soils consist of silty, colluvial, and residual materials weathered from fine-grained sedimentary rocks. A few soils were formed from coarse-gravel glacial drift. While the soils on south-facing slopes and gravelly moraines are often well-drained, ice-rich permafrost underlies saturated soils on valley bottoms, low toe slopes, and north-facing hillsides.

The **Nulato Hills-Southern Seward Peninsula Highlands MLRA** occupies the broad valleys and rolling plateaus of the southern Seward Peninsula, eastern Norton Bay, and Nulato Hills. Large marshy areas, such as McCarthy's Marsh and the Koyuk River basin, are interspersed between rugged mountainous uplands. These upland soils are formed in thick colluvial and glacial deposits, gravelly and stony residual materials, and partially weathered bedrock. Most upland soils are shallow over permafrost with solifluction lobes, polygonal ground, and other frost-scarred features common. The finer-grained valley sediments are rich in organic materials and are generally shallow over ice-rich permafrost.

The **Seward Peninsula Highlands MLRA** occupies most of the central and eastern Seward Peninsula and Selawik Hills. Wide river valleys and floodplains are separated by low, rounded to rugged hills. Lakes, ponds, and marshes are common. The finer-grained valley sediments are rich in organic materials while the upland soils are formed from coarser colluvium and weathered bedrock. Most soils are shallow over permafrost.

The **Northern Seward Peninsula-Selawik Lowlands MLRA** encompasses the Baldwin Peninsula, Kobuk River Delta, Selawik Lowlands, and the northwestern Seward Peninsula. These nearly-level plains are covered with numerous shallow lakes and meandering rivers and the elevation seldom exceeds 100 feet. Most of the soils are fine-grained alluvial sediments over shallow permafrost.

The **Western Brooks Range Mountains, Foothills, and Valleys MLRA** occupies much of the Baird and De Long mountains in the planning area. Most of the soils consist of silty, colluvial, and residual materials weathered from fine-grained sedimentary rocks. A few soils were formed

from coarse-gravel glacial drift. While the soils on south-facing slopes and gravelly moraines are often well-drained, ice-rich permafrost underlies saturated soils on valley bottoms, low toe slopes, and north-facing hillsides.

The **Northern Brooks Range Mountains MLRA** occupies a narrow strip that comprises the highest portion of the Brooks Range in the planning area. Soils are exceedingly thin or absent. Soils are derived from wind blown silt, coarse colluvial and weathered bedrock, and glacial drift. Virtually the entire area is underlain by permafrost.

The **Arctic Foothills MLRA** occupies most of the northwestern part of the planning area. Broad sloping valleys separated by steep ridges, hills, and knolls dominate the landscape. Elevations range from near sea level to about 3,000 feet on hills and ridges near the Brooks Range. Permafrost underlies all areas. The dominant soils in valleys and slopes were formed from loamy colluvial sediment. Most of the soils on hills and ridges consist of very gravelly material weathered from sedimentary rock. A few soils near the Brooks Range were formed from coarse-gravel glacial drift.

The **Arctic Coastal Plain MLRA** is the most northern part of the planning area. The landscape is dominated by nearly level, low tundra, dotted by shallow thaw lakes. Very poorly-drained fibrous peat soils (commonly under a cover of sedges) occupy broad depressions, shallow drainage ways, and lake borders. Permafrost underlies all areas creating patterned features such as polygons, hummocks, frost boils, and pingos.

INSERT 11x17 MAP
3_1_soil_mlra

INSERT 11x17 MAP
3_2_soil_permafrost

5. Water Resources

Water resources of the planning area consist largely of surface water streams, lakes, and ponds, while groundwater and springs are generally limited. Climate and permafrost are the dominant factors limiting water availability. Several communities within the planning area depend on rivers, lakes, or springs for municipal water sources. These are shown on Map 3-4.

The region's climate reflects a combination of continental and maritime factors, as described in the Air Quality section on page 3-5. Because winters are long, most streams and lakes are frozen for much of the year. Summers, while short and relatively cool near the coast, are often longer and warmer inland. Generally, the planning area is snow-covered from October to May. In coastal areas, prevailing winds blow cold air off the largely frozen Bering and Chukchi seas, often creating blizzard conditions that drift and compact the snow. A little less than half of the total annual precipitation occurs as snow during the winter months (NRCS 2004). Late winter snowpack in the planning area is greatest in the foothills south of the Brooks Range and decreases northward to the coast (Sturm 2001). Snowmelt is a dominant factor in Arctic hydrology because it contributes the majority of the annual runoff for lakes and streams. While rainfall is usually light during the short summers, heavier rainstorms can occur in July and August, especially in the southern and western foothills of the Brooks Range, Nulato Hills, and Seward Peninsula. The average annual precipitation in the planning area is shown in Map 3-3.

The lack of significant groundwater development in the planning area is due largely to the presence of permafrost (Dorava 1995, Dorava and Brekken 1995, Miller et al. 1999). Permafrost forms a confining barrier that prevents infiltration of surface water, helps maintain a saturated layer of surface soils, and generally restricts groundwater sources to shallow, unfrozen material beneath deep lakes and rivers or saline waters from very deep wells. Melting of ice-rich permafrost can cause surface subsidence, termed thermokarst, resulting in thaw lakes, ponds, or beaded stream channels. For more information on permafrost, see the permafrost discussion beginning on page 3-10 in the Soil Resources section.

While groundwater is not extensive in the planning area, lakes and rivers deeper than about 6 feet remain unfrozen at depth most winters, creating a layer of unfrozen sediments (taliks) beneath (Sloan 1987). When the sediments consist of porous materials, such as sand or gravel, an aquifer suitable for pumping groundwater may exist. Nelson and Munter (1990) describe taliks beneath deep river pools of Arctic rivers as a series of discrete units separated by permafrost barriers. The barriers result from the riverbed freezing beneath shallow riffles. This indicates that the supply of groundwater is directly related to the size of the pool in the river.

Landsat-imagery analysis has located numerous groundwater springs in the planning area by identifying the large overflow icings (aufeis) created downstream from the spring during the winter. Some of these springs were examined by Childers et al. (1979) and were found to have good water quality comparable to the surface waters of the area. Springs are important as they are the major source of flowing water during the long winter in Arctic Alaska. These springs support an abundance of aquatic organisms, often well out of proportion to the relatively small size of the spring (Childers et al. 1979). Nome derives most of its drinking water from springs north of town near the base of the Anvil Mountains (Dorava 1995) (Map 3-4).

While hydrologic data for the planning area are sparse (Brabets 1996), all streams share somewhat unique streamflow characteristics. Flow generally is limited or nonexistent most of the winter. Streamflow begins in late May or early June as a rapid flood event termed break-up, which, combined with ice and snow damming, can inundate extremely large areas in a matter of days. More than half of the annual discharge for a stream can occur during a period of several days to a few weeks (Sloan 1987). Most streams continue to flow throughout the summer but at relatively low discharges. Runoff is confined to the upper organic layer of soil, as the mineral soils are saturated and frozen below a shallow, unfrozen zone termed the active layer (for more information on permafrost and the active layer, see the permafrost discussion beginning on page 3-10 in the Soil Resources section). Rainstorms sufficient to cause flooding are generally limited to rivers that originate in the foothills south of the Brooks Range, Nulato Hills, and Seward Peninsula.

Physiographic boundaries can be used to divide streams in the planning area into three types: Arctic, coastal, and interior. The presence of sea ice during the winter and spring, however, can alter the boundaries between the continental and maritime climatic zones.

a) Arctic Streams

Arctic streams are often grouped by their physiography and the location of their headwaters into three categories: coastal, foothills, or mountains (Sloan 1987). Most of the Arctic coastal plain and lower foothills can best be characterized as a mosaic of tundra wetlands. Because permafrost prevents water from entering the ground and low relief limits runoff, the coastal plain is covered with lakes, ponds, and generally slow-moving streams. Many of the smaller drainages are choked with aquatic vegetation. Shallow-water tracks may result from snowmelt flooding the permafrost terrain, often conveying significant discharge where surface relief is limited (Hinzman et al. 1993). The peak flow is the highest per unit of area is always due to snowmelt runoff (Sloan 1987).

The Arctic foothills that comprise the northern portion of the planning area are characterized by a series of low, tundra-covered hills and flat-topped ridges that seldom exceed 1,000 feet in elevation. Arctic streams that originate in these foothills are somewhat steeper and consequently have more gravel-bar and cut-bank features than those of the coastal plain. These streams tend to break up earlier, freeze up later, and have a slightly higher runoff. Several of the larger rivers in the planning area originate in the Brooks Range and flow north towards the Arctic Ocean. These rivers exhibit the steepest gradient, and therefore the greatest range of geomorphic features: steep cut-bank cliffs, deep pools, boulder riffles, and braided channels flowing across extensive gravel flats. Data for many of these Arctic streams are summarized in Childers et al. (1979).

b) Coastal Streams

True coastal streams (those that are largely in a maritime climate, as described on page 3-4 in the Air Quality section), are limited to the southern Seward Peninsula. Coastal streams are more strongly affected by rainfall than by snow and ice, such that most peak flows are generally due to rainfall in late summer or early fall. These streams are generally smaller than interior streams, but they have proportionally larger winter flows than streams that originate in the interior. Coastal streams provide important aquatic habitat for anadromous and resident fish populations (see the Fish section beginning on page 3-49 for information on the species present

in the planning area). Data for these streams can be found in Dorava (1995), Dorava and Brekken (1995), and numerous BLM fisheries inventories as described in the Fish section beginning on page 3-49. Many of the coastal streams north of the Seward Peninsula are considered transitional with the Arctic streams as the sea ice creates more extreme weather during the winter and spring, limiting winter flows and increasing the magnitude of snowmelt runoff.

c) Interior Streams

Interior streams in the planning area originate in the southern and western foothills of the Brooks Range, the Nulato Hills, and the other low hills south of the Noatak River and Kobuk River valleys. These streams have limited to moderate winter flow, with large increases at break-up in the spring. The peak flow for most years is due to snowmelt runoff. Streamflow is moderate for most of the summer, with an occasional rise due to rain storms. While the larger rivers such as the Kobuk and Noatak support anadromous and resident fish populations, many smaller interior streams lack sufficient winter flow to support over-wintering fish populations. Water quality of interior streams is generally very good (Brabets 2001, Childers and Kernodle 1981, 1983).

d) Lakes and Ponds

Lakes and ponds are the most common feature on the Arctic coastal plain, in the lower valleys of the Kobuk, Noatak, Selawik, Kuzitrin, Fish, and Buckland rivers, and in McCarthy's Marsh and the Pah River Flats. Unlike streams, which only hold large quantities of water during break-up, lakes store water year-round and are the most readily available water source in the planning area (Sloan 1987, Dorava and Brekken 1995). Most lakes and ponds originate from the thawing of ice-rich sediments (Sellman et al. 1975). This results in a continuum known as the thaw lake cycle, wherein lakes form, expand, and then drain in response to perturbations of the permafrost terrain. On the North Slope, these lakes and ponds often are elongated with a strong north-south orientation. This results from preferential erosion due to wind generated waves, leeward end currents, and associated higher water temperatures that melt the ice at the narrower ends of the lakes (Carson and Hussey 1960). Since waterbodies with depths less than about 6 feet generally freeze to the bottom most winters, lake depth is the primary factor in winter water supply. Most deep lakes are less than 20 feet deep as the depth of thaw lakes appears to be controlled by the ice volume and porosity in the original sediments, which decrease with increasing depth (Sellman et al. 1975). Deep lakes, because they do not freeze to the bottom, provide an overwintering area for fish and aquatic invertebrates and are the most readily available winter water supply. Kotzebue derives most of its drinking water from lakes southeast of town (Dorava and Brekken 1995). Limited water quality data for McCarthy's Marsh and the Kuzitrin River wetlands can be found in Brown and Jandt (1992). In the ten ponds sampled in 1990 and 1991, pH ranged from slightly acidic to slightly basic and hardness was relatively low, similar to the values shown for the unnamed lakes in Table 3-1.

A map of water resources of the planning area (Map 3-5) shows major rivers, watershed boundaries, and stream survey (gauging) sites. The data for BLM watershed inventories from 2004 and 2005 is listed in Table 3-1, while the U.S. Geological Survey (USGS) and University of Alaska Fairbanks (UAF) data is available on the Web at <http://waterdata.usgs.gov/ak/nwis/current/?type=flow>.

Table 3-1. Water Resources Data for Selected Rivers in the Planning Area (2004-05)

Site #	Site Name	Latitude	Longitude	Date surveyed	Discharge cfs	Water temp °C	pH	Spec. Cond. ms/cm	Turbidity NTU	Hardness ppm
1	Squirrel River at Omar River	67.1237	-160.9885	8/26/2004	e 2000	9.5	7.6	292	0.8	172
2	Timber Creek	67.2660	-160.7302	8/26/2004	148	9.0	7.4	297	0.5	160
3	Middle Fork Tributary Squirrel River	67.3433	-161.3009	8/26/2004	225	12.0	7.7	250	0.1	148
4	West Fork Tributary Squirrel River	67.2820	-161.7296	8/26/2004	316	13.0	7.6	300	0.2	184
5	Kukpowruk River	68.5512	-163.3322	8/28/2004	147	6.5	7.7	390	0.4	220
6	Ipewik River	68.5868	-164.1376	8/28/2004	138	9.0	7.9	457	0.2	248
7	NE Tributary Kukpak River	68.3659	-164.3325	8/28/2004	29	12.0	7.7	450	132	224
8	West Fork Tributary Wulik River	68.0676	-163.5209	8/28/2004	213	10.0	7.8	305	0.1	162
9	Ikalukrok Creek (USGS site)	68.0492	-163.0287	8/28/2004	169	10.0	7.6	580	0.4	312
10	Middle Fork Tributary Kivalina River	68.1114	-164.0232	8/30/2004	150	9.5	7.7	266	1.2	164
11	NW Tributary Kukpak River	68.2682	-164.8559	8/30/2004	103	7.0	7.4	422	18.5	208
12	Singoalik River	68.0210	-164.8776	8/30/2004	29	9.5	7.9	285	1.2	176
13	Kivalina River above East Fork Tributary	68.0557	-164.2775	8/30/2004	156	9.0	7.6	281	2.5	160
14	East Fork Tributary Kivalina River	68.0308	-164.1232	8/30/2004	222	6.0	7.4	242	2.1	134
15	Ungalik River	64.8013	-160.4490	8/31/2004	618	8.5	8.6	219	1.3	128
16	Inglutalik River	65.0840	-160.3643	8/31/2004	426	10.0	8.4	324	1.3	200
17	East Fork Koyuk River	65.2564	-160.5988	8/31/2004	131	8.0	8.2	300	1.2	184
18	West Fork Buckland River	65.7143	-160.5552	8/31/2004	412	11.0	7.3	148	2.6	104
19	Fish River near	65.9130	-160.4725	8/31/2004	185	10.0	7.4	30	4.3	68

Site #	Site Name	Latitude	Longitude	Date surveyed	Discharge cfs	Water temp °C	pH	Spec. Cond. ms/cm	Turbidity NTU	Hardness ppm
	Buckland									
20	Agiapuk River	65.3670	-165.6605	8/10/2005	715	12.0	7.4	354	1.7	176
21	Pilgrim River	64.9170	-164.9585	8/12/2005	558	15.0	7.3	145	1.5	68
22	Niukluk river	65.1007	-164.0518	8/12/2005	503	15.0	7.3	102	1.0	44
23	Libby River	65.1153	-164.2528	8/12/2005	74	14.0	7.2	62	0.8	24
24	Fish River	65.2213	-163.1982	8/13/2005	134	7.0	7.2	78	1.0	36
25	Boston Creek	65.2057	-163.3303	8/13/2005	374	12.0	7.3	167	0.7	80
26	Etehepuk River	64.9125	-162.7946	8/13/2005	190	15.0	7.4	173	0.8	80
27	Upper Kivalina River	68.2739	-163.9127	8/14/2005	80	10.0	7.4	315	1.2	144
28	Upper Wulik River	68.3266	-163.0974	8/15/2005	216	12.0	7.4	433	1.0	228
29	Middle Fork Tributary Kivalina River	68.2202	-163.8239	8/15/2005	309	13.0	7.5	305	0.9	156
30	Sooner River	68.5352	-163.3440	8/16/2005	141	12.0	7.3	480	0.9	224
31	Kokolik River	68.7954	-162.0726	8/16/2005	306	13.0	7.5	548	0.9	280
32	North Fork Buckland River	65.7678	-160.0037	9/3/2005	ND	5.0	7.0	52	2.3	32
33	South Fork Buckland River	65.6813	-159.8057	9/4/2005	ND	6.0	7.6	354	2.2	192
34	Upper Tagagawik River	65.6177	-158.9841	9/4/2005	ND	6.0	7.3	260	1.0	152
35	Unnamed Lake #1 near Kivalina River	68.0041	-163.9938	8/14/2005	ND	20.0	6.6	45	5.4	20
36	Unnamed Lake #2 near Squirrel River	67.3228	-161.7872	8/14/2005	ND	22.0	6.9	55	2.2	32
37	Unnamed Lake #3 near Squirrel River	67.2207	-161.0043	8/15/2005	ND	21.0	7.0	27	1.6	16

Note: These sites are shown on Map 3-5. ND = not determined. e = estimated

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6. Vegetation

The 12 million acres of BLM-managed land within the Kobuk-Seward Peninsula planning area contain a diverse mix of habitats spanning coastal and interior landscapes. The region is characterized by vast expanses of tussock tundra and shrublands. Portions of major river corridors and protected south-facing slopes support open boreal forest conifer and hardwood species, especially in eastern sections of the planning area. Many wind-scoured mountain ridges and slopes that appear barren host alpine plant communities of ground-hugging mat and cushion plants and small pockets of alpine meadow.

a) Preliminary Vegetation Classification

Most of the 30 million acres of the planning area have been mapped at a 30 meter (98 foot) resolution as a result of the combined efforts of a BLM-Ducks Unlimited partnership, the USDA NRCS (Seward Peninsula), and the National Park Service (Noatak National Preserve, Kobuk Valley National Park, and Cape Krusenstern National Monument). However, about 12% of the planning area has not been mapped to this fine scale (unmapped areas include Point Hope, Cape Lisburne, Point Lay, and the western Brooks Range). In addition, work is still in progress to consolidate differing vegetation categories among the three Federal agency land cover classifications. Therefore, the vegetation classification for the planning area is based on statewide mapping coverage of one kilometer resolution (Fleming 1996).

The broad scale vegetation classification for the planning area consists of 13 vegetation types plus categories for Water, and Glaciers and Snow. The statewide vegetation classification includes four forest types and one shrubland type that are not found in the planning area, plus a category for Ocean Water. The 13 vegetation types are sorted under three groups according to the life-form of the dominant species: Forest (five vegetation types), Shrublands (five vegetation types), and Herbaceous (three vegetation types). Acres and percentages of each of these vegetation types are listed in Table 3-2. Map 3-6 illustrates the vegetation distribution across the planning area.

Table 3-2. Vegetation Types Within the Planning Area

Vegetation Type	Within Planning Area		On BLM-managed Lands	
	Acres	Percent	Acres	Percent
Forest				
Open and Closed Spruce Forest	1,482	.00	1,235	.01
Open Spruce and Closed Mixed Forest Mosaic	10,872	.04	9,637	.07
Open Spruce Forest/Shrub/Bog Mosaic	1,246,395	4.18	533,500	4.08
Spruce Woodland/Shrub	1,017,329	3.42	448,496	3.43
Spruce and Broadleaf Forest	3,706	.01	None	---
Total	2,279,784	8	992,868	8
Shrubland				
Alpine Tundra and Barrens	1,178,441	3.96	552,033	4.23
Dwarf Shrub Tundra	1,077,128	3.62	618,257	4.73
Low Shrub/Lichen Tundra	139,861	.47	122,317	.94
Tall and Low Shrub	8,981,750	30.15	4,736,021	36.26

Tall Shrub	577,730	1.94	375,353	2.87
Total	11,954,910	40	6,403,981	49
Herbaceous				
Wet Sedge Tundra	97,853	.33	13,343	.10
Tussock Sedge/Dwarf Shrub Tundra	10,231,645	34.35	3,930,458	30.09
Moist Herbaceous/Shrub Tundra	5,225,764	17.54	1,721,830	13.18
Total	15,555,262	52	5,665,631	43

Note: Acreage calculations in this table are based on a raster dataset with 1 kilometer pixel resolution, resulting in acreage totals that are slightly lower than shown elsewhere in this document. Acres rounded to the nearest 1 acre.

(1) Forest Vegetation Types

Forested terrain covers approximately 8% of the BLM-managed lands within the planning area. The six main areas in the planning area characterized by forested landscapes are the southeast corner of the Seward Peninsula, the Nulato Hills, the Selawik River, the Kobuk River, the Squirrel River, and the lower Noatak River. Forest communities in the planning area are primarily open-canopied woodlands dominated by white spruce (*Picea glauca*). White spruce will tolerate a wide range of site conditions, but grows best on well-drained soils of gentle, south-facing slopes or deeper soils of protected river valleys. Stands of black spruce (*Picea mariana*) occupy low, poorly drained areas with fine-grained soils, or occasionally dominate stands of regrowth after fire. Paper birch (*Betula papyrifera*) is scattered in small groves in some areas at protected sites with porous, deeper soils. Balsam poplar (*Populus balsamifera*) stands form narrow, linear units along stable river banks or isolated groves along upland creek banks. Small, stunted quaking aspen (*Populus tremuloides*) are occasionally found in the most interior portions of the planning area on dry, warmer soils of south-facing slopes or low hilltops. Mixed forest types are also common, composed of varying amounts of deciduous trees (paper birch, balsam poplar, and aspen) scattered in with spruce.

Vegetation types within the Forest classification that are located in the planning area are: Open and Closed Spruce Forest, Open Spruce and Closed Mixed Forest Mosaic, Open Spruce Forest/Shrub/Bog Mosaic, Spruce Woodland/Shrub, and Spruce and Broadleaf Forest. The Spruce Woodland/Shrub community often has conspicuous amounts of lichen as ground cover and provides important habitat for caribou during migration.

(2) Shrubland Vegetation Types

Shrubland communities cover approximately 49% of BLM-managed lands within the planning area. Compared to the five tree species comprising Forest communities, at least 51 species have a shrubby growth habit (multiple, woody stems). Willow (*Salix*, 17 species), alder (*Alnus*, two species), and dwarf birch (*Betula*, two species) are the most common and abundant shrubs, though numerous other shrub species occur, many in the heath family (*Ericaceae*, 16 species) and rose family (*Roseaceae*, six species). Shrubs in the planning area may range from a mere one-quarter inch high to almost 10 feet tall. Prostrate shrubs such as mountain avens (*Dryas* spp.), skeletonleaf willow (*Salix phlebophylla*), and alpine azalea (*Loisleuria procumbens*) form low mats on exposed mountain slopes and ridges. Dwarf shrubs such as Labrador tea (*Ledum palustre*) and low-bush cranberry (*Vaccinium vitis-idaea*) may be a dominant component of various tundra plant communities, growing intermingled with sedges and grasses, forbs, and lichens and mosses. Low to medium height shrubs such as resin birch (*Betula glandulosa*) and American green alder (*Alnus crispa*) can blanket lowland or subalpine slopes with open or

dense thickets, while river and stream banks may be heavily grown with low to medium height willows such as diamondleaf willow (*Salix pulchra*) or Richardson willow (*Salix richardsonii*). The most common and abundant tall shrub in the planning area is feltleaf willow (*Salix alaxensis*), which often dominates extensive river floodplains and river banks.

Vegetation types within the Shrubland classification located within the planning area are: Alpine Tundra and Barrens, Dwarf Shrub Tundra, Low and Dwarf Shrub, Low Shrub/Lichen Tundra, Tall and Low Shrub, and Tall Shrub.

(3) Herbaceous Vegetation Types

Herbaceous plant communities cover approximately 43% of the BLM-managed lands within the planning area. Herbaceous plants can be annual or perennial; they have no woody parts. Included in this broad category are both vascular plants (seed forming) and non-vascular plants (spore forming) such as ferns, horsetails, mosses, and lichens.

True grassland communities are important ecosystems in the western United States but are relatively rare in Alaska. Within the planning area, grassy meadows are sometimes found at lake margins, in recently drained lake beds, recently disturbed areas, floodplains, and coastal beaches. These communities are frequently dominated by bluejoint grass (*Calamagrostis canadensis*), beach ryegrass (*Elymus* spp.), or native fescues (*Festuca* spp.). In contrast, tundra herbaceous communities cover large areas in Alaska, including the planning area. Wet, lowland tundra is found mainly on coastal plains and low-lying river deltas. The dominant type of plant community is a wet sedge meadow of tall cottongrass (*Eriophorum angustifolium*) and water sedge (*Carex aquatilis*). Drier portions of lowland tundra are characterized by tussock cottongrass (*Eriophorum vaginatum*), a tussock-forming sedge. Moist or dry upland tundra is also often dominated by extensive areas of tussock cottongrass. Interspersed with sedges in all these herbaceous communities are varying amounts and species of forbs, grasses, rushes, dwarf and prostrate shrubs, mosses, and lichens. Lichen tussock tundra (an ecological site component of the broader category Tussock Sedge/Dwarf Shrub Tundra) is very important habitat for caribou and reindeer during winter months and migration, as it normally has a range of 25-50% lichen cover (Swanson et al. 1985).

Vegetation types within the Herbaceous classification that are located within the planning area are: Wet Sedge Tundra, Tussock Sedge/Dwarf Shrub Tundra, and Moist Herbaceous/Shrub Tundra.

b) Upland and Riparian Vegetation

The vegetation in the planning area is primarily in a natural state, with widespread healthy plant communities present in various seral stages from early succession to climax, showing adaptation to natural disturbances. Natural disturbances include fire, insects and disease, ice scour, flooding, erosion, and grazing/browsing by wildlife. Roads are few and short; villages are few, small, and scattered; areas with mining activity are small and isolated; and grazing pressure from livestock (reindeer) is currently light. Off-highway vehicle (OHV) use is generally confined to areas near villages, Native allotments, and a few recreation use areas (e.g., the Squirrel River Valley), though snowmachine travel is widespread.

Determining the appropriate level of fire protection for forest, shrubland, and herbaceous communities with substantial lichen components is an important consideration. Caribou- and

reindeer-preferred lichen species, especially *Cladina*, *Cladonia*, and *Cetraria*, grow very slowly, requiring 50-100 years or longer to regain optimal cover and biomass after fire (Swanson 1996). Currently the winter, migration, and peripheral ranges of the Western Arctic Caribou Herd (WACH) are classified with a Fire Management Option of Limited. Lands with a Limited designation generally receive a lower priority for initial attack resources, and responses are typically associated with surveillance to determine if specific values are threatened (more information on Fire Management Options and how they are applied begins on page 3-105). Based on WACH historic and current seasonal range maps developed by the Alaska Department of Fish and Game (ADF&G) (Dau in prep) in 2000 and merged with BLM Alaska Fire Service fire history data from 1950 through 2004 (BLM 2005a), 18.8% of the WACH winter range has burned at least once since 1950, and in some areas more than once (Map 3-7). Using these same ADF&G and Alaska Fire Service datasets, 11.5% of the WACH outer range (extending well into the Seward Peninsula) has burned one or more times. In contrast, less than 1% of calving and summer ranges on the North Slope have burned, as the wet tundra and infrequent lightning strikes there result in very few fires. Only 5.9% of the WACH migratory range has burned one or more times.

Forest health issues are beginning to emerge in the south and southeastern portions of the Seward Peninsula. A spruce beetle infestation (*Dendroctonus rufipennis*) was documented by the BLM in August 2003 when areas of conspicuous beetle-killed spruce were observed and aerially photographed in the upper Tubutulik River region on the east side of the Darby Mountains (Sparks 2003). In 2004, the annual statewide aerial survey conducted by the USDA Forest Service and the Alaska Department of Natural Resources (ADNR), Division of Forestry, reported 81,389 acres of beetle-killed spruce on Elim Native Corporation lands along the coast and inland from Moses Point to Mount Kwiniuk (Map 3-23). This outbreak appeared to have peaked within the last few years, with current activity being very light. USDA Forest Service and ADNR Division of Forestry personnel estimated a near total loss of the forest resource in that area (Wittwer 2005). The 2004 statewide aerial survey also documented an area of light to moderate spruce beetle activity north of the village of White Mountain along the Fish River. Mapping showed 8,681 acres of beetle-affected spruce, with the majority characterized as light intensity (Wittwer 2005). Smoke from tundra wildland fires in McCarthy's Marsh prevented additional survey in this region during the summer of 2004. Please refer to the discussion on spruce beetles beginning on page 3-143 in the Forest Products section for additional information on spruce beetle activity on the Seward Peninsula and other locations within the planning area.

Lichen-rich plant communities, an important habitat in the planning area, are subject to increasing grazing pressure from the WACH as the herd continues to grow steadily in size and expand its seasonal range. Twenty permanent vegetation transects in caribou winter range in the Buckland River Valley, Selawik Hills, and the northern Nulato Hills were established by the BLM in 1981 when herd size was 140,000. In 1995, when herd size had increased to 450,000, sampling of the transects showed a 14% decline in lichen cover from 1981 levels (Jandt et al. 2003). In 2003, herd size had risen to 490,000 (Dau 2005). This downward trend in lichen cover is based on the average lichen cover from 20 164-foot long transects established in 1981, and compared with average lichen cover from 18 of these transects relocated in 1995. Realizing that there were only 18 permanent transects deployed over the approximately 11,405,000 acres of caribou winter range, seven more were added in 1996, for a total of 25. Even though the actual area sampled is small, the transects are spread reasonably well through representative habitats the WACH uses during the winter months in the Buckland River Valley, Selawik Hills, and northern Nulato Hills. Growth and eventual decline of the WACH will continue to have an influence on vegetation in the planning area, but fluctuations are a part of the natural cycle

played out over hundreds of years. For more information on the WACH, see the caribou discussion beginning on page 3-58 in the Wildlife section.

Monitoring of reindeer grazing allotments on the Seward Peninsula by the BLM and the NRCS from the late 1980s through 2004 has occasionally documented specific locations of limited acreage with moderate to severe impacts on vegetation from reindeer. This damage includes trampled and fragmented lichens, cratering (see Glossary) to organics or mineral soil, and heavily browsed willows and dwarf Arctic birch (Meyers 1995, 1996, 1997a). However, given sufficient years of rest from grazing those areas will recover fully (Swanson et al. 1985). An improvement in condition is apparent at some of these same and nearby sites (Meyers 2003b, Meyers 2004d) due to the steady drops in size or complete absence (on some grazing allotments) of Seward Peninsula reindeer herds (Finstad et al. 2005, Meyers 1997b).

Since 1987, reindeer numbers on the Seward Peninsula have decreased by 75% (Finstad et al. 2005) due to mixing with caribou herds, leaving their usual grazing ranges, and often dying partly due to animal and human predation (Fitzgerald 2002). Over 16,000 reindeer have disappeared since 1987, with some herders losing 45-85% of their animals, while six herders have lost all of their reindeer (Fitzgerald 2002). Thus most reindeer allotments on the Seward Peninsula have been lightly grazed or ungrazed by reindeer during the last 10-15 years.

No riparian condition surveys have been conducted by the BLM in the planning area due to lack of adequate funding and personnel to target 12 million acres of BLM-managed lands within the 30 million acre planning area. However, recent aerial and ground reconnaissance surveys of water quality and channel morphology within the planning area have noted that riparian conditions are generally undisturbed and functioning well (See Table 3-1). Studies done in the Kobuk and Noatak river basins of the planning area indicate water quality and riparian stability of these major drainages are generally excellent, although further monitoring was recommended (Brabets 2001, Childers and Kernodle 1983, Childers and Kernodle 1981). Additionally, one region directly adjacent to the southern boundary of the planning area, the Unalakleet River drainage, has been assessed by the BLM Anchorage Field Office. Results of their summer 2000 aerial photography survey showed that all streams in the Unalakleet River drainage were in proper functioning condition (Scott 2000).

c) Rare Plants Not Classified as BLM-Alaska Special Status Species

The BLM-Alaska Special Status Species (SSS) list includes 32 sensitive plant species found within Alaska, all of which are ranked S1, S2, or S2S3 by the Alaska Natural Heritage Program (ANHP). These species are listed in Table 3-5 on page 3-75 and referenced on Map 3-8, and descriptions of the rankings are listed in Table 3-6 on page 3-76. Many species on this list do not occur within the planning area. Conversely, other rare plants not on the current BLM-Alaska SSS plant list were evaluated as important to include in the RMP analysis. These species will also be included in the periodic review process of the BLM-Alaska SSS plant list.

The following section describes individual species of rare plants, including S1-S2S3 species to be considered for addition to BLM-Alaska SSS list, and S1-S2S3 species with a reasonable potential to occur on botanically unexplored portions of BLM-managed lands within the planning area. Descriptive paragraphs cover species locations, brief habitat data, population numbers, and trends (if known), any known threats, and rare plant rankings. See Table 3-3 for a list of the

rare plant species described in the text, showing their scientific and common names plus ANHP-assigned ranks.

Table 3-3. BLM-Alaska Sensitive Plant Species and Other Rare Plant Species Known to Occur Within the Kobuk-Seward Peninsula Planning Area

Scientific Name	Common Name	ANHP Ranking	BLM Sensitive Species in 2004?	Remarks
<i>Artemisia globularia</i> var. <i>lutea</i>	purple wormwood	G4T1T2Q S1S2	Yes	
<i>Artemisia senjavenensis</i>	yellow-ball wormwood	G3 S2S3	Yes	
<i>Beckwithia glacialis</i> ssp. <i>alaskensis</i>	Alaskan glacier buttercup	G4T3T4 S2	Yes	Recent taxonomic change tentatively shows this taxon as <i>Ranunculus glacialis</i> .
<i>Cardamine microphylla</i> ssp. <i>blaisdellii</i>	small-leaf bittercress	G4T3T4 S2S3	No	
<i>Carex heleonastes</i>	Hudson Bay sedge	G4 S2S3	No	
<i>Douglasia beringensis</i>	Bering dwarf primrose	G2 S2	Yes	
<i>Erigeron muirii</i>	Muir's fleabane	G2S2	Yes	Synonym used in Hulten (1968): <i>Erigeron grandiflorus</i> ssp. <i>muirii</i>
<i>Gentianopsis detonsa</i> ssp. <i>detonsa</i>	sheared gentian	G3G4T? S1	No	
<i>Oxytropis arctica</i> var. <i>barnebyana</i>	Barneby's milkvetch	G4?T2 S2	Yes	
<i>Oxytropis kobukensis</i>	Kobuk locoweed	G2 S2	Yes	Endemic to sand dune habitat in Kobuk Valley National Park.
<i>Pedicularis hirsuta</i>	hairy lousewort	G5? S1	Yes	
<i>Potentilla fragiformis</i>	strawberry cinquefoil	G4? S1	No	
<i>Potentilla stipularis</i>	stipulated cinquefoil	G5 S1	Yes	
<i>Primula tshuktschorum</i>	Chukchi primrose	G2G3 S2S3	No	
<i>Ranunculus auricomus</i>	goldilocks buttercup	G5 S1S2	No	
<i>Ranunculus glacialis</i> ssp. <i>camissonis</i>	Glacier buttercup	G4T3T4 S2	No	
<i>Rumex krausei</i>	Cape Krause sorrel	G2 S2	No	Present on initial draft BLM Alaska SSS list – omitted from final in error.
<i>Saussurea triangulata</i>	Waring Mountain saw-wort	G1 S1	No	Shown as <i>Saussurea</i> sp. 1 on ANHP tracking list.
<i>Smelowskia johnsonii</i>	Johnson's smelowskia	G1 S1	No	
<i>Trisetum sibiricum</i> ssp. <i>litorale</i>	Siberian oatgrass	G5T4Q S2	No	

***Cardamine microphylla* ssp. *blaisdellii* (small-leaf bittercress).** This small member of the mustard family is a Beringian endemic initially discovered on the Seward Peninsula and the adjacent Chukotka Peninsula, Russia. Recent botanical inventories have pushed its known range both east to the Jade and Angayucham mountains in the upper Kobuk River valley on National Park Service (NPS) land (Parker 2004a), and south to Debauch Mountain and the

North Fork, Unalakleet River, on BLM lands in the southern Nulato Hills in 1997 and 1998 (Parker 1999) (Map 3-8). It is usually found in sheltered, herbaceous alpine snowmelt areas. Information on population size, trend data, and potential threats is not available.

Ranking: ANHP – G4T3T4/S2S3.

Carex heleonastes (Hudson Bay sedge). This rare northern sedge is found in peat bogs and seeps, with large gaps in its circumpolar distribution across Alaska, Canada, Greenland, and Eurasia. It has been collected at only one location within the planning area, on Native lands near the airstrip at Pilgrim Hot Springs, in southcentral Seward Peninsula (UAF 2005b) (Map 3-8). Other collection sites in Alaska include Nutuvukti Lake (near the headwaters of the Kobuk River), eastern Brooks Range, southcentral Alaska Range, and northwestern Kenai Peninsula (UAF 2005b). Information on population size, trend, and potential threats is not available.

Ranking: ANHP – G4/S2S3.

Gentianopsis detonsa ssp. detonsa (sheared gentian). Known distribution is restricted to five locations in coastal northwest Alaska (all within the planning area) (Map 3-8) and to approximately three locations along the Arctic coast of Canada's Northwest Territories. It blooms briefly, with deep purple petals, along silty shorelines of brackish lagoons and estuaries, or in moist loams of back beach swales and shoreline meadows. *G. detonsa* ssp. *detonsa* occurs as small isolated populations at Sheshalik spit (west of the Noatak River delta), Kotzebue, Arctic Circle lagoon (Baldwin Peninsula), Kiwalik spit at the mouth of the Kiwalik River, and just east of the mouth of the Goodhope and Cripple rivers, on the north coast of the Seward Peninsula. However, in an exceptionally good year, one particular site at Sheshalik spit may produce several thousand individuals (Uhl 2000). These locations are a patchwork of State- and Native-selected lands, Native allotments, and NPS lands (Map 3-8).

In July 1995 a BLM/Fish and Wildlife (FWS) field crew estimated approximately 60 individuals in a two-mile stretch of lagoon shoreline at Arctic Circle lagoon (Native- and State-selected, and private land) (Meyers 1995b). In August 2000 about 50-60 individuals were discovered on a low vegetated beach ridge just east of the mouth of the Goodhope and Cripple rivers within the Bering Land Bridge National Preserve (Meyers 2000a).

Over 100 years of contemporary human habitation at Kotzebue has resulted in the gradual filling in (through the construction of gravel pads, roads, and airport) and compaction of wetlands once prominent at the northern tip of the Baldwin Peninsula. The tiny remnant stands of a few individuals in disturbed habitats around Kotzebue may have originally been larger. Human activities during the last 16 years in Kotzebue have adversely impacted the few remaining plants there (Meyers 2004b). The lagoon/estuary/ocean shoreline habitat periodically exposes *G. detonsa* ssp. *detonsa* populations elsewhere to ice scour and beach erosion.

Ranking: ANHP – G3G4T?/S1.

Potentilla fragiformis (strawberry cinquefoil). Uncertain taxonomy and misplaced collections resulted in several early Alaska collections (1891-1963) of *Potentilla fragiformis* (UAF 2004) from St. Paul and St. Lawrence islands not being represented in Hulten's monumental *Flora of Alaska and Neighboring Territories* (1968). His range for this species was confined to the Russian Chukotka Peninsula and southwestern Russian coast, although he indicated the total range was unclear. The current known range for *P. fragiformis* has been broadened to include not only the Bering Sea islands mentioned above but also locations within the planning area:

the northeast coast of the Seward Peninsula (Kivalik Spit) and farther northwest (Sheshalik Spit, Cape Krusenstern, and Kivalina) (Map 3-8), based on reevaluation of those early collections, and recent fieldwork in 2001-04 by UAF Herbarium, NPS, and BLM (Parker 2004a). None of these sites are located on BLM-managed land. No information is available on population sizes, trends, or potential threats.

Ranking: ANHP – G4/S1.

***Primula tschuktschorum* (Chukchi primrose).** This Beringian endemic is generally restricted to the Bering Strait region, found in moist alpine or lakeshore habitats on the Seward Peninsula, on St. Lawrence Island, and on the Chukotka Peninsula (Map 3-8). However there are also a few disjunct populations in the Bristol Bay area. Within the planning area, *Primula tschuktschorum* occurs on NPS and Native corporation lands, as well as on BLM-managed lands. The large Kuzitrin Lake populations are on NPS lands, except for the saddle on Mount Boyan, which is the boundary between NPS land to the north and BLM lands to the south (Map 3-8).

Kuzitrin Lake and surrounding mountain slopes in central Seward Peninsula have the largest known Alaska population of *P. tschuktschorum* (Carlson 2004). In 1995 the population along the southeast shore of Kuzitrin Lake numbered "...thousands of individuals," but most of the flower heads had been nipped off by Canada geese (Kelso 1995). There were also signs of browsing by caribou/reindeer. When Matt Carlson (a University of Alaska Anchorage/ANHP plant conservation biologist) and his field crew visited Kuzitrin Lake in June 2004, they discovered only 500-1,000 *P. tschuktschorum* remaining along the southeast lakeshore. They saw very little seedling recruitment. A more common species of primrose, *Primula eximia*, had apparently greatly expanded its shoreline numbers over the same nine year period. However, additional subpopulations of *P. tschuktschorum* grow on adjacent north-facing slopes and saddle of Mount Boyan, numbering roughly 7,000 in all. These subpopulations at higher elevations had not been grazed (Carlson 2004).

A population of *P. tschuktschorum* recently discovered in 2004 by a BLM/NRCS range management crew on the northwest slope (elevation 2,420 feet) of Mount Bendeleben in southcentral Seward Peninsula consisted of roughly 400-500 healthy individuals, most of which had mature capsules (Meyers 2004c). The *P. tschuktschorum* were growing in a wet seep about 600 feet long, among numerous *Eriophorum angustifolium* (cottongrass) plants. Signs of reindeer and/or caribou use were quite evident: heavily grazed lichen, recent and older hoof prints in damp and dried mud, several pellet groups, and one shed antler. Similar to higher elevations at the Kuzitrin Lake site, there was no evidence of herbivory on the *Primula*. It was speculated that migrating caribou or reindeer may select this site in spring to graze on *Eriophorum* flower heads, when the herbaceous *Primula tschuktschorum* would not be available. Late fall or winter visits by migrating caribou or reindeer would encounter largely withered *Primula*, but the lichen would be readily available (Meyers 2004c).

Kelso (1989) considered *P. tschuktschorum* "rare" (seen at one to two sites) on frost boils in the 9.3 square mile Cape Prince of Wales/Cape Mountain area inventoried at the western tip of the Seward Peninsula.

Heavy grazing pressure on the largest known *P. tschuktschorum* population at Kuzitrin Lake is cause for concern. However, adjacent alpine sites on Mount Boyan and on northwest Mount Bendeleben seem to be secure at present. Size and trend data are not available for additional

Bering Strait populations in the Kigluaik Mountains or surrounding lowlands, nor for St. Lawrence Island or Bristol Bay.

Ranking: ANHP – G2G3/S2S3.

Ranunculus auricomus (goldilocks buttercup). This bright yellow-flowered buttercup collected in 1998 on Debauch Mountain in the southern Nulato Hills (BLM-managed lands) turned out to be new to North America (Map 3-8). The lush alpine meadow hosted only a few individuals, supplying the first known record of this northern Eurasian species in North America, collected by a UAF Herbarium/BLM/NPS/ANHP field crew (Parker 1999). This species had actually been collected twice before on the Seward Peninsula, but misidentified, at Serpentine Hot Springs (1987) and Bluff (1988) (Parker 1999). Recent botanical inventory during 2002 and 2003 has located additional populations on the Seward Peninsula in the Kigluaik Mountains and Penny River uplands, plus a northern outlier in the Igichuk Hills adjacent to the lower Noatak River (UAF 2004) (Map 3-8). All known collections are within (or very closely adjacent to) the planning area.

Small populations of sparsely scattered individuals were found at the two sites in southern Nulato Hills, and in the Igichuk Hills north of the Seward Peninsula. Information is not available on population sizes at the other four known locations. No trend data are yet available. No known threats, although these populations are somewhat vulnerable due to small population sizes.

Ranking: ANHP – G5/S1S2.

Ranunculus glacialis ssp. camissonis (glacier buttercup). This unique Alaska buttercup has pink to red petals instead of the usual yellow or white. A Beringian endemic, it is known from only a few highly disjunct localities in Alaska. On the Seward Peninsula it has been collected at Cape Mountain, Feather River, and the Bendeleben Mountains (UAF 2005b) (Map 3-8). The central Bendeleben Mountains collection site is at the Minnie Creek/Boston Creek mountain divide, with BLM-managed lands to the south and NPS lands (Bering Land Bridge National Preserve) to the north. Outside the planning area, it was recently found (2001) on the north shore of Desperation Lake (Brooks Range) (Parker 2001a). It has also been documented in the Yukon-Tanana Uplands on Lime Peak and Mount Prindle (Parker et al. 2003). Moist to wet alpine meadow is the most common habitat type.

Information on population size, trend, and potential threats is mostly not available. However Parker et al. (2003) noted that only a few individuals were observed at each of the Yukon-Tanana Uplands sites on Lime Peak and Mount Prindle. Kelso (1989) listed this species as “common” in the 9.3 square mile area of Cape Prince of Wales/Cape Mountain inventoried, but described “common” as being seen in more than five sites in this area. No information was given on population numbers.

Ranking: ANHP – G4T3T4/S2.

Rumex krausei (Cape Krause sorrel). This small Arctic sorrel (a member of the buckwheat family) is endemic to northwest Alaska and southeast Chukotka Peninsula in Russia. All eight currently known locations in Alaska are within the planning area: Cape Dyer, Cape Thompson, Ogotoruk Creek, Mount Noak, Hugo Creek, and the North Fork of Squirrel River, plus Lost River (UAF 2004) and Sinuk River (Meyers 2005c) on the Seward Peninsula (Map 3-8). *Rumex krausei* is found at subalpine to alpine sites in wet meadows, on solifluction slopes, *Dryas*

terraces, or wet seeps with rock and exposed mineral soil, often on calcareous soils and gravels.

The two Squirrel River populations on the North Fork (State-selected land) are quite small, one with approximately 13 individuals (Meyers 1994), and the other with 61 individuals (Meyers 1996b). The Sinuk River population is fairly large, consisting of at least several thousand individuals. The population was recently discovered on wet and sandy, calcareous outwash plains near the base of low mountains approximately five miles northwest of the lower Sinuk River on State- and Native-selected lands during a June 2005 rare plant survey conducted by the BLM, UAF Museum Herbarium, and ANHP (Meyers 2005c). Information on other population sizes, trend, and threats is not available.

Ranking: G2/S2; not on BLM-Alaska SSS plant list. However, it was shown on earlier drafts, and will be proposed for restoration to the list during periodic review. The *Atlas of Rare Endemic Vascular Plants of the Arctic* places *Rumex krausei* in the IUCN category of Lower risk/Near threatened, for species that do not qualify for conservation dependent, but are close to qualifying for vulnerable (Talbot et al. 1999).

***Saussurea triangulata* (Waring Mountain sawwort).** Even though this purple-flowered member of the aster family does not occur on BLM-managed lands, it does occur within the planning area. It is included here due to its extreme rarity and the potential to turn up in similar habitat on BLM-managed land. In late June 2000 a field crew of botanists from the UAF Herbarium, BLM, and FWS discovered a small population of a puzzling *Saussurea* in the western Waring Mountains that turned out to be new to North America (Parker 2001b). During late June 2002 a second population was found, about four miles away from the original site (Parker 2004c). These populations occur in subalpine shrub meadow in an area of the Selawik National Wildlife Refuge (NWR) managed as wilderness (original population), and a little farther northeast across the crest of Waring Mountains into Kobuk Valley National Park (second population) (Map 3-8). Russian and American botanists believe this species is a distant disjunct from populations of *Saussurea triangulata* in the Russian Far East (but not on either Kamchatka or Chukotka peninsulas) and in northern Korea (Parker 2003).

Both localities have small but healthy populations. Two hundred and fifty-two mature, flowering plants and numerous vegetative individuals were counted in an area approximately 35 by 55 feet in the Selawik NWR in August 2000 (Meyers 2000b). The second population was much smaller, less than a dozen stems, not yet flowering in late June 2002, in a single patch about 2.5 feet in diameter (Parker 2004c). Information on population trends and demographics is not known. There are no known threats.

Ranking: ANHP – G1/S1.

***Smelowskia johnsonii* (Johnson's smelowskia).** Only three collections have been made in Alaska of this densely white-hairy member of the mustard family. Over a span of 13 years (1959-72), it was collected at Flint Mountain in the Cape Thompson region, and Ukinyak Creek, Lisburne Hills on Cape Lisburne Peninsula of northwest Alaska, and near the coast at Lost River, on the western Seward Peninsula (Mulligan 2001, UAF 2004) (Map 3-8). This rare plant has not been documented on BLM lands. However, it is described here in recognition of its potential to occur on nearby BLM-managed lands in northwest Alaska. *Smelowskia johnsonii* was not recognized as a distinct taxon until validation as a new species in 2001 (Mulligan 2001).

Smelowskia johnsonii was reported as uncommon in occurrence on limestone talus slopes and ridges of Flint Mountain and surrounding hills in 1959 (Johnson et al. 1965). This species was treated as *S. borealis* var. *jordalii*. Viereck and Bucknell observed it in July 1960 to be scattered on steep limestone talus slopes above Ukinyak Creek, and identified it as *Smelowskia borealis* (UAF 2005b). No details are available concerning the July 1972 collection by Lenarz at Lost River except that it was growing in a *Dryas* fellfield. There are no known threats.

Ranking: ANHP – G1/S1.

Trisetum sibiricum ssp. litorale (Siberian oatgrass). This rare grass is circumpolar Arctic in distribution, and has been found at three locations within the planning area: Ogotoruk Creek and Cape Thompson on the northwest Arctic coast, and at Teller, on the western Seward Peninsula (none of these are on BLM-managed land) (Map 3-8). It was first discovered in 1959 growing at Ogotoruk Creek, "...scattered in bare gravels, in mounds of earth surrounding ground squirrel burrows, in snow beds and on solifluction slopes" (Johnson et al. 1965). Additional localities within Alaska are the Kongakuk River (Arctic NWR), Mount Schwatka and Lime Peak (White Mountain NRA), and southeastern interior Alaska (Parker et al. 2003). This species is widespread in Arctic Russia (Tolmachev and Packer 1995).

No population figures are available; however, Johnson et al. (1965) reported *Trisetum sibiricum* as scattered in occurrence at Ogotoruk Creek, typically found in a variety of habitats but never very abundant. Parker et al. (2003) documented *T. sibiricum* ssp. *litorale* as rare in occurrence along a small drainage below Mount Schwatka in disturbed, moist shrub heath. There are no known threats.

Ranking: ANHP – G5T4Q/S2.

d) Noxious and Invasive Plant Management

The BLM's noxious and invasive plant management program is based upon *Partners Against Weeds: An Action Plan for the Bureau of Land Management* (BLM 1996), the BLM's strategy to prevent and control the spread of noxious weeds on BLM lands through cooperation with all partners. The goals of this plan include generation of internal and external support for noxious weed control, development of baseline data on the distribution of weeds, provisions for noxious weed management in all BLM-funded or authorized actions, and implementation of on-the-ground operations. BLM management actions are generally tiered to State noxious plant laws and regulations. The State provides statutory support for management activities through Alaska Statute (AS) 03.05.010 and AS 44.37, which authorize the ADNR, Division of Agriculture, to prevent the importation and spread of pests that are injurious to public interest and for the protection of the agricultural industry. Statutory support is expanded in Alaska Administrative Code (AAC) Title 11 Chapter 34 with regulations for noxious weed control and rules for the establishment of quarantines, inspections, noxious weed lists, and control measures. However, funding has not been provided to allow for implementation of these legislative actions in Alaska.

The terms "non-native," "exotic," "weed," "noxious," and "invasive" can be defined in numerous ways. The terms "non-native" and "exotic" are used interchangeably and refer to a species of foreign origin. A "weed" is generally defined as a plant growing wild in a location where it is undesirable. Most weeds are non-native, but not all are noxious or invasive. "Noxious" is a legal classification rather than an ecological term. Government agencies may designate a

species as “noxious” if it directly or indirectly imposes economic or ecological effects to agriculture, navigation, fish and wildlife, wildlands, or public health. Federal laws require that certain actions be taken to manage listed, noxious species. A species may be designated as noxious in one state but not another. Some species are more invasive than others. The invasiveness of a species is determined by its genetic makeup, which enables it to exploit a habitat “niche,” and its lack of natural enemies such as insects, diseases, and/or pathogens. Species meeting these criteria are often referred to as invasive, and may or may not also be classified as noxious.

There are several lists of noxious plant species applicable to Alaska including the list in the AAC, the Federal Noxious Weed List, the Committee for Noxious and Invasive Plant Management Draft Worst Weeds List, and a list for Alaska’s Weed Free Forage and Mulch Certification program. These lists have varying objectives, were developed over a wide time frame, and vary in the specific plants they include. The list of prohibited and restricted species found in 11 AAC 34.020 was developed to limit the amount of weed seed found in commercial seed products. Its focus was on agriculture, and it was developed more than 15 years ago. This list has not been updated to reflect current concerns about noxious and invasive plant species and their effects on natural ecosystems. The Federal Noxious Weed List was developed by the USDA Animal and Plant Health Inspection Service, and its primary focus is to prevent the importation of additional invasive species (7 CFR 360). Plants on the Federal list must meet its definition of quarantine pest: “A pest of potential economic importance to the area endangered thereby and not yet present there or present but not widely distributed and being officially controlled.” Due to this strict requirement, the Federal list does not include the species that are already commonly found in Alaska.

The Alaska Exotic Plants Information Clearinghouse is a statewide database first developed in 2002. It is a collaborative effort between the BLM, USDA Forest Service, NPS, USGS, and UAF Cooperative Extension Service to develop regional information on the distribution and abundance of non-native plant species in Alaska. A list of non-native species known to occur in Alaska can be generated from the database (BLM 2004d), but this list is not inclusive as it is limited by the data that has been entered into the database and the limited amount of inventory completed in the state.

The BLM is a signatory to the Memorandum of Understanding for the Establishment, Endorsement, and Support of the Alaska Committee for the Management of Noxious and Invasive Plants (CNIPM 2001). The purpose of this committee is to work for the statewide management of noxious and invasive plant species in Alaska. The signatories work together within the scope of their respective authorities to achieve sustainable, healthy ecosystems that meet the needs of society. CNIPM has developed a Strategic Plan for Managing Noxious and Invasive Plants in Alaska (CNIPM 2001). The BLM participated in development of the plan and has been implementing actions from this strategic plan in parts of the Fairbanks District. One action identified in the plan is the development of a statewide list of noxious and invasive plant species.

There are numerous exotic (non-native) plant species that occur within the planning area but the extent of their occurrence on BLM-managed lands is unknown as no formal inventories have been conducted. Lack of inventory is primarily due to lack of funding and personnel and the low priority assigned to inventory in the planning area relative to other BLM lands in Alaska. The BLM has been conducting noxious and invasive plant inventory in Alaska for the past four to five years. To date, inventories have focused on areas near major population centers, along the road system, and in conservation areas. A very limited inventory was done in Bering Land

Bridge National Preserve and Cape Krusenstern National Monument, but no non-native species were found (McKee 2004). Since many of these non-native plant species have been present in Alaska for decades, a list of probable species within the planning area can be generated by referring to *Flora of Alaska and Neighboring Territories: A Manual of the Vascular Plants* (Hulten 1968). Species that are known to occur within the planning area are shown in Table 3-4.

It appears that most of these non-native species occur in disturbed areas such as roadsides and communities. Cold tundra soils and a thick vegetative mat make most of the planning area inhospitable to non-native species. The greatest threat for invasion or establishment of these species occurs with surface disturbing activities, particularly areas subject to repeated disturbance (Densmore et al. 2001). Gravel or fill dirt may be contaminated with seeds and seeds may be transported into uncontaminated areas on vehicles, construction, or mining equipment. Raised roadbeds, gravel pads, or the removal of the vegetative mat create a more hospitable environment for non-native plants to become established due to warmer soil, increased availability of light, and decreased competition from other plants. Most of the non-native plants documented in the planning area thus far (Table 3-4) are common in Alaska, occur only in disturbed areas, and are not highly invasive into undisturbed habitats. Most of these species have come from Europe or Asia, and were usually imported either intentionally for their perceived value to humans, or inadvertently as contaminants in other products.

Table 3-4. Non-native Plant Species Known to Occur in the Planning Area

Scientific Name	Common Name	Known Locations
<i>Bromus hordeaceus</i>	Downy brome	Nome
<i>Bromus inermis</i>	Smooth brome	Nome
<i>Bromus tectorum</i>	Cheat grass	Nome
<i>Capsella bursa-pastoris</i>	Shepherd's purse	Kotzebue
<i>Chenopodium album</i>	Lambsquarters	Kobuk River delta
<i>Crepis tectorum</i>	Narrowleaf hawkbeard	Kotzebue
<i>Deschampsia elongata</i>	Slender hairgrass	Nome
<i>Hordeum jubatum</i>	Foxtail barley	Kotzebue, Nome
<i>Lolium multiflorum</i>	Italian ryegrass	Kotzebue, Nome
<i>Lolium perenne</i>	Perennial ryegrass	St. Michael
<i>Matricaria matricarioides</i>	Pineapple plant	Kotzebue, Nome
<i>Medicago lupulina</i>	Black medic	Nome
<i>Phleum pratense</i>	Timothy	Nome
<i>Poa compressa</i>	Canada bluegrass	Nome
<i>Poa pratensis</i>	Bluegrass	Pt. Hope
<i>Senecio vulgaris</i>	Common groundsel	Nome
<i>Stellaria media</i>	Common chickweed	Kotzebue, Nome
<i>Taraxacum sp.</i>	Dandelion	Kotzebue
<i>Thlapsi arvense</i>	Field pennycress	Kotzebue
<i>Trifolium repens</i>	White clover	Nome
<i>Tripleurospermum phaeocephalum</i>	Wild chamomile	Kotzebue, Bering Land Bridge National Preserve, Seward Peninsula

Source: Hulten 1968, Meyers 2001, Meyers 2004a, Meyers 2005a, Meyers 2005b, and Meyers 2005d.

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7. Fish and Wildlife

a) Fish

(1) Fish Species Present in Planning Area

The freshwater streams and lakes within the planning area contain all five species of Pacific salmon present in Alaska: Chinook or king (*Oncorhynchus tshawytscha*), sockeye or red (*O. nerka*), coho or silver (*O. kisutch*), chum or dog (*O. keta*), and pink or humpback (*O. gorbuscha*). Other important fish utilized for subsistence or commercial harvest are Dolly Varden (*Salvelinus malma*), Arctic char (*S. alpinus*), sheefish or iconnu (*Stenodus leucichthys*), burbot (*Lota lota*), round whitefish (*Prosopium cylindraceum*), humpback whitefish (*Coregonus pidschian*), and Bering (*C. laurettae*), least (*C. sardinella*), and possibly Arctic (*C. autumnalis*) ciscoes. Northern pike (*Esox licious*) and Arctic grayling (*Thymallus arcticus*) are popular sportfish. Other resident fish found in the planning area but incidental economically include nine-spined stickleback (*Pungitius pungitius*), slimey sculpin (*Cotus cognatus*), long-nosed sucker (*Catostomas catostomas*), and Alaska blackfish (*Dallia pectoralis*).

(2) Fish Habitat Description (and Essential Fish Habitat)

The topography of the planning area is characterized by relatively narrow coastal plains with extensive upland areas to 5,000 feet. The north side of the Kuzitrin River Basin essentially forms the boundary between the Chukchi Sea drainage to the north (Kotzebue Sound) and the Bering Sea drainage to the south (Norton Sound). The vegetative communities are dominated by tundra, with taiga communities (composed mainly of white and black spruce) occurring in the Nulato Hills and the southeastern Seward Peninsula east of Golovin Bay. Riparian species vary from low willow to white spruce forests dependant on general location and site-specific microhabitat conditions.

Through the Magnuson-Stevens Fishery Conservation Act, Essential Fish Habitat for Alaska is defined by NOAA as all salmon streams listed in ADF&G's Anadromous Water's Catalog. This catalog defines the essential habitat as any stream or lake or other waterbody that is used for migration, spawning, and rearing by anadromous fish. The planning area contains numerous streams listed in the Anadromous Stream Catalog (ADF&G 1997), and these waterbodies are shown on Map 3-9. Most BLM-managed lands in the planning area are undisturbed and are located in upper river drainages. Public lands in the planning area provide important spawning, rearing, and overwintering habitat for resident and anadromous fish. These streams provide adequate spawning substrate, stream flows, deep pools, and thermal regimes to support healthy fish populations. Commercial, subsistence, and sport fisheries intercept fish that are bound for BLM-managed lands. Although estimates have not been made for Kotzebue Sound and the Imuruk Basin, the BLM's Norton Sound Aquatic Habitat Management Plan (BLM 1988a) estimated that 70% of the fish caught in Norton Sound were spawned on BLM-managed lands.

In Kotzebue Sound, the Squirrel and Kivalina rivers are the major drainages comprised of significant amounts of public land. Both chum and pink salmon are found in the Squirrel River. Chum salmon are the most numerous and the most important economically because they contribute to subsistence fishing that occurs in the Kobuk and Squirrel rivers (ADF&G 2003) and

to the commercial fishery in Kotzebue Sound (Lean et al. 1993). A commercial chum fishery existed in 2004 and 2005 as a result of efforts by the Kotzebue Sound Fisheries Association, who purchased 51,000 and 73,000 fish in those respective years. Field information indicates that known chum salmon spawning areas are located along much of the main river. Major spawning areas have been identified along the main stem between Timber and Klery creeks above the Omar River, and on the lower portion of the North Fork of the Squirrel River (ADF&G 1997). Anecdotal information indicates that the chum salmon tend to spawn in spring-fed sloughs which turn green with algae due to the influx of nutrients from the salmon carcasses (Lean 2003). During annual aerial monitoring surveys, ADF&G observers have noted a few hundred pink salmon spawning in the main river below the mouth of the Omar River. In addition, large schools of whitefish have been observed in the calm, deep-water pools of the Omar, and northern pike have been found as far upriver as the mouth of the Omar River (Lean and Hartle 1989).

The Kivalina River provides important spawning and rearing habitat for world class Dolly Varden. Most of the spawning occurs at or just downstream of spring areas (Decicco 2005), as shown in Map 3-10. Springs located in the upper drainage may also provide spawning habitat, but they have not been inventoried due to budget constraints.

In Norton Sound, the Nulato Hills on the eastern side of the basin divide the Yukon River drainage from Norton Sound. Interspersed between the mountainous areas on the Seward Peninsula are several large marshy areas including the Koyuk River Basin, Death Valley in the Tubutulik River Basin, McCarthy's Marsh in the Fish River Basin, the Kuzitrin River lowlands, and the Imuruk Basin. These marshy areas act as important habitat for growth due to the increased water temperatures found in the low gradient portions of these drainages. Higher water temperatures increase growth rates in salmonids until water temperatures reach 50 °F, at which point the increased metabolic rate decreases growth rates (Martin 1985). These marsh areas provide a preferred microhabitat that enhances growth during the early summer.

The rivers, streams, lakes, and ponds of the planning area are important producers of fish for subsistence, commercial, and sport fisheries. Many of the streams that are important spawning and rearing habitat for anadromous fish occur on BLM-managed lands. The planning area has an estimated 10,000 miles of streams on BLM-managed lands alone, and there are thousands of acres of lakes of many types (e.g., thaw, oxbox, glacial) that support resident and anadromous species. Cursory surveys conducted by the BLM on some of the area streams and lakes since 1978 (Kretsinger 1987, Webb 1978a, 1978b, 1978c, 1979, 1980, 1985, 1986a, and 1986b) indicate most streams and lakes within the planning area are in pristine, untouched condition; however, many of these drainages have not been extensively inventoried for fishery values due to lack of funding. Other than aerial surveys to determine fish escapement conducted by ADF&G (Lean and Hartle 1989) and a handful of salmon counting camps that estimate the number of returning adult salmon to various streams in Norton Sound, little is known about exact species composition and habitat use. As mentioned above, cursory surveys have been conducted by the BLM on some of the area streams since 1978. BLM has taken the data from these surveys and, where applicable, has submitted nomination forms to extend the range of anadromy, and therefore increase the documented extent of Essential Fish Habitat on BLM-managed lands.

(3) Factors Affecting Fish Habitat and Production

Although most of the fisheries habitat within the planning area exists in an undisturbed state, there are some areas that have been impacted by various developments. Road construction,

gold mining, and gravel mining are activities that have negatively affected fisheries habitat in the past. Woodward-Clyde Consultants (1980) studied the effects of stream and riparian gravel mining on certain Seward Peninsula streams for the U.S. Fish and Wildlife Service. Introduction of sediment into streams from mining caused the greatest impacts on fish, with increased silt clogging spawning gravels and suffocating developing fish eggs. Road construction may also adversely affect fish by limiting upstream access to tributaries by rearing juvenile fish if culverts are not properly engineered or installed (Woodward-Clyde Consultants 1980). These disturbances continue to various degrees, with gold mining activity possibly increasing with the rising price of gold, although very few Federal claims remain within the planning area. Some drainages, mostly on State land, including the Nome and Solomon rivers, have sustained fish habitat damage due to historic mining, while some gravel pits have been rehabilitated to provide rearing ponds, particularly for coho salmon in the Nome River drainage (Webb and McLean 1991).

Many factors influence the productivity of a resident fish population, including water temperature, streamflow, food availability, adequate spawning and rearing habitat, spawner-recruit ratio, and fishing pressure. Anadromous species complicate matters by introducing ocean conditions which may limit production as well: sea surface temperature; phytoplankton, zooplankton, and larval fish abundance; ocean currents; and marine survival. Inter- and intraspecies competition also play a role in determining how many fish a fishery or watershed produces. Fisheries habitat on BLM-managed lands in the planning area is mostly undisturbed and should not be limiting to the production of resident and anadromous fish.

In 1983, Public Land Order No. 6477 established a no surface occupancy zone for leasable mineral entry within 300 feet of each streambank for seven rivers in the Kobuk-Seward Peninsula planning area.

Riparian Reserves are portions of watersheds where riparian-dependent resources receive primary emphasis and where special standards or guidelines may apply. They include portions of a watershed that are directly coupled to streams and rivers, that is, the portions required for maintaining hydrologic, geomorphic, and ecological processes that directly affect stream processes and fish habitats. A Riparian Reserve is defined as the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300-foot slope distance (600 feet total, including both sides of the stream channel), whichever is greatest. BLM settled on the 300-foot distance because it provides the greatest area for the Riparian Reserve. The Riparian Reserve has origins in the Federal interagency report, "Forest Ecosystem Management: An ecological, economic, and social assessment" (FEMAT, 1993). This was a cooperative study undertaken by USDA Forest Service, National Marine Fisheries Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, and Environmental Protection Agency in 1993. The record of decision was published in April 1994, for the Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. It is referred to as the SEIS record of decision. The buffer/ Riparian Reserve are a component of the Aquatic Conservation Strategy. The strategy was developed to protect salmon and steelhead habitat on Federal lands managed by the Forest Service and BLM within the range of the Pacific Ocean anadromy.

INSERT 11x17 MAP
3_9_fish_anad

INSERT 8½x11 MAP
3_10_fish_kivalina

b) Wildlife

Given the physiographical extent of the planning area, habitats are quite varied and support a diversity of wildlife. These habitats and the wildlife species that rely on them extend across administrative boundaries to other Federal, State, and private lands both within and outside the planning area. Public land ownership is scattered with intermingled private and State lands, though large blocks of public land are present in some areas. Habitats within the planning area have been subjected to limited disturbance in the past and are considered to be in a mostly natural and nearly pristine condition given the roadless nature of the area, difficulty in accessing the area, and the low number of permitted activities occurring on BLM-managed lands. The planning area includes the majority of Game Management Unit 22, all of Unit 23, and the far western portion of Unit 26A (Map 3-11).

Only those wildlife species considered important as a subsistence resource, economically important to the region, or otherwise requiring management emphasis will be addressed in this chapter.

(1) Muskoxen

Muskoxen are indigenous to northwestern Alaska but disappeared before or during the nineteenth century. Muskoxen were reintroduced to northwestern Alaska in 1970 on both the Seward Peninsula and near Cape Thompson (Map 3-11). Since that time, the Seward Peninsula population has grown rapidly and extended its range to occupy suitable habitat throughout the peninsula. The Cape Thompson population has grown more slowly and occupies habitats within 15-20 miles of the Chukchi Sea coast (Dau 2003d).

The Seward Peninsula population is well established as far east as the Buckland River and Darby Mountains, and is currently expanding further east into the Nulato Hills and the Selawik and Yukon river drainages. Muskoxen have been found only once east of the Darby Mountains during the spring (March) census period (Persons 2003a). Much of this area is heavily forested and accumulates more snow than the open tundra areas further north and west, limiting suitable winter habitat. There have, however, been reports of muskoxen in the Koyuk River drainage, near Elim, and near Granite Mountain during the summer and one report of three muskoxen near Koyuk during the winter of 2002 (Persons 2003a). The 2005 population was estimated at 2,387 animals. Population density is highest on the western Seward Peninsula (Persons 2003a).

The Cape Thompson population ranges from the mouth of the Noatak River to Cape Lisburne within 15-20 miles of the Chukchi Sea (Dau 2003d). Coastal winds tend to diminish snow depths on exposed ridges during the winter and keep ambient temperatures lower during the summer. The quality and quantity of winter forage in this area is low and may have limited the growth rate of the population. The Cape Thompson population grew by an average of 8% per year from 1970 to 2000 compared to a 14% per year growth rate in the Seward Peninsula population during the same time frame. In 2000, the Cape Thompson population was estimated to be 424 animals (Dau 2003d).

In addition to these two relatively discrete populations, widely scattered muskoxen occur in groups of one to four individuals throughout most of Unit 23. Small, widely scattered groups can be found throughout the Noatak and Kobuk river drainages almost to Walker Lake, and in the

Selawik River drainage including the middle Tagagawik River (Dau 2003d). Most of these animals are bulls, but mixed sex groups have recently been observed in the Selawik River drainage (Dau 2003d).

Favored habitat includes wind blown ridges during the winter and riparian areas during the summer. When snow depth is greater than 12 inches, muskoxen move to areas where snow cover is minimal such as exposed ridges. Vegetation in these areas is typically sparse. During the winter muskoxen survive on body-fat reserves and minimize movement to conserve energy. In the summer forage is plentiful and muskoxen build fat reserves.

Recommendations from the Seward Peninsula Muskox Cooperators Group guide management of muskoxen on the Seward Peninsula. ADF&G management goals and objectives for muskoxen in Units 22 and 23 include the following (Persons 2003a):

- Allow for continued growth and range expansion of muskoxen into historic habitats,
- Provide for a limited harvest on a sustained yield basis, consistent with existing State and Federal laws.
- Provide for non-consumptive uses, particularly along the Nome road system.
- Work with local reindeer herding interests to minimize conflicts between reindeer and muskoxen.
- Protect and maintain the habitats and other components of the ecosystem upon which muskoxen depend.
- Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.
- Census populations at two to three year intervals to document changes in population and distribution.
- Cooperatively manage State and Federal hunts.

(2) Moose

Moose are an important subsistence resource and are widely distributed throughout the planning area in suitable habitats. They are not found in areas of extreme habitat such as unvegetated mountains, deep lakes, or marine environments. Moose are most abundant in areas that contain willow and birch shrubs, and along large rivers. In general, their distribution is determined by requirements for food and cover and by seasonal snow depths.

Moose were first documented in the eastern part of the planning area in the 1920s. By the 1960s they occupied most areas of suitable habitat within the planning area. Moose habitat is found in Units 22, 23, and 26A (Map 3-11). Populations grew rapidly in Units 22 and 23, eventually peaking in the 1980s. Between 1988 and 1992 moose populations in these areas stabilized or began to decline (Dau 2004a, Persons 2004). Moose have been well established in Unit 26A since about 1940 (Carroll 2004a). Currently, moose populations are low or declining in Units 22A, 22B, 22D, and possibly 22E. Populations in Units 22A, 22B, and 22D have declined by as much as 50% since the late 1980s. A census of the Unalakleet drainage (Unit 22A) resulted in a population estimate of only 75 moose, a significant decline from a previous census of 325 moose in 1989. Other surveys indicate either very low recruitment rates or low population levels in other parts of the unit, indicating that the population is well below ADF&G's management goal of 600-800 moose in Unit 22A. Moose populations in Units 22B and 22D have declined since the late 1980s and are well below ADF&G's population management goals of 1,000-1,200 moose and 2,000-2,500 moose, respectively. Moose populations in western Unit 22B declined by about 50% from an estimated 1,894 moose in 1987 to 797 moose in 1999.

Although no census data exists for eastern Unit 22B, recruitment surveys in this area indicate low recruitment rates. A 2002 census in Unit 22D resulted in an estimate of 1,594 moose, a decline of 45% since the population was first censused in 1988 and a 13% decline since 1997. In Unit 22C, the moose population has grown steadily over the past decade and was estimated at 557 moose in 2001. This is well above the population management goal of 450-475 moose, and there is concern that the population may exceed the carrying capacity of the winter range. The first stratified census of Unit 22E was completed in 2003 and the population estimate of 504 moose was higher than expected. This may have been the result of unusually sparse snow cover that allowed the moose to remain on their summer range rather than an actual increase in population level (Persons 2004). Before the 2003 census, available data indicated that the moose population in the unit was declining and management changes had been implemented to reduce harvest (Persons 2002).

Observations by the public and ADF&G staff indicate that moose populations are declining throughout Unit 23. This decline appears to be the most pronounced in the Noatak drainage and on the Seward Peninsula (Dau 2002a). Populations may be stable in the Selawik drainage (Dau 2004a). Interpreting moose data in Unit 23 is difficult due to changes in census area boundaries, the small size of the census areas, and the limited number of censuses that have been completed. To counter these problems, ADF&G substantially increased the size of census areas in Unit 23 beginning in 2001 (Dau 2004a).

A few moose probably occur in the extreme northern part of the planning area during the summer but not in significant numbers. In Unit 26A moose are primarily found in the Colville River drainage, which is outside of the planning area. The Colville River population was stable and slowly increasing from 1970 to 1991, with populations ranging from 1,219-1,535 moose. A 1995 census indicated a 51% population decline between 1991 and 1995. Trend counts indicate that the population has been increasing since 1996. The most recent population estimate was 576 moose in 2002 (Carroll 2004a).

Moose winter habitat condition in the planning area is not known to be a limiting factor to moose populations. However, monitoring of browse has been very limited. Moose habitat quality limits distribution and numbers of moose within the planning area. Some parts of the planning area are marginal moose habitat and will never support high numbers of moose. Fire is a natural feature of the landscape within the planning area. It has not been suppressed to the extent that substantial changes in habitat quality have occurred.

(3) Caribou

The Western Arctic Caribou Herd (WACH) ranges throughout the planning area, calving in the National Petroleum Reserve-Alaska (NPR-A) just east of the northern portion of the planning area, and wintering in the Nulato Hills and eastern Seward Peninsula on the south. This herd ranges over about 140,000 square miles in northwestern Alaska (Map 3-12). Within the planning area, approximately 46% of the total WACH range, 61% of the insect relief area, 69% of the calving grounds, and 54% of the winter range is on BLM-managed land.

In the early 1970s, the WACH population was estimated at 243,000 animals. By 1976, the population had declined to an estimated 75,000 animals. From 1976 to the present, the herd has grown substantially. Census data from 1996 and 1999 resulted in population estimates of 463,000 and 430,000 caribou, respectively (Dau 2003b). A census completed in 2003 resulted in the current estimated population size of 490,000 caribou (Dau 2005).

Animals from the Teshekpuk Lake Caribou Herd (TLH) may also be found within the planning area. The primary range of the TLH is the North Slope west of the Colville and Itkillik rivers, with the peripheral range sometimes extending as far south as the Nulato Hills of the Brooks Range and as far east as the Arctic National Wildlife Refuge. Most of the herd's range, including the calving range is in the northern portion of the NPR-A. The TLH caribou winter in various locations from near Teshekpuk Lake to the Chukchi Sea coast to south of the Brooks Range. The most common wintering area is around Atqasuk (Carroll 2003c). In some years, TLH caribou may winter within the planning area. For example, in 1996-1997 most of the herd wintered south of the Brooks Range, between Cape Lisburne and the Seward Peninsula (Carroll 2003c).

In 1984, the first photocensus of the TLH counted 11,822 caribou (Carroll 2003c). Other photocensus estimates in 1985 (13,406 caribou), 1989 (16,649 caribou), and 1993 (27,686 caribou) documented a steady increase in the TLH. This was followed by a decrease in the herd estimate in 1995 (25,076 caribou). The estimate again increased in 1999 (28,627 caribou) and in 2002 (45,166 caribou). It is most likely that the 1999 photocensus and possibly the 1995 census undercounted the population, and the herd has gradually increased through the 1990s (Carroll 2003c).

Caribou migrate seasonally between their calving areas and summer and winter ranges to take advantage of seasonally available forage. In general, the winter diet of caribou consists predominantly of lichens, with a shift to vascular plants during the spring (Thompson and McCourt 1981). Composition of plant fragments in caribou fecal pellets collected in the winter range of the WACH averaged 83% lichen (Jandt et al. 2003). *Eriophorum* buds (tussock cottongrass) appear to be very important in the diet of lactating caribou cows during the calving season (Thompson and McCourt 1981, Eastland et al. 1989), while orthophyll shrubs (especially willows) are the predominant forage during the post-calving period (Thompson and McCourt 1981).

Calving ground locations may shift gradually over years or change abruptly due to environmental conditions. Since the mid-1970s, the WACH has calved primary in the Utukok Hills, north and east of the planning area (Dau 2003b). Since the late 1980s calving has been more dispersed and not confined to the Utukok Hills (Dau 1999). Typically, most pregnant cows reach the calving grounds by late May. Severe weather and deep snow can delay spring migration, with some caribou calving en route. Unusual distribution of WACH caribou cows in 2000 and 2001 due to a late break-up (Dau 2003b) illustrates the importance of maintaining free access to calving grounds and providing an adequate buffer around traditional calving areas for years when unusual environmental conditions delay migration. Unrestricted access to annual and concentrated calving areas likely maximizes performance of lactating caribou and their calves.

Insect-relief areas become important during the late June to mid-August insect season. Insect harassment reduces foraging efficiency and increases physiological stress. Caribou use various coastal and upland habitats for relief from insects, including sandbars, spits, river deltas, some barrier islands, mountain foothills, snow patches, and sand dunes; in general, areas where stiff breezes prevent insects from concentrating. Dau (2003b) provides a description of the general movements of the WACH after calving. By mid-June cow/calf groups move west from the calving grounds toward the Lisburne Hills. In late June when the mosquitoes begin to emerge, bulls and nonmaternal cows move to the western North Slope and De Long Mountains. In early July, oestrid flies emerge and insect harassment intensifies, causing WACH caribou to form large aggregations that may include more than 100,000 individuals. At this time, WACH

animals begin to move eastward through the Brooks Range toward Anaktuvuk and Howard passes. As insects diminish in early to mid-August, the caribou disperse. Some move onto the North Slope, going as far as Cape Lisburne and Barrow, while others remain in the mountains.

The fall migration begins in mid-August and extends until mid- to late November. At this time, migratory movements cease and the animals become relatively sedentary until spring migration. Radio telemetry data indicates that the vast majority of the WACH uses the western North Slope and Brooks Range during the summer. In recent years, several thousand caribou (primarily bulls and immature cows) have summered on the Seward Peninsula (Dau 2003b).

The winter range of the WACH has changed over time and varies from year to year. The area identified on Map 3-12 represents areas where most of the herd has wintered in most years since the mid-1980s. Before the mid-1970s a substantial portion of the WACH wintered north of the Brooks Range or near Wiseman and Anaktuvuk Pass. Since the mid-1970s the primary winter range of the WACH has been south of the Brooks Range along the northern fringe of the boreal forest. While most of the herd migrates south of the Brooks Range, some caribou winter on the Arctic coastal plain most years (Dau 2003b, BLM 2003b).

Using radio-collar locations, Dau (2003b) has described the recent winter distribution of the herd in more detail. Between the mid-1980s and mid-1990s a large portion of the WACH consistently wintered in the Nulato Hills. In the last decade, the WACH began shifting its winter range west from the Nulato Hills to the Seward Peninsula. Before the 1996-97 season, less than 9% of the herd wintered on the peninsula in any given year. However, in that 1996-97 season, more than 50% of the herd wintered on the peninsula. The WACH has also become more dispersed during the winter in recent years. Prior to 1996 more than 50% of the herd generally wintered in a single geographic area, usually the Nulato Hills. Since that time, however, the herd has wintered in three to four geographic areas each year, none of which are used by more than 50% of the herd. Wintering areas identified by Dau (2003b) include: North Slope west of the Colville River; foothills of the Brooks Range west of the Utukok River; foothills of the Brooks Range east of the Colville River; Kobuk drainage below Selby River, lower Squirrel drainage, Selawik drainage, and Buckland drainage; Kobuk drainage above Selby River including the central Brooks Range and the Noatak drainage north of Douglas Creek; Koyukuk drainage south of the Brooks Range; Seward Peninsula; Nulato Hills; and Noatak drainage south of Douglas Creek, upper Squirrel drainage, Wulik and Kivalina drainages, and Lisburne Hills.

The current quality of caribou habitat within the planning area is mostly unknown, with the exception of the Buckland River Valley and the northern Nulato Hills, where the BLM has been monitoring caribou winter range since 1981. The last time these habitat transects were monitored, they showed a 14% decline in the percent cover of lichen (Jandt et al. 2003). However, this apparent decline is based on only 20 transects within the 140,000 square mile range of the herd (for more information on vegetative cover in these areas, see the discussion on lichen communities beginning on page 3-32 in the Vegetation section). Given the remoteness of the area and lack of development and other resource uses within the range of the herd, habitat is thought to be in a natural condition in most areas. The large size of the WACH has reduced the availability of lichen in some areas. On the Seward Peninsula, lichen cover has decreased in some localized areas due to grazing by domestic reindeer. Most of the reindeer allotments within the heavily used caribou areas on the eastern Seward Peninsula (Buckland River, Baldwin Peninsula, Shaktoolik, Koyuk River, and McCarthy's Marsh) have been mostly ungrazed by reindeer since the mid- to late 1990s. Although there may have been small numbers of stray reindeer remaining at this time, they were scattered and most of the herders were not actively managing their animals. In 1982, the Buckland River allotment

boundary was adjusted to exclude grazing from the eastern half of the allotment (BLM 1992). The last reported gather for this allotment was in 1994 when 61 reindeer were gathered (Kawerak Inc. 2005). In 2001, the permittee for the Baldwin Peninsula Allotment reported that he no longer had any reindeer on public land (BLM 2001b). The McCarthy's Marsh allotment has not been permitted for livestock grazing since 1984 (BLM 2003a). In 2001, the permittee for the Koyuk River Allotment stated that he had no reindeer remaining (BLM 2002b). In 1994, there were about 1,400 reindeer remaining on the Shaktoolik River allotment. Since that time, most if not all have emigrated with migrating caribou (BLM 2002a).

Dau (2003) identified the portion of the De Long Mountains and its northern foothills west of and including the upper Utukok and Kugururok drainages as critical insect relief habitat for the WACH. During the first half of July, the WACH forms huge aggregations near the Chukchi Sea coast and on barren ridgetops in the westernmost portion of its summer range. During this time, virtually the entire herd moves from the Lisburne Hills/Cape Thompson area eastward toward Howard Pass. Any development that would affect WACH movements at this time of year would essentially impact the entire herd.

The following management objectives for the WACH are identified in the Western Arctic Caribou Herd Cooperative Management Plan (Western Arctic Caribou Herd Working Group 2003):

- Encourage cooperative management of the herd and its habitats among State, Federal, and local entities and all users of the herd.
- Recognizing that caribou herds naturally fluctuate in numbers, manage for a healthy population using strategies adapted to population levels and trends.
- Assess and protect important habitats of the WACH.
- Promote consistent, understandable, and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the WACH.
- Increase understanding and appreciation of the WACH through use of scientific information, traditional ecological knowledge of Alaska users, and knowledge of other users.

(4) Dall Sheep

Within the planning area, Dall sheep populations are found at low densities in the Baird Mountains, Wulik Peaks, and De Long Mountains (western Brooks Range) in Units 23 and 26A. Sheep in this area are at the northwestern margin of their range in Alaska and may be more prone to population changes due to adverse weather than in other parts of the state (Dau 2002b). Although all three sheep populations are found within the planning area boundary, only a small portion of the Baird Mountains population occurs on BLM-managed lands. The current condition of Dall sheep habitat in the Baird Mountains has not been quantified. The remote nature of the area, inaccessibility of the habitat, and limited number of commercial or permitted activities in the area make it very likely that the habitat is in a natural condition. The majority of the high quality habitat is located on NPS land. As the NPS has a greater ability to regulate public and commercial uses, the habitat is expected to remain in a mostly natural condition (Shults 2004, NPS 2005) (Map 3-11).

Small groups of sheep regularly occur on BLM-managed land in the Squirrel River drainage (Baird Mountains). Robinson (1987) estimated that 371,000 acres of BLM land in this area was

suitable sheep habitat. Singer and Johnson (1984) speculated that sheep found along the crest of the Baird Mountains (the boundary between BLM and NPS lands) might be transient animals that disperse from higher density areas to the north.

According to Dau (2002b), the Baird Mountain sheep population last peaked in 1989 when there were an estimated 981 sheep. Severe winters resulted in a population decline, and the population reached its lowest level in 1996 at about 33% of the 1989 level. Lamb production was relatively low until 1995, at which time production increased to pre-1991 levels leading to a corresponding increase in population. The population in 2001 was estimated at 616 sheep (Dau 2002b).

Noatak National Preserve, an NPS unit, is currently developing management objectives for sheep in the Baird Mountains. The focus of these management objectives would be to limit harvest to a conservative level and base harvest on a running average of population size in order to avoid annual reevaluations of harvest (Shults 2004).

(5) *Brown Bear*

Brown bears are widely distributed within the planning area. When not hibernating, they occupy all available habitats within their home range to take advantage of seasonably available food sources. Population densities vary depending on the productivity of the environment. Because brown bears range over large areas with no affinity to a particular habitat, they should be considered creatures of the landscape rather than of a specific habitat type.

Another aspect of bear habitat is the availability of prey species. Declining moose and fish stocks in the planning area may adversely affect bear populations. The current condition of brown bear habitat in the planning area has not been quantified. For the most part, the habitat is in a natural condition. Most of the BLM-managed lands in the planning area are roadless and are far from villages. BLM has not permitted many activities within the planning area that would have resulted in surface disturbance or changes to the habitat. No threats to the quality of habitat are known.

Habitat suitability varies within the planning area, though bear densities are generally higher on the southern Seward Peninsula than in other areas. A census completed in the early 1990s resulted in a density estimate for Units 22C, 22D, 22E and eastern 22B at one bear per 27 square miles (Persons 2003b). This estimate varied greatly within the study area, with the highest density of bears found in western Unit 22B (one bear per 20 square miles) and the lowest in Unit 22E (one bear per 39 square miles). According to ADF&G, bear densities in Unit 22 have increased since 1991 and are currently higher than the densities found during the study (Persons 2003b). The only brown bear census in Unit 23 occurred in 1987 near the Red Dog Mine Road. This study resulted in a density estimate of one adult bear per 27.5 square miles (Ballard et al. 1991). There is no other quantitative data to estimate population trend. Residents of Unit 23 believe that brown bear populations have increased since the 1940s and 1950s (Dau 2003a). Beginning in 2002, ADF&G has received some reports from guides and local residents that bear numbers are decreasing in the Noatak drainage (Dau 2003a). In 1998, bear densities were estimated for broad habitat zones in Unit 26A using subjective comparisons to areas of the North Slope with known bear densities. Densities were estimated at 0.5-2 bears per 386 square miles on the coastal plain (<800 feet elevation), 10-30 bears per 386 square miles in the foothills, and 10-20 bears per 386 square miles in the mountains (Carroll 2003a).

ADF&G has established the following management goals for brown bears in Units 22, 23, and 26A (Dau 2003a, Persons 2003b, Carroll 2003a):

- Maintain the population at levels estimated during the 1991 census in Unit 22.
- Maintain a population that sustains a three-year mean annual reported harvest of at least 50% males.
- Maintain a minimum density of one adult bear per 25.7 square miles in the Noatak drainage (Unit 23).
- Maintain the existing brown bear population in Unit 26A (approximately 800 bears).

(6) Black Bear

In Alaska, black bears occur over most of the forested areas of the state. They are not found on the western Seward Peninsula or north of the Brooks Range (ADF&G 1994a). Similar to brown bears, biological pressures dictate what areas of the black bears home range are preferred at different times of the year. When not hibernating, black bears occupy all available habitats within their home range, taking advantage of seasonably available food sources.

The current condition of black bear habitat in the planning area has not been quantified. For the most part, the habitat is in a natural condition. The portion of the planning area that supports black bears is roadless and remote from most communities. There have been few permitted activities in the area other than special recreation use permits for guided hunting. No threats to the quality of habitat are known. Habitat suitability varies within the planning area, with black bears found primarily in the forested areas in the eastern portion of the planning area. No density estimates are available for black bear populations as there are not enough bears in the area to warrant monitoring by ADF&G. Community harvest assessments show that black bears are harvested in low numbers by residents of Noorvik, Kiana, Selawik, and Shungnak, indicating that they are found as far west as the traditional hunting areas for these communities. The percentage of households in these communities attempting to harvest black bears between 1998 and 2003 ranged from 4 to 20%. Noorvik reported the highest harvest level at 14 black bears in 2002 (Georgette et al. 2004).

(7) Gray Wolf

In general, wolves are found throughout the planning area wherever adequate numbers of prey species are found. In most of Alaska, moose and/or caribou are their primary food. During summer, small mammals including voles, lemmings, ground squirrels, snowshoe hares, beavers, and occasionally birds and fish supplement their diet (ADF&G 1994b).

Wolf numbers in the planning area have fluctuated over the past century based on availability of prey species, government-sponsored wolf control programs, and hunting regulations. Wolf numbers generally increased after Federal wolf control programs were discontinued in the 1960s, aerial wolf hunting was banned in 1970, and land-and-shoot aircraft hunting was banned in 1982 (Carroll 2003b, Dau 2003c, Gorn 2003).

Research has never been conducted in Unit 22 to assess wolf distribution and population trend. Estimates of wolf distribution, population trend, harvest, and human use data are obtained from sealing certificates and observations by staff, reindeer herders, and other local residents (Gorn 2003). In 1990, Ballard (1993) estimated a density of one wolf per 50 square miles in the middle Kobuk River. Extrapolating this density to all of Unit 23 results in a very rough population estimate of 869 wolves (Dau 2003c). Wolf abundance in the Nulato Hills and

Seward Peninsula is dependant upon the presence of caribou, with abundance increasing from October to May when caribou are present. As caribou have extended their winter range west, wolf numbers have also increased (Gorn 2003). Reports from local residents, statewide trapper surveys, and observations by ADF&G staff indicate that wolf numbers have increased on the Seward Peninsula west of and including the Buckland River drainage (Gorn 2003, Dau 2003c). Wolf numbers also appear to have increased in the Kobuk River drainage and decreased slightly in the Noatak River drainage (Dau 2003c). Within Unit 26A, most wolves are found in the Brooks Range and foothills and in the Colville River drainage (Carroll 2003b). In 1993, an estimated 240-390 wolves in 32-53 packs were resident in Unit 26A (Carroll 2003b).

ADF&G has the following management goals for wolves in Units 22, 23, and 26A (Carroll 2003b, Gorn 2003, Dau 2003c):

- Maintain viable wolf populations in Units 22, 23, and 26A.
- Provide hunting and viewing opportunities in Unit 23.
- Minimize adverse interactions between wolves and the public.
- Involve the public in development of a wolf management plan in Unit 26A.

(8) *Furbearers*

Furbearers include those species of mammals that are routinely sought after by licensed trappers who place commercial value on the animals' pelts. Furbearers found in the planning unit include beaver, red fox, Arctic fox, lynx, marten, mink, muskrat, river otter, coyote, wolverine, and wolf (for more information on wolves, see the Gray Wolf section above beginning on page 3-63). Most furbearer harvest in the planning area is by subsistence and recreational users, or is done opportunistically by local residents while engaged in other activities. There are few professional trappers operating in the planning area (Gorn 2004, Dau 2004b, Carroll 2004b). Definitive species population and distribution information is not available, and consequently, ADF&G wildlife biologists rely upon annual trapper harvest reports and opinions, information from local residents, and field observations by ADF&G personnel to gauge furbearer status and trend information. The price paid for animal pelts is the greatest determining factor in trapper harvest effort, and subsequently, in the number of pelts sealed per species per year by ADF&G (Carroll 2004b, Dau 2004b, Gorn 2004).

Wolverines are reported to be common throughout Unit 22 and their numbers are stable. The reported harvest of 71 wolverines from Unit 22 in 2000-01 is the highest ever reported for the unit (Gorn 2004). Based on observations by local residents and ADF&G staff, wolverine numbers appear to be stable in Unit 23. Most of the harvest occurs within 50 miles of communities and therefore, wolverines are most abundant in remote portions of the unit (Dau 2004b). Community harvest assessments show that almost all of the surveyed communities within the planning area harvest some wolverines (Georgette et al. 2004). Hunters have reported that wolverines seem more abundant in recent years in Unit 26A; however, there have been no recent population surveys. In 1984 density was estimated at one wolverine per 54 square miles throughout Unit 26A (Carroll 2004b).

River otters are found in most of the major drainages in Unit 22. Information from trapper surveys in 2000-01 indicates that otters were common and their numbers stable in most of the unit. From 1993 to 2002, reported harvest of river otters through sealing certificates ranged from 2-22 (Gorn 2004). In Unit 23, river otters were taken primarily by recreational trappers. From 1993 to 2002, reported harvest of river otters through sealing certificates ranged from 0-10 annually (Dau 2004b). River otters are not commonly found in Unit 26A (Carroll 2004b).

In Unit 22, beavers are most common in subunits 22A, 22B, 22C, and 22D, and appear to be increasing in subunit 22E (Gorn 2004). In Unit 23 beaver numbers are high in both the Selawik and Kobuk river drainages and they are expanding their populations both north and west. Beavers now occur as far north as the upper Kugurok River and as far west as Rabbit Creek and in the vicinity of Point Hope (Dau 2004b). Residents of Units 22 and 23 are concerned about the increase in beaver populations as these large rodents are considered a nuisance. Some of the concerns associated with increased beaver populations are damming of waterways, inhibiting movement of both salmon and people, increased risk of *Giardia* in drinking water, and blocking of culverts along the road system (Persons 2001, Dau 2004b). The number of beavers reported harvested through sealing certificates in Unit 22 from 1993 to 2002 ranged from 1 in 2002 to 70 in 1996 (Gorn 2004). The sealing requirement for beaver pelts was eliminated in 1999, making sealing certificates for beavers a less reliable source of harvest information (Gorn 2004, Dau 2004b). ADF&G no longer reports beaver harvests for Unit 23 because of the elimination of that requirement.

Mink and martens are most common in Units 22A and 22B where the habitat is more favorable (Persons 2001). The best marten habitat in Unit 23 is in the upper Kobuk River drainage (Dau 2004b). From 1990 to 1991 martens appeared to be expanding their habitat west in Unit 23. During this time, they occurred as far west as the lower Noatak River and were locally abundant in the upper Squirrel River drainage. Since that time, martens appear to have declined in the western coastal portion of the unit (Dau 2004b). Mink inhabit areas throughout Unit 23 but little is known about their abundance or population trend (Dau 2004b).

Both red and Arctic foxes are found in the planning area. Red foxes are abundant in the Nome area and common in many parts of Unit 22 (Gorn 2004) and Unit 23 (Dau 2004b). Red foxes are fairly abundant in the interior regions of Unit 26A and Arctic foxes are abundant on the coastal plain (Carroll 2004b). Both red and Arctic fox numbers were very high in 2000-01 (Dau 2004b, Gorn 2004). Rabies is a problem in both red and Arctic foxes. There is no sealing requirement for these species so no harvest information is available (Carroll 2004b).

Muskrats occur throughout Unit 23 and spring muskrat hunting used to be an important subsistence activity in the area. No specific information is available on abundance, population trend, or harvest levels (Dau 2004b).

Since these species occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, most of the BLM-managed land is in a natural state, permitted activities are minimal (limited mainly to special recreation permits for guided hunts with occasional permits for overland movement of mining equipment or projects such as a remote weather station or research project), and no specific threats to the quality of the habitat are known.

ADF&G management goals for furbearers for Units 22, 23, and 26A, while recognizing that populations fluctuate in response to environmental factors, are to:

- Maintain populations capable of sustained yield harvests in Unit 26A.
- Maintain populations capable of 1986-97 harvest levels in Unit 23.
- Maintain viable numbers of furbearers in Unit 22 (Carroll 2004b, Dau 2004b, Gorn 2004).

(9) Migratory Birds

According to ADF&G, 471 species of bird have been positively identified in Alaska (ADF&G 2004). Many of these species occur in the planning area, including some rare western Alaska species and Asian accidentals. Numerous species of raptors inhabit the planning area including golden eagle, peregrine falcon, osprey, gyrfalcon, northern harrier, American kestrel, merlin, sharp-shinned hawk, northern goshawk, rough-legged hawk, great horned owl, great gray owl, snowy owl, northern hawk owl, short-eared owl, and boreal owl. Many of these species are uncommon to rare due to a lack of suitable habitat. Those species dependant upon forested habitats are generally most common in the eastern portions of the planning area.

Wetland habitat within the planning area is used by populations of waterfowl, including ducks, geese, swans, loons, grebes, cormorants, and shorebirds. These species occupy a wide variety of habitats including coastal wetlands, ponds and lakes, and inland streams.

McCarthy's Marsh and the upper Kuzitrin River located on the Seward Peninsula provide important habitat for waterfowl. These areas include about 154 square miles and 183 square miles of wetland habitat, respectively (Jandt and Morkill 1994). Based on ground brood counts between 1989 and 1993, the average number of duck broods per square mile in McCarthy's Marsh and the upper Kuzitrin River were 25 and 28, respectively (Jandt and Morkill 1994). Although these areas are small, waterfowl production on a per unit basis was comparable to the Koyukuk and Yukon Delta NWRs, both important waterfowl brood areas in Alaska. On the Seward Peninsula study areas, American wigeon, mallard, green-winged teal, northern shoveler, and northern pintail were the predominate dabbling ducks found. Greater scaup, long-tailed duck (previously known as oldsquaw), and black scoter were the most common diving ducks. Other species observed during the surveys included tundra swan, red-necked grebe, Arctic loon, common loon, yellow-billed loon, pacific loon, greater white-fronted goose, Canada goose, and sandhill crane (Jandt and Morkill 1994, Anderson and Robinson 1991).

Because of the variety of habitats preferred by the varying species of birds that migrate to Alaska each year, migratory birds are known to occupy every habitat type within the planning area including riparian, wetland, forest, shrub, and tundra. In landscapes dominated by tundra, riparian corridors consisting of tall willow and alder shrubs support the highest diversity of landbirds (BPIF 1999). Little is known about the population trends of Alaskan landbirds, but Alaskan habitats are still relatively undisturbed (BPIF 1999).

In 1990, U.S. Partners in Flight was organized as a coordinated, cooperative conservation initiative focusing on reversing downward trends of declining non-game landbird species. The group is a coalition of government agencies, conservation groups, academic institutions, private businesses, and citizens. In 1992, the Boreal Partners in Flight Working Group was formed under the umbrella of the Western Working Group of the U.S. Partners in Flight program. Members include the BLM, Fish and Wildlife Service (FWS), NPS, Forest Service, USGS, and ADF&G. The purpose of the Boreal Working Group is to develop and coordinate a network of integrated research, monitoring, and educational programs specific to neotropical landbirds that breed in Alaska (BPIF 1999).

The Boreal Partners in Flight Working Group (1999) has identified the following priority species for western and northern Alaska: gyrfalcon, snowy owl, gray-cheeked thrush, varied thrush, blackpoll warbler, golden-crowned sparrow, Smith's longspur, McKay's bunting, rusty blackbird, and hoary redpoll. Many of these depend upon shrub habitats, which is likely the most

important landbird habitat in western Alaska (BPIF 1999). The Boreal Working Group developed a Landbird Conservation Plan for Alaska Biogeographic Regions in 1999

The overall goal of the Landbird Conservation Plan is to keep landbirds well distributed across the landscape in Alaska. The primary conservation action recommended within the planning area is broad scale monitoring of priority species. No imminent threats have been identified for these species.

Because migratory birds occupy a wide variety of habitats, it is difficult to generalize on habitat condition. However, most of the BLM-managed land is in a natural state, permitted activities are minimal, and no specific threats to the quality of the habitat are known. Those migratory bird species that are special status species (threatened, endangered, or BLM sensitive) are discussed in more detail in the Special Status Wildlife section beginning on page 3-89.

INSERT 11x17 MAP
3_11_ungulates

INSERT 11x17 MAP
3_12_ungulates_bou

INSERT 8.5x11 MAP
3_46_bou_corridors

8. *Special Status Species*

Special Status Species (SSS) include species from three different categories:

- Those that have been proposed for listing as threatened or endangered, are officially listed as threatened or endangered, or are candidates for listing as threatened or endangered under the provisions of the Endangered Species Act (ESA),
- Those listed by a state in a category such as threatened or endangered, implying potential endangerment or extinction, and/or
- Those designated by the BLM State Director as sensitive.

BLM policy is to conserve proposed and listed species and the ecosystems upon which they depend, and to use existing authorities to further the purposes of the ESA. For candidate species, BLM policy is to conserve candidate species and their habitats to ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed. State laws protecting State-listed species apply to all BLM programs and actions to the extent they are consistent with Federal laws. Under Alaska Statute 16.20.190, the Alaska Commissioner of Fish and Game may identify species as endangered in Alaska. Currently, five species are listed as endangered by the State of Alaska. A list of species of special concern to the State was established in 1993 and amended in 1998. At a minimum, sensitive species are managed the same level of protection as candidate species (BLM 2001a).

Sensitive species are designated by the BLM State Director, usually in cooperation with State agencies or State Natural Heritage Programs. A designation of sensitive is generally applied to species that occur on BLM-managed lands and for which the BLM has the ability to affect conservation through management actions. Complete inventories of species distribution and population have not been conducted for most sensitive species. The list of sensitive species is periodically reviewed and updated per BLM manual direction (BLM 2001a). The BLM-Alaska Sensitive Species list was last issued in October 2005 (BLM 2005I). Other species that are not Federally or State listed, or that are not on the BLM sensitive species list may still be considered rare, unique, under consideration for future addition to the sensitive species list, or of special concern for some other reason. However, because some species in these categories do not fit the definition of SSS as described above, they are addressed under the appropriate Vegetation (beginning on page 3-29), Fish (beginning on page 3-49), or Wildlife (beginning on page 3-56) sections.

a) **Special Status Plants**

(1) *Threatened and Endangered Species*

Alaska has only one Federally listed plant species. The endangered Aleutian shield-fern (*Polystichium aleuticum*) grows in moist, rocky alpine terrain on Adak and Atka islands. This small fern is endemic to the central portion of the Aleutian Island chain, and actually has not been relocated on Atka since its original collection in 1932. It is not expected to occur within the planning area.

(2) BLM Sensitive Species

Of the 32 plant species currently shown on the BLM-Alaska Sensitive Species List, only [REDACTED] have been documented within the planning area (Table 3-5). However, ongoing botanical inventory by various Federal, State, university, and private groups plus opportunistic fieldwork discovery means that new species and new collection locations are found every year. The BLM-Alaska Sensitive Species List undergoes periodic review, with the potential to add new rare species or remove species as larger, more secure populations are discovered, or taxonomic questions resolved. Information is fairly good on planning area distribution of the [REDACTED] plant species identified as sensitive. [REDACTED]

[REDACTED] Data on population size and trend is limited.

Sources used to verify sensitive or rare plant species occurrence within the planning area included:

- ARCTOS Database, UAF Museum Herbarium
- ANHP database
- UAF Herbarium (Northern Plant Documentation Center)
- Alaska Rare Plant Field Guide (Lipkin and Murray 1997)
- Flora of Alaska and Neighboring Territories (Hulten 1968)
- Various gray literature reports on floristic inventories, many written by Carolyn Parker, at the UAF Herbarium
- Personal field notes and observations

Table 3-5. BLM Sensitive Plant Species in Alaska

Scientific Name	Common Name	Occurrence in Planning Area
BLM Sensitive Species		
<i>Artemisia aleutica</i>	Aleutian wormwood	Absent
<i>Artemisia globularia</i> var. <i>lutea</i>	purple wormwood	Present
<i>Artemisia senjavinensis</i>	yellow-ball wormwood	Present
<i>Aster pygmaeus</i>	Pygmy aster	Absent
<i>Beckwithia glacialis</i> ssp. <i>alaskensis</i>	Alaskan glacier buttercup	Present
<i>Botrychium ascendens</i>	moonwort	Absent
<i>Claytonia ogilviensis</i>	Ogilvie Mountains springbeauty	Absent
<i>Cochlearia sessilifolia</i>	sessile-leaved scurvy grass	Absent
<i>Cryptantha shackletteana</i>	Shacklette's catseye	Absent
<i>Douglasia beringensis</i>	Bering dwarf primrose	Present
<i>Draba aleutica</i>	Aleutian whitlow-grass	Absent
<i>Draba kananaskis</i>	tundra whitlow-grass	Absent
<i>Draba micropetala</i>	alpine whitlow-grass	Absent
<i>Draba murrayi</i>	Murray's whitlow-grass	Absent
<i>Draba ogilviensis</i>	Ogilvie Mountains whitlow-grass	Absent
<i>Erigeron muirii</i>	Muir's fleabane	Present
<i>Eriogonum flavum</i> var. <i>aquilinum</i>	Yukon wild buckwheat	Absent
<i>Erysimum asperum</i> var. <i>angustatum</i>	narrow-leaved prairie rocket	Absent
<i>Lesquerella calderi</i>	Calder's bladderpod	Absent
<i>Ligusticum caldera</i>	Calder's licorice-root	Absent
<i>Mertensia drummondii</i>	Drummond's bluebell	Absent
<i>Oxytropis arctica</i> var. <i>barnebyana</i>	Arctic locoweed*	Present

Scientific Name	Common Name	Occurrence in Planning Area
<i>Oxytropis kobukensis</i>	Kobuk locoweed	Present
<i>Pedicularis hirsuta</i>	hairy lousewort	Present
<i>Pleuropogon sabinei</i>	nodding semaphore grass	Absent
<i>Poa hartzii</i> var. <i>alaskana</i>	Alaska bluegrass	Absent
<i>Podistera yukonensis</i>	Yukon podistera	Absent
<i>Potentilla stipularis</i>	stipulated cinquefoil	Present
<i>Salix reticulata</i> ssp. <i>glabellcarpa</i>	Smooth-fruited netleaf willow	Absent
<i>Saxifraga aleutica</i>	Aleutian saxifrage	Absent
BLM Sensitive Species		
<i>Senecio moresbiensis</i>	mountain avens	Absent
<i>Smelowskia pyriformis</i>	pear-shaped candytuft	Absent

Source: IM AK-2004-028 *Formerly a category 2 candidate species

During the last 12 years (1992-2004) botanical inventory has focused on two main regions within the planning area where the BLM manages large blocks of public lands: the Squirrel River to the north and the central/southern Nulato Hills to the south. Fieldwork in the Squirrel River (1992-96) initially targeted the floodplain and riparian corridor along the main stem of the river, and then shifted to upland and alpine areas adjacent to the major south-flowing tributaries. Fieldwork in the Nulato Hills was conducted primarily in alpine habitats (1997-98). Valuable new information on location and population size of sensitive and other rare plants was documented, as was the occurrence of many range extensions and connections.

Smaller BLM parcels in the Seward Peninsula have been botanically explored by BLM botanists, natural resource specialists, and wildlife biologists to a certain extent, including the Kigluaik Mountains, Sinuk River uplands, South Fork Buckland River, Wrench Lake area, McCarthy's Marsh, and Clear Creek Hot Springs. Botanical collections have been made at specific sites on the Baldwin Peninsula and Pah River flats, north of the Seward Peninsula. Opportunistic plant collections have been made during reindeer and caribou habitat assessments and during compliance visits to mine site/gravel sale sites or recreation impact river surveys.

Ranking System

BLM-Alaska has relied on the ranking system developed by the ANHP and The Nature Conservancy, plus an international network of natural heritage programs and conservation database centers that assess state and global rarity, for assistance in developing sensitive species lists for Alaskan plants, birds, mammals, and fish. A brief overview of the global and state ranking criteria is given below.

Table 3-6. Global and State Ranking Criteria

Rank	Description
Global	
G1	Critically imperiled globally because of extreme rarity (1-5 occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. Considered critically endangered throughout its range.
G2	Imperiled globally because of rarity (6-20 occurrences) or because of other factors demonstrably making it very vulnerable to extinction throughout its range. Considered endangered throughout its range.
G3	Either very rare and local throughout its range or found locally (even abundantly at some locations) in a restricted range (21-100 occurrences). Considered threatened

Rank	Description
	throughout its range.
G4	Widespread and apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G#G#	Global rank of species uncertain, best described as a range between the two ranks.
G#Q	Taxonomically questionable.
G#T#	Global rank of the species, and global rank of the described subspecies or variety
Global	
G?	Unranked.
State	
S1	Critically imperiled in state because of extreme rarity (1-5 occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. Considered critically endangered throughout the state.
S2	Imperiled in the state because of rarity (6-20 occurrences), or because of other factors making it very vulnerable to extirpation from the state.
S3	Rare or uncommon in the state (21-100 occurrences).
SP	Occurring in nearby state or province; not yet reported in state, but probably will be encountered with further inventory.
S#S#	State rank of species uncertain, best described as a range between the two ranks.
S?	Unranked.
Qualifiers	
?	Inexact.
Q	Questionable taxonomy.

Source: Lipkin and Murray 1997

Map 3-13 shows all special status plant locations in the planning area, regardless of land ownership.

BLM Sensitive Species

This section describes the BLM-Alaska sensitive plant species occurring in the planning area. Discussions cover species locations, brief habitat data, population numbers and trends (if known), any known threats, and rare plant rankings. See Table 3-5 on page 3-75 for a list of the sensitive plant species described in the text, showing their scientific and common names and ANHP-assigned ranks. Descriptions of other rare plant species that occur in the planning area but are not designated BLM sensitive species are included in the Vegetation section under Rare Plants Not Classified as BLM-Alaska Special Status Species beginning on page 3-33.

***Artemisia globularia* var. *lutea* (purple wormwood)**. This short, bright yellow-flowered member of the aster family is endemic to the southwestern Seward Peninsula and to adjacent islands in the Bering Sea (St. Matthew, St. Lawrence, and Pribilof islands). It is found at low elevation alpine habitats, often on dry slopes among granite scree or boulders, in gravels along stream banks, or on exposed moist acidic tundra with dwarf willow, forbs, and sedges.

This species has been found in four locations in Alaska, one of which is within the planning area. Three islands in the Bering Sea are the principal locations: St. Lawrence and the Pribilof islands are Native corporation owned, and St. Matthew Island is part of the Alaska Maritime NWR. However, the Crete Creek collection site on the western flank of the Kigluaik Mountains is on low priority State-selected lands, with underlying BLM management (Map 3-13).

On St. Matthew Island, collection dates range from 1954 to 1982. Collection dates span from 1982 to 1993 at Crete Creek. No information is readily available on population size or trend, but the presence of relocatable populations over periods of 28 and 11 years indicates persistence over time. Threats to these four populations include natural disturbances, reindeer grazing, and human trampling.

Ranking: ANHP – G4T1T2Q/S1S2; currently on BLM-Alaska SSS plant list. The *Atlas of Rare Endemic Vascular Plants of the Arctic*, developed by the international Conservation of Flora and Fauna program in 1999, places *A. globularia* var. *lutea* in the IUCN category of Lower Risk (taxa that do not satisfy the criteria of critically endangered, endangered, or vulnerable) (Talbot et al. 1999).

Artemisia senjavinensis (yellow-ball wormwood). This low-growing, yellow-flowered sagebrush relative is endemic to the Seward Peninsula and southeastern Chukotka Peninsula in Russia. Found at a range of elevations, from rocky coastal headlands to alpine scree slopes and ridge tops, it favors dry calcareous sites and limestone outcrops.

Artemisia senjavinensis (yellow-ball wormwood) is found on Native corporation patented, interim-conveyed, and selected lands, on State-selected lands, on dual-selected lands, and on military withdrawal lands. All of the selected lands are currently under BLM management, and some proportion will likely remain so. Approximately one-half of the known locations of *A. senjavinensis* occur on State-selected or Native corporation land (Map 3-13).

Information on population size, trend, and potential threats is not available. However, *Artemisia senjavinensis* has been collected from close to 30 sites on the Seward Peninsula, including the Kigluaik Mountains, Anvil Mountain, southwest of Council Bluff, northeast of Cape Rodney, Lost River, Wales, and Tin City, from 1954 to 2003, so it is assumed the species is persisting in a sound ecological condition.

Ranking: ANHP – G3/S2S3; currently on BLM-Alaska SSS plant list.

Beckwithia glacialis ssp. alaskensis (Alaskan glacier buttercup). (Most recent taxonomy is tentatively *Ranunculus glacialis*).¹ This short, white-flowered buttercup (petals often tinged with red) represents a remarkable disjunction from the European Alps, being found in only two areas in North America – eastern Greenland and the Kigluaik Mountains of the southern Seward Peninsula (Map 3-13). It has been found at seven locations within the Kigluaik Mountains, typically on steep, south-facing scree slopes mantled with small flat pieces of schist and shale

¹ Due to the dynamic nature of plant taxonomy, recent molecular work in Austria with Alaska plant material indicates the species shown as *Beckwithia glacialis* ssp. *alaskensis* on the 2004 BLM-Alaska SSS list is now tentatively understood to be *Ranunculus glacialis* (Murray and Lipkin 2005). Because the widely referenced *Rare Plant Field Guide to Alaska Plants* (Lipkin and Murray 1997), the *Atlas of Rare Endemic Vascular Plants of the Arctic* (Talbot et al. 1999), and the 2004 BLM-Alaska SSS list use the *Beckwithia* nomenclature, Kobuk-Seward Peninsula planning documents will continue to use *Beckwithia glacialis* ssp. *alaskensis*.

(Murray and Lipkin 1998, Talbot et al. 1999). This species appears to tolerate substrate ranging from acidic to neutral to slightly basic.

This sensitive species plant has been found in Alaska only in the Kigluaik Mountains. The Kigluaik Mountains are State-selected, with BLM management in the interim. The State has assigned low priority to these selections, and it is quite likely that most or all of the Kigluaik Mountains will remain under BLM management. Murray and Lipkin (1998) found hundreds of plants at each of seven locations in the Kigluaik Mountains, and estimated they saw many thousands of *B. glacialis* ssp. *alaskensis* during their floristic survey of the area. These are remote locations, judged to be protected by their isolation (Murray and Lipkin 1998). No information is available on population trend.

Ranking: ANHP – G4T3T4/S2; currently on BLM-Alaska SSS plant list. The *Atlas of Rare Endemic Vascular Plants of the Arctic* places *B. glacialis* ssp. *alaskensis* in the IUCN category of Vulnerable (taxa not critically endangered or endangered but facing a high risk of extinction in the wild in the medium-term future) (Talbot et al. 1999).

Douglasia beringensis (Bering dwarf primrose). An East Beringian endemic species (e.g., restricted to western Alaska), the compact pink-flowered member of the primrose family was new to North America when it was discovered at Trail Creek, Seward Peninsula in 1992 (Kelso et al. 1994). Since then additional populations have been found in northcentral and southwestern Seward Peninsula (Crossfox Butte and Sinuk River uplands, respectively), the central and southern Nulato Hills, and the Lime Hills in southwestern Alaska. Only the Lime Hills populations are outside the planning area. (Note: a small, poorly preserved specimen that may be this species was collected in the Kokrines Hills northeast of Galena in 1979.) (Map 3-13).

Small populations of *Douglasia beringensis* have been found on NPS and State-selected lands in northcentral and southwestern Seward Peninsula. Larger populations of several thousand individuals have been documented on BLM lands in the central and southern Nulato Hills. Outside the planning area, two small populations were discovered on BLM-managed lands in the Lime Hills in southwestern Alaska.

The Seward Peninsula and Lime Hills populations are small, and grow on limestone outcrops in alpine habitats. Three of the Nulato Hills populations are larger, varying from 100-2,000 individuals to several thousand plants, and are found on acidic substrates in fine to coarse alpine scree slopes (Parker 1999).

No information is available on population trend or threats, although most of the populations inhabit remote mountainous terrain.

Ranking: ANHP – G2/S2; currently on BLM-Alaska SSS plant list.

Erigeron muirii (Muir's fleabane). This short and hairy, white-petaled member of the aster family is endemic to northern Alaska. It is usually found in sparsely vegetated and exposed sites at a range of elevations from near sea level to several thousand feet. Typical habitats include dry tundra and gravel barrens, south-facing rocky slopes and ridges, and sandstone or limestone outcrops.

Collections of *Erigeron muirii* spanning 1985 – 2002 have been made in the central and eastern Brooks Range and associated foothills, including locations in the Arctic National Wildlife Refuge

and Gates of the Arctic National Park and Preserve. An older collection (pre-1968) was documented within the planning area, at Cape Thompson. The Cape Thompson population is on U.S. Fish and Wildlife Service managed land, within the Alaska Maritime National Wildlife Refuge.

E. muirii is known from fewer than 20 locations in arctic Alaska. No information is available on population size, trend, or potential threats.

Ranking: ANHP – G2S2; currently on BLM-Alaska SSS plant list. The Atlas of Rare Endemic Vascular Plants of the Arctic places *Erigeron muirii* in the IUCN category of Lower risk (taxa that do not satisfy the criteria of critically endangered, endangered, or vulnerable) (Talbot et al. 1999).

***Oxytropis arctica* var. *barnebyana* (Barneby's locoweed).** Taxonomic uncertainty and difficulties delayed conclusive identification of scattered collections of white-flowered *Oxytropis* made from northwest Alaska during 1989-2003, and made comparison with the original Kotzebue area population collected in 1966 and named by Dr. Stanley Welsh in 1968 more difficult. A status survey conducted in 1984 for the FWS established the *Oxytropis arctica* var. *barnebyana* (known affectionately as OAB) subpopulations in Kotzebue as totaling 1,487 individuals (Lipkin 1985a). OAB was treated as a Category 2 candidate species under the ESA and each new version of the Alaska rare plant field guide treated OAB as a rare and vulnerable species with a single population locus in Kotzebue (Murray 1980, Murray and Lipkin 1987, Lipkin and Murray 1997). The series of conservation measures taken over the years is briefly described below, under Conservation Agreement for *Oxytropis arctica* var. *barnebyana*.

OAB has been documented in five main locations in northwestern Alaska: Kotzebue (USAF withdrawal), Squirrel River (BLM), Noatak National Preserve (NPS), Cape Krusenstern National Monument (NPS), and Bering Land Bridge National Preserve (NPS) (Map 3-13). The largest known populations occur on BLM-managed lands in the Squirrel River. A BLM/FWS crew conducted a survey of OAB at the North Fork and No Name Creek,² Squirrel River drainage, in July 1996 and made a population count of 15,782 individuals for the area they surveyed (Moran 1997). The habitat most often occupied by OAB in northwest Alaska is mid to upper floodplain terraces, but it is also found on older vegetated beach ridges and well-drained upland meadows. Given the opportunity, OAB may colonize gravel pads and less traveled gravel roadsides, as it has done in a few locations one to three miles south of Kotzebue.

Results of DNA analysis of OAB conducted from 1997 to 2001 suggested that the original population found by Welsh in 1966 was not distinct from other populations Alaska, such as those in the Squirrel River (Jorgensen et al. 2003). This was encouraging news, since the Kotzebue population was increasingly threatened and had suffered some unavoidable habitat loss. Genetic analysis performed to this point provide no support for special conservation status for OAB (Jorgensen et al. 2003). However, known sites for OAB in Alaska still number approximately 13, well within the 6-20 range of known populations used by ANHP for their S2

² No Name Creek is a local name for unnamed tributary to the Squirrel River immediately adjacent to and west of the North Fork.

ranking. The Kotzebue OAB population remains vulnerable to continued municipal development and infrastructure expansion.

As previously stated, a completed status survey of OAB in 1984 documented the Kotzebue population as totaling 1,487 individuals in several subpopulations (Lipkin 1985a). By July 1995 when a BLM/FWS field crew conducted a census of the Kotzebue OAB population they discovered a significant increase to approximately 8,391 flowering and vegetative plants (Willeck 1996). A BLM botanical inventory during July 1995 discovered and made collections from a large population of white-flowered *Oxytropis* on BLM-managed lands at No Name Creek, Squirrel River (Meyers 1995a). During July 1996 a BLM/FWS field crew carried out an inventory and population estimate for the white-flowered *Oxytropis* at both No Name Creek and the North Fork, in the Squirrel River drainage. They estimated a total of 15,782 individuals (Moran and Meyers 1996).

As of December 2004, no further census work has been conducted for the Kotzebue or Squirrel River populations of OAB. The prevalence of natural conditions in the Squirrel River and occasional site visits during other BLM fieldwork indicate no major changes have occurred in OAB population numbers in the Squirrel River drainage.

However, the years 1996-2000 were hard on the Kotzebue OAB population because of habitat and biomass losses due to Congressionally-mandated restoration at U.S. Air Force (USAF) Long Range Radar Site (LRRS) and White Alice Communication Site gravel pads three miles south of Kotzebue. Having the OAB Conservation Plan in place moderated the losses but could not prevent them. In addition, pond dredging and gravel stockpiling by a local Native village corporation adjacent to and within OAB beach ridge habitat just south of Kotzebue negatively impacted OAB numbers, even though some mitigation activities were carried out. BLM, FWS, and ADNR Plant Materials Center personnel plus local volunteers worked diligently on mitigation measures for OAB from 1995-2002: mapping, staking, and flagging threatened OAB populations; transplanting; seed collection; greenhouse grow out in Palmer and planting of seedlings in Kotzebue; broadcast of seed; and survivorship monitoring (Moore 2004, Meyers 2003a).

The population trend for the generally remote populations of OAB in the central and northern Seward Peninsula, Cape Krusenstern National Monument, Squirrel River, and mid and upper Noatak River drainage is estimated as stable. However, it is likely that OAB population numbers in the Kotzebue area have decreased from their 1995 levels due to habitat and biomass loss described above. As of September 2002, the OAB subpopulation found on low beach ridge habitat just south of Kotzebue (an area locally known as "south tent city") showed signs of competitive decline in vigor and number of plants. In the course of natural succession several species of willow and dwarf ericaceous shrubs are starting to overtop, shade, and crowd the lower-growing OAB rosettes (Meyers 2002). However, given time and the current low levels of disturbance at the large empty gravel pads at the USAF LRRS three miles south of Kotzebue, the vigorous colonization characteristic of OAB should allow that species to regain lost population numbers in the Kotzebue area.

Ranking: ANHP – G4?T2/S2; currently on BLM-Alaska SSS plant list. *The Atlas of Rare Endemic Vascular Plants of the Arctic* places OAB in the IUCN category of Lower risk, Near threatened, for taxa which do not qualify for conservation dependent, but which are close to qualifying for vulnerable (Talbot et al. 1999). (Note that CAFF uses the synonym *Oxytropis sordida* ssp. *barnebyana*.)

Conservation Agreement for *Oxytropis arctica* var. *barnebyana*

In April 1996 a five-year Conservation Agreement was signed by FWS and USAF to conserve, protect, and conduct mitigation practices for the population of *Oxytropis arctica* var. *barnebyana* at the Kotzebue LRRS. The BLM, ADNRC Plant Materials Center, and UAF were partners in this effort. After the original Conservation Agreement expired in 2001, USAF supplied additional funding through their project Propagate Oxytrope Kotzebue, which ran from 2001 to 2003 for further mitigation measures. In cooperation with the UAF Herbarium, BLM wrote a proposal for DNA analysis of the Kotzebue and Squirrel River *O. arctica* var. *barnebyana* populations, for further clarification of taxonomic uncertainties concerning this species. The proposal was funded by USAF in March 1998, and became part of Master's thesis research to examine taxonomic and biogeographic questions involving the *Oxytropis campestris* and *O. arctica* complexes in Arctic and interior areas of Alaska (Jorgensen et al. 2003).

During the years spanning 1995 to November 2004 OAB conservation and mitigation efforts carried out by BLM and other Conservation Agreement partners have included: mapping, staking, and flagging threatened OAB populations; transplanting; seed collection; population census of Kotzebue and Squirrel River populations; search for additional populations on the Baldwin Peninsula south of Kotzebue; greenhouse grow-out in Palmer and planting of seedlings in Kotzebue; broadcast of seed in Kotzebue; survivorship monitoring in Kotzebue; and informal consultations and site visits with interested municipal, State and Federal agencies, Tribal organizations and private groups on the status and location of OAB populations in Kotzebue and elsewhere in northwest Alaska (Moore 2004, Meyers 2003).

***Oxytropis kobukensis* (Kobuk locoweed)** occurs in very specialized habitats within the planning area, all on NPS-managed lands (Map 3-13). *O. kobukensis* is restricted to three active dune fields found along a 25-mile stretch of the Kobuk River from Kavet Creek to Onion Portage, and to portions of stabilized, vegetated sand sheets surrounding these dunes. The Great Kobuk Sand Dunes, the Little Kobuk Sand Dunes, plus the Hunt River dunes are all on the south side of the Kobuk River, within Kobuk Valley National Park. Botanists have searched small remnant dune fields near the active Kobuk River dunes and other dune fields scattered across the state, but have not found any additional populations of *O. kobukensis*.

Oxytropis kobukensis is a narrow endemic, restricted to sand dune-associated substrates in the Kobuk River valley. Status survey field work in 1984 documented five populations, several of which were quite large, containing many thousands of individual plants. Total population was estimated at possibly over one million, and perhaps as many as several million (Lipkin 1985b). Information on population trend is not readily available, but in 1984 the plants were healthy, propagating vegetatively (with only a few seedlings seen), and producing fairly abundant flowers and fruits. Main causes of mortality were judged to be from wind excavation or burial, both characteristic of sand dune habitats. Populations at the major sites appeared stable, with vegetative reproduction adequate to maintain the population (Lipkin 1985b).

No current threats exist, and all populations remain under the protective management of the NPS. Long-term, climatically-driven cycles of dune expansion or contraction could potentially affect population size and health in the future.

Ranking: ANHP – G2/S2; currently on BLM-Alaska SSS plant list.

***Potentilla stipularis* (stipulated cinquefoil).** This Asian disjunct and yellow-flowered member of the rose family has been collected at only six locations in north and northwest Alaska (Map 3-

13). For some years the earliest collection near Umiat (pre-1968) was the only site known in the state. In 1980 and 1996 *Potentilla stipularis* was discovered on BLM land (now State-selected) at two sites on the West Fork of the Buckland River. In 2001 and 2002 botanical inventory in the Noatak National Preserve by UAF Herbarium personnel, with some assistance from BLM, found *P. stipularis* growing in a total of three locations in the Anisak River/Desperation Lake areas and along the crest of the western Brooks Range (headwaters of Kagvik Creek), outside the planning area.

P. stipularis often grows on moist, vegetated floodplains or low river banks, in grassy meadows on riparian terraces or in moist Dryas-heath tundra adjacent to lakeshores or alpine creeks. It has been collected from two sites in the Buckland River drainage on State-selected access corridors within larger blocks of BLM land. In August 1996, at the West Fork of Buckland River, a BLM field crew counted a small population of 59 healthy, post-flowering and post-fruiting individuals in a roughly 20 by 80 foot patch in a grassy meadow ringed by willow and alder (Meyers 1996a). It was reported as “abundant” along banks of the West Fork, Buckland River in 1980 (Lipkin 1995). Otherwise, population sizes and trends are largely unknown.

The original, pre-1968 collection (for a long time the only known location in Alaska for *P. stipularis*) is in the vicinity of Umiat, within the NPR-A, on the west side of the Colville River (Lipkin 2005, Hulten 1968). With the exception of Umiat, these are remote to infrequently visited areas. Several populations are adjacent to large rivers, which could be periodically impacted by natural disturbances such as flooding, bank erosion, and ice scour.

Ranking: ANHP – G5/S1; currently on BLM-Alaska SSS plant list.

Pedicularis hirsuta (hairy lousewort). This pink-flowered member of the figwort family is known from only one location in Alaska, although it is more common in the Arctic of eastern Canada, Greenland, Arctic Asia, and northern Norway. It is similar to the widespread and abundant *Pedicularis lanata*, found across Arctic Alaska, Arctic Canada, and Greenland, and may have occasionally been overlooked in Alaska due to its resemblance to the more common species. It was collected in July 1992 by Alaskan and Soviet botanists from the lower, north-facing slopes of Mount Boyan, south of Kuzitrin Lake in southcentral Seward Peninsula, on BLM-managed lands (Map 3-13). No information is available on population size, trend, or threats.

Ranking: ANHP – G5/S1; currently on BLM-Alaska SSS plant list.

INSERT 11x17 MAP
3_13_sss_plants

b) Special Status Fish

(1) *Threatened and Endangered Species*

There are no threatened, endangered, or candidate fish species present within the planning area.

(2) *BLM Sensitive Species*

At least [redacted] of the Kigluaik Mountain’s 50 lakes located 30 miles north of Nome contain populations of Arctic char (Kigluaik Arctic char) that were designated as a BLM Sensitive Species due to their unique genetic makeup, body form, slow growth, and susceptibility to overharvest (Kretsinger 1987, Webb 1999). These lakes are Fall Creek (upper, middle, and lower), Crater, Snow Creek, [redacted], and Gold Run, as shown on Map 3-14. This lake habitat comprises approximately [redacted] acres [redacted] (Kretsinger 1987, Webb 1999). The fish are present in the nutrient-poor alpine lakes of the Kigluaik Mountains, which are ice-covered nine months of the year. The cold water and limited forage base afforded these fish result in slow-growth and long-lived fish [redacted]. Genetic analysis performed by the BLM on fish collected from Fall Creek and Crater lakes indicate the fish were more closely related to European fish, as opposed to other Alaskan, Russian, or British Columbian stocks (Webb 1999).

Although genetic samples were collected and meristic measurements were recorded by the BLM, and species presence in some of the lakes has been documented (Webb 1999), due to budget constraints, no population estimates have been conducted [redacted]. Baseline studies began in 2006 at Fall Creek and Crater lakes. Recreation use in the Kigluaik Mountains is increasing based upon the number of hikers and OHV users who visited the Glacial Lake sockeye salmon counting camp from 2000 to 2005, and increased fishing pressure on char-bearing lakes is likely. [redacted]

[redacted]

[redacted]

Table 3-7. Fish Special Status Species Occurring in the Planning Area

Scientific Name	Common Name	Occurrence in Planning Area
BLM Sensitive Species		
<i>Salvelinus alpinus</i>	Kigluaik Arctic char	Limited to lakes in the Kigluaik Mountains

INSERT 8½x11 MAP
3_14_sss_char

c) Special Status Wildlife

(1) Threatened, Endangered, and Candidate Species

There are two threatened species, Steller's eider and spectacled eider, [REDACTED] and one candidate species, Kittlitz's murrelet, in the planning area (Table 3-8). There is no designated critical habitat within the planning area, although there are two designated Critical Habitat units off the coast of the planning area.

Table 3-8. Wildlife Special Status Species Likely to Occur in the Planning Area

Scientific Name	Common Name	Occurrence in Planning Area
Threatened Species		
<i>Polystricta stelleri</i>	Steller's eider	Casual
<i>Somateria fischeri</i>	Spectacled eider	Rare
Proposed Species		
<i>Ursus maritimus</i>	Polar bear	Uncommon
Candidate Species (also a BLM sensitive species)		
<i>Brachyramphus brevirostris</i>	Kittlitz's murrelet	Rare to uncommon
BLM Sensitive Species		
<i>Branta bernicla</i>	Black brant	Common/uncommon
<i>Calidris canutus</i>	Red knot	Uncommon/common
<i>Catharus minimus</i>	Gray-cheeked thrush	Common breeder
<i>Cephus grylle</i>	Black guillemot	Uncommon/rare
<i>Clangula hyemalis</i>	Old squaw	Abundant breeder
<i>Contopus cooperi</i>	Olive-sided flycatcher	Rare breeder
<i>Cygnus buccinator</i>	Trumpeter swan	Casual
<i>Dendroica striata</i>	Blackpoll warbler	Common breeder
<i>Falco peregrinus tundrius</i>	Arctic peregrine falcon	Uncommon
<i>Gavia adamsii</i>	Yellow-billed loon	Uncommon
<i>Gavia stellata</i>	Red-throated loon	Common to abundant
<i>Histrionicus histrionicus</i>	Harlequin duck	Uncommon breeder
<i>Limosa limosa</i>	Black-tailed godwit	Casual/accidental
<i>Lynx canadensis</i>	Canada lynx	Common
<i>Melanitta nigra</i>	Black scoter	Common breeder
<i>Melanitta perspicillata</i>	Surf scoter	Common/uncommon
<i>Numenius tahitensis</i>	Bristle-thighed curlew	Rare breeder
<i>Plectrophenax hyperboreus</i>	McKay's bunting	Uncommon/rare
<i>Somateria spectabilis</i>	King eider	Rare migrant/breeder
<i>Tryngites subruficollis</i>	Buff-breasted sandpiper	Very rare migrant

(a) Steller's Eider

Steller's eider probably occurs within the planning area only as a migrant or rare summer visitor (Map 3-15). A few non-breeding birds may summer in Norton Sound and other areas off the coast of the Seward Peninsula (Kessel 1989). The Alaska breeding population is [REDACTED] listed as threatened (Federal Register 1997) [REDACTED]. Current breeding distribution encompasses the Arctic coastal regions of northern Alaska from

Wainwright to Prudhoe Bay up to 56 miles inland, and Arctic coastal regions of Russia (Federal Register 1997). Eiders have been documented near Point Lay during aerial surveys on the North Slope between 1986 and 2002 (FWS 2002). Historically, Steller's eider was a common breeder in the Yukon-Delta but is now rarely found in the area. They apparently nested in low numbers on the Seward Peninsula in the late 1800s (Kessel 1989). Preferred nesting habitat is tundra with numerous ponds of various sizes. They are not as closely tied to the coastal areas as the other eider species.

A recovery plan has been developed for Steller's eider. Because of the lack of basic information on Steller's eider distribution, abundance, and population ecology, recovery efforts focus on collecting this basic information and targeting known sources of mortality. Recovery tasks include: reducing exposure to lead; reducing nest predation; reducing hunting and shooting mortality; acquiring information on marine habitats; clarifying distribution and abundance; acquire information on breeding ecology; acquire demographic information needed for population modeling; and maintaining or reestablishing populations on Yukon-Kuskokwim Delta. None of these tasks are specified for the planning area. The very limited distribution of eiders and the limited amount of BLM-managed land in the area eiders are most likely to occur make implementation of recovery actions on BLM lands within the planning area unlikely.

(b) Spectacled Eider

The spectacled eider is Federally listed as a threatened species throughout its range in Alaska (Federal Register 1993b) and also as an Alaska Species of Special Concern. Historically, spectacled eiders nested discontinuously along the coast of Alaska from Nushagak Peninsula on Bristol Bay to Barrow and east nearly to the Yukon border. Today, almost all spectacled eiders of the North Slope population breed north of 70° latitude between Icy Cape and the Shavirovik River (Federal Register 2001), generally within 43 miles of the coast. The primary breeding areas are located outside of the planning area. Small numbers of spectacled eiders may nest within the planning area near Point Lay (Map 3-15).

Spectacled eiders molt in Norton Sound and Ledyard Bay. Both of these areas are designated as Critical Habitat (Federal Register 2001) and are located off the coast of the planning area (Map 3-15). Norton Sound is the principal staging and molting area (July-October) for nesting females and juveniles from the Yukon-Delta population. Up to 4,030 spectacled eiders have been observed in Norton Sound at one time (Federal Register 2001). Ledyard Bay is one of the primary molting grounds for female spectacled eiders nesting on the North Slope. Aerial surveys in 1995 found 33,192 spectacled eiders in Ledyard Bay (Peterson et al. 1999). Post breeding migration corridors are offshore in the Bering, Chukchi, and Beaufort seas. Adult males are at sea for approximately 11 months of the year while adult females spend eight to nine months of the year at sea (Peterson et al. 2000).

The recovery plan for the spectacled eider (FWS 1996) identifies recovery criteria and preliminary management actions needed for delisting. Because of the lack of basic information on spectacled eider distribution, abundance, and population ecology, interim recovery efforts focus on collecting this basic information and targeting known sources of mortality. None of the recovery actions listed are indicated for the planning area. The limited distribution of eiders within the planning area and the limited amount of BLM-managed land in the area eiders are most likely to occur make implementation of preliminary recovery actions within the planning area unlikely.

The following specific guidelines for activities within the breeding range of spectacled eiders have been developed as part of the recovery plan (FWS 1996). Habitat in the project area should be assessed to determine if eiders are likely to use the area for nesting or brood rearing. The following activities should be prohibited within 656 feet of spectacled eider nest sites:

- Ground level activity (by foot or vehicle) from May 20 through August 1.
- Construction of permanent facilities, placement of fill, or alteration of habitat.
- Introduction of high noise levels within 656 feet of nest sites (from activities at potentially greater distances), May 20 through August 1. These may include but are not limited to airports, blasting, and compressor stations.

(c) Polar Bear

On December 27, 2006 the FWS proposed to list the polar bear as a threatened species under the Endangered Species Act (Federal Register 2007). This proposal initiated a 12 month review to assess the current status and future of the species. The listing proposal cites the threat to polar bear populations caused by changes in sea ice, which bears use as a platform to hunt for prey. In recommending a proposed listing, the FWS used scientific models that predict the impact of the loss of ice on bear populations over the next few decades. There are 19 polar bear populations in the circumpolar Arctic, containing an estimated total of 20,000-25,000 bears (Federal Register 2007). Alaska populations have not experienced a statistically significant decline, but there is concern of a future decline (FWS 2006). Recent scientific studies of adult polar bears in Alaska's Southern Beaufort Sea have shown weight loss and reduced cub survival (FWS 2006). While data are lacking about many populations, the FWS suspects that polar bears elsewhere are being similarly affected by the reduction of sea ice. Factors potentially affecting polar bears include: destruction, modification or curtailment of its habitat or range (primarily changes in sea ice), harvest (sport, subsistence, scientific, in defense of life), disease, intraspecific predation, inadequacy of existing regulatory mechanisms to protect habitat, contaminants, disturbance from shipping and transportation, and eco-tourism (Federal Register 2007).

The Chukchi Sea population is estimated to comprise 2,000 animals based on extrapolation of aerial den surveys. Status and trend cannot yet be determined for this population (Federal Register 2007). The coastal areas from Icy Cape to Cape Lisburne are within the normal range of the Chukchi Sea population of polar bears. In this area, bears use barrier islands, drainages, and coastal bluffs seasonally for feeding, denning, and migrating (FWS 1995). On a statewide basis, 90% of the dens are within 25 miles of the coast. Alaska polar bears spend most of their time on the pack ice, migrating seasonally with changes in the ice pack. Approximately 15 miles of coastline between Icy Cape and Cape Lisburne remain under BLM ownership. About 12 miles of this is State- or Native-selected and is likely to be conveyed. BLM-managed land within the planning area may occasionally be used by polar bears. The BLM areas most likely to be used by polar bears are river drainages north of Cape Thompson that drain to the ocean, particularly within 25 miles of the coast.

Polar bears are already protected under the Marine Mammal Protection Act of 1972. Amendments to the Act authorize the Service to regulate incidental take of polar bears. The species is also protected under international treaties involving countries within the bear's range. In December 2006, Congress passed the United States-Russia Polar Bear Conservation and Management Act of 2006, implementing a treaty with Russia designed to conserve polar bears shared between the two countries. President Bush is expected to sign this legislation into law.

In 1995, the FWS developed A Habitat Conservation Strategy for Polar Bears in Alaska (FWS 1995). The purpose of the conservation strategy is minimize adverse impacts from oil and gas activities on polar bear, their habitat, and on subsistence use of bears.

(d) Kittlitz's Murrelet

Kittlitz's murrelet is a Beringian species that nests along most coastal regions from southwestern to western Alaska (Day et al. 1999). In 2001, the FWS was petitioned to list the Kittlitz's murrelet as a threatened or endangered species with designated critical habitat. It was listed as a candidate species on May 4, 2004 (Federal Register 2004).

In Alaska, the majority of the summer populations are found in three locations: Southeastern Alaska, Prince William Sound, and Cook Inlet (Day et al. 1999). In western Alaska and Bering Sea islands, Kittlitz's murrelet breeds on the Seward Peninsula westward from Nome to Wales and possibly at Sledge Island (Kessel 1989). The scarcity of breeding records makes determination of exact breeding range difficult. Kessel classifies it as a rare breeder on the western half of the Seward Peninsula (Map 3-15). Summer sightings between Nome and Cape Woolley suggest nesting in the Kigluaik Mountains (Kessel 1989). It also nests north of Kotzebue, from Kivalina to Cape Thomson in the foothills of Brooks Range, and as far north as Cape Lisburne and the Lisburne Hills. In northern Alaska, suitable habitat is lacking north of Cape Beaufort, so the species occurs rarely and probably does not breed north of that location (Day et al. 1999).

Nesting habitat consists of unvegetated, scree slopes or steep, rocky slopes; rarely on cliff faces (Day et al. 1999). Nesting sites are most often inland, up to 16 miles from the coast (Kessel 1989). Very few nests have ever been found, even in areas with much higher population densities than the planning area. Day et al. (1999) lists 25 nest sites total, four which were in Russia. Of these 25 sites, nine were found within the planning area between the western tip of the Seward Peninsula and Cape Thompson, a distance of approximately 190 miles. Seven of these nest sites were located near Wales on Native or military land. The remainder were located near Cape Thompson. One of these potentially was located on State-selected land on Angmakrok Mountain. The generalized nature of the nest locations makes it impossible to determine the exact location on the ground and thus land ownership.

The winter marine range is poorly known. There have been few sightings of the species during the winter. Only 31 total have been seen on all Alaska Christmas Bird Counts combined from 1967 to 1997, suggesting that most birds go out to sea during winter (Day et al. 1999). There is no reliable population information at this time. Indications are that a substantial proportion of the world population died as a result of the Exxon Valdez oil spill in 1989; one estimate of this mortality was 5-10% (Van Vliet and McAllister 1994).

This species is sparsely distributed within the planning area. There is currently not a well designed, repeatable census technique for breeding murrelets and it would be very difficult to inventory nesting habitat effectively. There are no known risks to the habitat or species within the planning area.

(2) *BLM Sensitive Species*

Nineteen birds and one mammal identified as BLM sensitive species occur within the planning area on more than an accidental basis (Table 3-8). Information on distribution, habitat condition, and population trends for most of these species is limited (Map 3-16 and Map 3-17).

Only those species occurring in the planning area on more than an accidental basis are discussed below.

Red-throated loon (*Gavia stellata*) is a non-resident breeder throughout the planning area. Kessel (1989) identified it as a common breeder on the Seward Peninsula. It is most abundant in coastal lowlands, but occurs where suitable wetlands are present. According to Barr et al. (2000), red-throated loons prefer tundra and coastal habitats but may be found in the mountains up to 3,280 feet and in some forested regions.

In Alaska, red-throated loons declined by 53% from 1977 to 1993. Most of the decline appears to be in western tundra (Groves et al. 1996, McCaffery 1998). Possible mortality factors in Alaska include subsistence hunting and entanglement in fishing nets. Mammalian and avian predation is a common cause of mortality of eggs and chicks. Egg predation by Arctic foxes may be high in years with low rodent populations. Competition with larger loon species for nesting sites may also be a factor (Barr et al. 2000).

Yellow-billed loon (*Gavia adamsii*) is a relatively rare bird in the Arctic tundra regions of North America. A petition to list the species is currently under review by FWS. The yellow-billed loon breeds sparsely in lowlands around Kotzebue Sound north to Point Hope and in large numbers on the North Slope of Alaska (North 1994). Kessel (1989) classifies it as an uncommon migrant and breeder on the Seward Peninsula while being more common on the northern half of the Peninsula. Earnst (2004) shows yellow-billed loons breeding in McCarthy's Marsh, Selawik NWR, Imuruk Basin, and southern Norton Sound (Map 3-15). This species winters in southeast Alaska. Nests are usually located in low lying, tundra near the coast. Preferred nest sites are located near large, low rimmed lakes or slow moving rivers. They are occasionally taken by subsistence hunters and frequently drown in fishing nets (North 1994). There is potential for impact to this species from oil development in breeding areas on the North Slope.

The wetlands of Seward Peninsula and Selawik NWR were surveyed in 1992-93 and 1996-97 using standard waterfowl breeding pair survey methods. Surveys of the two areas combined, which encompassed all likely yellow-billed loon breeding habitat in western Alaska from the Seward Peninsula north to Point Hope, yielded a population index of 730 ± 126 yellow-billed loons (Earnst 2004). When combined with an estimate of 50 loons on St. Lawrence Island (Fair 2002), the total population index for yellow-billed loons in western Alaska was 780 individuals.

In March 2004, a consortium of environmental groups petitioned the FWS to list the yellow-billed loon under the ESA (Center for Biological Diversity 2004). The FWS is currently considering the petition for listing and will make a finding in the near future. As the result of a cooperative effort among local, state, and Federal resource agencies in northern and western Alaska, a Conservation Agreement for the yellow-billed loon was developed and approved in September 2006. The goal of this Agreement is to protect yellow-billed loons and their breeding, brood-rearing, and migrating habitats in Alaska, such that current or potential threats in these areas are avoided, eliminated or reduced enough that these threats do not cause the species to become threatened or endangered within the foreseeable future.

Trumpeter swans (*Cygnus buccinator*) are uncommon in the planning area, occurring primarily in central and southern Alaska (Mitchell 1994) (Map 3-16). They are normally found in forested areas but are casual breeders west of the taiga of interior Alaska (Hansen et al. 1971). Kessel (1989) cites one record of trumpeter swan eggs collected on the Seward Peninsula in 1902. Breeding swans prefer secluded wetland areas containing extensive areas of shallow lakes with abundant emergent vegetation. Adjacent waters and marshes are important for foraging. They

have been relatively unaffected by human development in Alaska and during a 1990 census were found to number over 13,000 statewide (Mitchell 1994).

Black brant (*Branta bernicla*) breed in coastal areas in the northern half of the planning area (Reed et al. 1998) and are common migrants and rare breeders on the Seward Peninsula (Kessel 1989) (Map 3-16). The Alaska population winters along the Pacific coast from Alaska south to Baja California (Reed et al. 1998). Many migrants fly over the Seward Peninsula. Black brant often nest in colonies near salt marshes or on broad estuarine deltas supporting low vegetation. To avoid predators they often build nest on islands in small ponds or river deltas, on small offshore islands, or on gravel spits. Many failed and non-breeding black brant migrate to the Arctic coastal plain to molt. According to Reed et al. (1998) subsistence hunting is one of the most important factors regulating population size in combination with predation by foxes. Statewide in Alaska, total subsistence harvest of brant in 1994 was approximately 10,000 birds (Reed et al. 1998). Population decline in Alaska since the 1960s is primarily attributed to reductions in the nesting population in the Yukon-Kuskokwim Delta during the 1970s and early 1980s. Although the number of nests has increased since the 1980s, numbers still appear to be below historic levels.

Harlequin duck (*Histrionicus histrionicus*) is an uncommon breeder on the Seward Peninsula where it is widely distributed along clear, shallow, rapidly flowing creeks and rivers (Kessel 1989). This widespread species is also known to breed along glacial lakes, in tundra ponds, and perhaps rarely on offshore rocks in marine waters. It is found throughout much of Alaska, south of the Brooks Range and west to the Seward Peninsula (Robertson and Goudie 1999) (Map 3-16). Harlequin ducks have been recorded over most of Alaska except the Arctic coast (Johnsen and Herter 1989). Most harlequins apparently migrate along the western coast of Alaska to and from wintering grounds further south. Because of their range and habitat preferences for more remote and harsh environments, harlequin duck populations and their preferred habitat in Alaska have been relatively unaffected by human disturbances and encroaching developments (ADF&G 1994c).

Long-tailed duck (*Clangula hyemalis*), also called oldsquaw, is one of the most common waterfowl on the Seward Peninsula (Kessel 1989). They are widely distributed throughout coastal and interior lowlands, including McCarthy's Marsh and Imuruk Basin. They nest along lagoon shores, in river estuaries, or about freshwater lakes and ponds. In Alaska, deep Arctophila dominated ponds are used early in the season. During breeding, shallow ponds and braided streams are used (Robertson and Savard 2002). After breeding, most adults and fledglings move to coastal ponds and lagoons, or protected marine waters to molt. They commonly winter in the Aleutian Islands and southern Bering Sea. According to Hodges et al. (1996) the breeding population in Alaska has declined 75% since 1977 and continues to decline (Conant et al. 1999). Factors contributing to the decline may include subsistence harvest and ingestion of lead shot. Twenty percent of females nesting on the Yukon-Kuskokwim Delta were exposed to ingested lead (Robertson and Savard 2002). There is documented decline in long-tailed duck numbers in Waterfowl Production Units (WPU) surveyed by the FWS in Alaska, particularly in the tundra habitat zone of western Alaska (Kotzebue Sound, Seward Peninsula, Yukon-Kuskokwim Delta, and Bristol Bay) (Conant and Groves 1998).

Black scoter (*Melanitta nigra*) is common and widely distributed throughout the planning area, breeding on the Seward Peninsula, Kotzebue Sound, and Arctic coastal plain. Molting occurs south of the planning area on the Yukon-Kuskokwim Delta. Black scoters winter in the Aleutian Islands and along the southern coast of Alaska. Nesting habitat includes upland areas with small ponds and at the transition zone between the uplands and coastal lowlands (Kessel

1989). FWS North American Waterfowl Breeding Population Survey (NAWBPS) indicates members of the scoter group have been in a slow steady decline since initiation of the survey in 1957 (Hodges et al. 1996). In a review of data from 1977 to 1997, the FWS noted that the slow decline was most dominant in the component of scoters observed in the WPU's composed of tundra habitat (Bristol Bay, Yukon Delta, Seward Peninsula, and Kotzebue Sound) (Conant and Groves 1997). This decline is due to a combination of factors including lead shot poisoning, contaminants in the food chain, and hunting. The 10-year average harvest of black scoter on the Yukon-Kuskokwim Delta is 6,100 compared to the most harvested species northern pintail at 9,600 and mallard at 6,800. Northern pintails and mallards have populations in Alaska of 946,000 and 836,100, respectively, while black scoter may number as low as 100,000-300,000 (Goudie et al. 1994, Bordage and Savard 1995, Conant and Groves 1998). Considering that black scoter harvest on the Yukon-Kuskokwim Delta is only slightly lower than harvest of northern pintails and mallards, species with nearly three times larger populations, a greater percentage of mortality in the black scoter population in Alaska may be attributed to hunting than in these other species.

Within the planning area, the surf scoter (*Melanitta perspicillata*) breeds along the western coast of Alaska from Kotzebue Sound to Wales (Savard et al. 1998). Kessel (1989) characterized them as uncommon summer visitors and rare breeders on the Seward Peninsula but locally common in Kotzebue Sound. These confirmed breeding areas may not represent the full extent of breeding distribution due to limited studies, difficulty in distinguishing between female surf and white-wing scoters when surveying, and the secretive breeding behavior of the species. Non-breeders and immature scoters summer along marine coasts in littoral areas, bays, and estuaries. Mixed flocks of males, non-breeders, and immatures occur on Kotzebue Sound throughout the summer but are rare in Norton Sound (Kessel 1989). They winter in coastal areas along the Aleutian Islands and south to Baja California. Aerial surveys in Alaska from 1957 to 1992 indicate long-term decline in breeding populations (Henny et al. 1995). Caution is required for interpreting trend data because surveys are not well adapted for estimating scoter numbers (Savard et al. 1998).

King eiders (*Somateria spectabilis*) occur within the planning area in low numbers (Map 3-16). These eiders are rare visitors to Seward Peninsula during the summer and winter, but may migrate through the area in large numbers (Kessel 1989). They breed along the Arctic coast from Cape Lisburne east to Canada (Suydam 2000) and are known to breed on Cape Thompson in the Maritime NWR. Kessel (1989) cites one breeding record for Cape Espenberg on the Seward Peninsula. Nesting occurs in a variety of tundra habitats. Distance from the coast varies, but the species commonly nests inland in areas of scattered lakes and ponds. They tend to nest farther inland than common or spectacled eiders. Molting areas are mostly unknown but are presumably in marine environments (Suydam 2000). During the summer, small groups of non-breeders molt in the Safety Sound-Cape Nome area and in the vicinity of Sledge Island (Kessel 1989). The species winters primarily in the Bering Sea, south of St. Lawrence Island, and along the coasts of the Aleutian chain (Suydam 2000). Based on migration counts at Point Barrow, the western Arctic population of king eiders appears to have declined by 55% between 1976 and 1996 (Suydam et al. 2000).

Bristle-thighed curlew (*Numenius tahitensis*) breeds on the north central Seward Peninsula and in the southern Nulato Hills and northern Yukon Delta, and is not known to breed outside of western Alaska (Marks et al. 2002) (Map 3-16). There are sporadic June records of individual birds in the Mulgrave Hills and western Baird Mountains north of Kotzebue, and small flocks of birds in late summer on the shores of Cape Krusenstern (Marks et al. 2002). Recent surveys of these locations during peak breeding failed to detect curlews (Marks et al. 2002). Curlews

winter on islands in the Pacific Ocean. Primary staging area is the Yukon Delta with small groups staging along coastal areas of the Seward Peninsula (Kessel 1989). Nesting habitat is characterized by rolling hills covered with upland tundra, drainages with medium to tall shrubs, and higher elevation ridges and slopes with dwarf vegetation or bare ground. Comprehensive surveys of known breeding range from 1988 to 1992 yielded about 3,200 breeding pairs about 40% of which were on the Seward Peninsula (Marks et al. 2002).

Buff-breasted sandpiper (*Tryngites subruficollis*) is identified by Kessel (1989) as a very rare migrant on the Seward Peninsula and this status probably applies to the rest of the planning area as well. The primary breeding range of the species is the north slope of Alaska east of Barrow and into Canada. It winters in South America, apparently migrating north primarily along the central flyway through the United States and Canada. During the fall migration, some juveniles may migrate along the west coast of North America (Lanctot and Laredo 1994) and there are a few records of migrants on the Seward Peninsula in the spring and fall (Kessel 1989). This shorebird prefers dry ground on tundra ridges during breeding season and the drier areas of tidal flats during migration. Threats to the species range-wide include disturbance at nest sites, predation, contaminants, and loss or degradation of habitat along migration routes and in winter range (Lanctot and Laredo 1994).

Black guillemot (*Cepphus grylle*) is circumpolar in distribution. It is an uncommon breeder in western Alaska at Cape Thompson and a regular summer visitor to St. Lawrence Island with fewer than 2,000 breeding individuals found along the Alaska coast and offshore islands (Butler and Buckley 2002). This species is probably a rare visitor to the coastal portions of the planning area south of Cape Thompson (Kessel 1989). Guillemots generally breed along rocky marine coast of offshore islands in shallow water and forage in nearshore waters (Butler and Buckley 2002). They winter in marine habitats near the breeding range but retreat from areas of solid sea ice. Lack of historic data makes determination of any population trend difficult.

Red knot (*Calidris canutus*) breeds in northwestern and northern Alaska including the Seward Peninsula, De Long Mountains, and Point Barrow (Kessel 1989, Harrington 2001). Kessel (1989) characterizes the red knot as an uncommon breeder and fall migrant on the Seward Peninsula (Map 3-16). It nests in the upland areas on high, exposed ridges in dwarf shrub habitats. Red knots winter along the Pacific coastline from northern California to South America. Surveys conducted between 1989 and 2000 throughout the Seward Peninsula and eastern Baird Mountains show extensive nesting by knots that represent at least a few thousand nesting birds (Harrington 2001).

Arctic peregrine falcon (*Falco peregrinus tundrinus*) can be found in low numbers throughout the planning area, nesting in areas with suitable habitat and migrating throughout the region. Nesting habitat generally consists of bluffs or cliffs adjacent to water. Kessel (1989) characterizes the peregrine as a rare migrant and breeder on the Seward Peninsula. Checklists for NPS units and Fish and Wildlife Refuges within or near the planning area list the peregrine variously as a rare vagrant to an uncommon breeder. Peregrine falcons were listed as endangered in 1970. This species is included on the current list of Alaska Species of Special Concern. The Arctic peregrine was delisted in 1994 (Federal Register 1994). The ESA requires a minimum of five years of monitoring after delisting to ensure that species maintain a non-threatened status. Monitoring of Arctic peregrine indicates that populations have increased or remained stable since delisting (White et al. 2002).

Gray-cheeked thrush (*Catharus minimus*) is a common breeder throughout the planning area. It is one of the most common passerines on the Seward Peninsula (Kessel 1989). In Alaska, they

favor habitats with a closed canopy of mid-sized shrubs with a dense woody undergrowth of dwarf shrubs. Suitable habitat occurs in a wide variety of habitats including riparian alder and willow thickets, open woodlands, scattered spruce forests near timberline, edge of coastal tundra, alder patches in tundra, and coastal hillsides (Lowther et al. 2001). This species is generally not found in habitats with shrubs less than 3.6 feet in height. They tolerate forest canopy if low shrub cover exists. Breeding bird survey data for gray-cheeked thrush shows that they occur primarily in upland tall shrub and riparian habitats on the Seward Peninsula (Cotter and Andres 2000). Little information is available on population status or trend in western Alaska. This species is included on the current list of Alaska Species of Special Concern.

Olive-sided flycatcher (*Contopus cooperi*) is an uncommon breeder in the coniferous forest of interior Alaska and may occur rarely on the eastern end of the Seward Peninsula (Kessel 1989). This species is included on the current list of Alaska Species of Special Concern. It probably occurs in low numbers in the forested regions on the eastern edge of the planning area (Map 3-17). Common features of nesting habitat are tall trees and snags often near water. This species is most often associated with forest openings and edges, or open to semi-open forest stands (Altman and Sallabanks 2000). In Alaska, they are frequently associated with relatively open boreal forest (Kessel and Gibson 1978). Over the past 30 years, the species has declined significantly throughout its range in North America. Breeding bird surveys indicate an overall annual decline of 3.9% from 1966 to 1996 (Altman and Sallabanks 2000). In Alaska, breeding bird survey data on olive-sided flycatchers is limited and consequently, no conclusive trend analysis is possible. However, the widespread negative trends detected elsewhere in this species' range certainly suggest that populations of this species in Alaska might be experiencing similar trends. Factors in the decline may include habitat loss or alteration in both wintering and breeding grounds, changes in availability of prey species, exposure to pesticides, and exclusion of fire (Altman and Sallabanks 2000). One of the flycatcher's primary wintering habitats, mature evergreen forests in the northern and central Andes, is one of the most heavily altered habitats in South America. Andean valleys are almost completely deforested and 85% or more of the montane forests have been cut (Handel et al. 1998). These factors may be exacerbated by a very low reproductive rate

Blackpoll warbler (*Dendroica striata*) is a fairly common breeder within the eastern half of the planning area (Map 3-17). Kessel (1989) found that they were common on the eastern half of the Seward Peninsula. In the interior, they nest primarily in black spruce forest. In the western part of their range they occur regularly in spruce-alder-willow thickets in riparian areas or the transition between tundra and taiga (Hunt and Eliason 1999). On the Seward Peninsula they occur primarily in tall-shrub thickets of willow and alder (Kessel 1989). Breeding bird survey data for the western United States and Canada is not sufficient to determine trend because of remoteness of breeding habitat (Hunt and Eliason 1999). This species is included on the current list of Alaska Species of Special Concern.

McKay's bunting (*Plectrophenax hyperboreus*) winters in western Alaska along the Bering Sea coast from the Kotzebue area south to Cold Bay (Lyon and Montgomerie 1995) (Map 3-17). Most records are from mid-December to mid-March when they flock with snow buntings. They breed only on a few islands in the Bering Sea. They breed on vegetated and rocky tundra, especially on coastal lowlands. The species winters on beaches, open tundra, fields, or anywhere exposed vegetation is present (Handel et al. 1998). There are no known imminent threats to this species; however, its small population size and restricted range increases its vulnerability.

Canada lynx (*Lynx canadensis*) is the only indigenous wild cat of Alaska. Once found throughout northern North America, lynx are now federally listed as a threatened species in the northern Rocky Mountains of the Lower 48; consequently, BLM in Alaska considers the Canada lynx a sensitive species. In Alaska, Canada lynx are still considered a legal furbearer and are actively sought by trappers. Lynx are found throughout the planning area where suitable habitat and snowshoe hare populations exist. Lynx populations are inextricably dependent upon the availability the snowshoe hare, and to a lesser extent by the availability of other small game populations. Lynx inhabit Alaska's forested regions including spruce and hardwood forests from sea level to subalpine zones, but they fare especially well in areas that have recently experienced wildland fires. In this mosaic habitat type of old black spruce forest and young resprouting vegetation, the prey species that lynx favor are more easily found foraging on the new, succulent growth (ADF&G 1994d). Canada lynx are present within Game Management Units 22 and 23 in small numbers, as indicated by the annual trapper interview/survey. No quantitative population information is available (Dau 2004b, Gorn 2004). Within Unit 22, lynx appear to be most abundant in Unit 22A. In Unit 22B survey respondents reported lynx were also common and numbers are likely increasing. Lynx are scarce, but probably increasing, in Units 22C and 22D (Gorn 2004). In Unit 23, lynx are found at moderate to high densities in localized areas with high snowshoe hare populations (Dau 2004b).

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9. Fire Management and Ecology

Fire is a very important natural mechanism of change in the planning area. Wildland fire is an essential ecological process that maintains and achieves vegetative desired conditions. The vegetation communities in the planning area have evolved with fire, giving those communities their current composition and structure. Many vegetative species are fire dependent or are in a “fire dependent ecosystem.” While the distribution and dominance of a particular species in any given area may have changed as climate has fluctuated, fire-dependant species have been represented in the planning area for at least the last 6,500 years. Fire has been a mechanism of change from the time the boreal forest was established in its current form. There are also species of animals that prefer early and mid-seral stage forests.

a) Fire History

A fire history dataset for the planning area is housed and updated yearly by the BLM’s Alaska Fire Service. The dataset contains the perimeters for large fires reported by the BLM from 1950 to the current year. For fires for which no perimeter is available, the fire point of origin is annotated and the fire size noted in the dataset. Most of the missing perimeter maps are in the dataset for 1950 to 1987. This dataset includes fire perimeter maps for fires reported to be equal to and greater than 1,000 acres. For 1988 through the current year, the dataset contains wildland fire perimeters for fires equal to and greater than 100 acres. The reported numbers of wildland fires and acres burned in the planning area from 1950 to 2004 are 876 fires and 3.2 million acres, respectively (BLM 2005a) (Map 3-18).

b) Fire Occurrence

The majority of the wildland fires occurring in the planning area are caused by lightning. In mid-June through late July thunderstorms cross the planning area starting wildland fires when environmental conditions are right. Lightning can occur as early as April and as late as September, though 99% of all lightning strikes occur May through August, with 91% occurring in June and July.

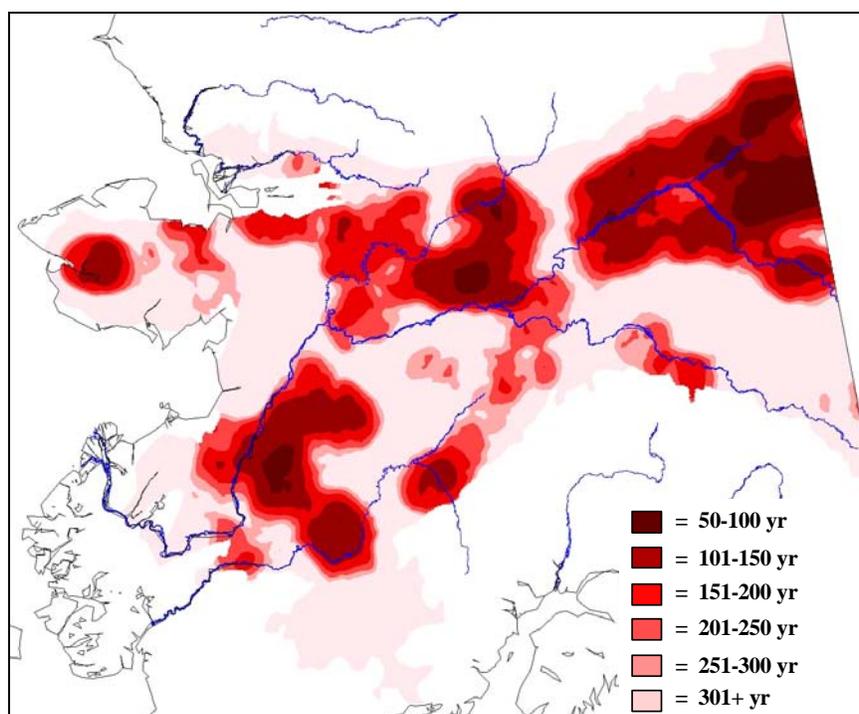
A total of 876 fires occurred in the planning area from 1950 to 2004. Of these fires, 412 had their point of origin on BLM-managed lands, and 89 were human-caused (the remaining 787 were lightning-caused). Of the 412 fires occurring on BLM-managed lands, only 20 were human-caused (BLM 2005a). Human-caused fires can occur any time an area is free of snow and environmental conditions are dry enough to sustain an ignition. Human-caused fires typically occur near villages and towns, along roads, or near rivers. Due to land ownership patterns, human-caused fires in the planning area rarely occur on BLM-managed lands.

c) Fire Regimes

Fire Regime Condition Class (FRCC) is a standardized interagency tool for determining the degree of departure from reference condition vegetation, fuels, and disturbance regimes (Hann et al. 2003). The boreal forest has evolved and adapted to periodic wildland fires. Fire regime describes the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation

and fire effects, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories are usually repeated, and the repetitions can be counted and measured (such as fire return interval). To comply with the national FRCC program requirements, the vegetation types in the planning area have been categorized into biophysical settings (BpS), described in Hann et al. (2003). Biophysical settings are the primary landscape delineations for determining the natural fire regime and fire regime condition class. These units are land delineations based on geographic area, physical setting, and vegetation community that can occupy the setting. Physical characteristics include climate, geology, geomorphology, and soils. Vegetation includes native species and successional stages found under the best understanding of the historic range of variation, including disturbances. In addition to these attributes, each biophysical setting also has distinct ecological processes associated with it (notably fire frequency, severity, and size) and hence provides a cogent, robust concept for displaying FRCC (Hann et al. 2003).

Figure 3-1. Estimated Fire Return Intervals for Interior Alaska



Source: T.S. Rupp. University of Alaska-Fairbanks, Joint Fire Science Project LAI-02-007 (unpublished): 2002.

Table 3-9. Fire Regimes in the Kobuk-Seward Peninsula Planning Area

Fire Regime	Frequency	Fire Type	Biophysical Setting
I	0-35 years	Surface fire	None represented in planning area
II	0-35 years	Stand replacement	None represented in planning area
III	35-100+ years	Mixed	Persistent Shrub North
IV	35-100+ years	Stand replacement	Black Spruce Interior
			Tussock Tundra 1
			Dry Herbaceous Meadow
V	200+ years	Stand replacement	Upland White Spruce Interior
			Riparian Spruce Hardwood
			Tussock Tundra 2
			Dwarf Shrub Tundra
			Mesic Herbaceous Meadow
			Non-forested Wetland

Source: Hann et al. 2003.

The vast majority of the planning area (approximately 90%) is in Fire Regimes IV and V (Table 3-9). The planning area is dominated by treeless vegetation types. The biophysical settings have been combined into three categories: Treeless Biophysical Settings, Black Spruce Interior, and Riparian Spruce Hardwood/Upland White Spruce. These categories are described in more detail below.

(1) Treeless Biophysical Settings

There are several biophysical settings represented in the planning area that do not support trees, including Tussock Tundra 1, Tussock Tundra 2, Dwarf Shrub Tundra, Dry Herbaceous Meadow, Mesic Herbaceous Meadow, Persistent Shrub North, and Non-forested Wetland. These treeless types have surface fuels, an organic layer, and may have an associated shrub community. They tend to have deep organic layers at lower elevations and thinner organic layers at higher elevations. Though little is known about fire and its effects in these biophysical settings, fire is still an important mechanism of change in these areas. Fire recycles old vegetation and releases nutrients. Most of the fires occurring in these biophysical settings are stand replacing; however, they tend to burn in a mosaic pattern, leaving pockets of older vegetation interspersed within the burned areas.

These biophysical settings are found throughout the planning area. They dominate the foothills of the Brooks Range, the Brooks Range itself, the Arctic coastal plain, and the Seward Peninsula. In the planning area, these biophysical settings are found above treeline and in low-lying areas on poorly drained permafrost sites that are usually surrounded by black spruce.

For these biophysical settings, the estimated fire return interval increases as you move west and/or north in the planning area (Figure 3-1). It also increases as elevation increases. The only place this does not hold true is the interior portion of the Seward Peninsula, where the estimated fire return time is 35-100 plus years. The fire return on the Arctic coastal plain and in the Brooks Range is very long – measured in thousands rather than hundreds of years. Tussock tundra not on the Arctic coastal plain or at high elevation (Tussock Tundra 1) has a fire return of 35-100 years. The rest of the communities have long fire returns of 200+ years.

(2) Black Spruce Interior

Black spruce is the climax indicator species and the dominant tree species in the Black Spruce Interior biophysical setting. It is found throughout the central and eastern portions of the planning area. It occurs primarily on poorly drained lowland sites or north facing slopes that are usually underlain by permafrost. It is usually associated with a feathermoss understory containing dwarf birch, Labrador tea, and other plants. There are some areas within the planning area that are an open woodland type of black spruce. In these areas lichens are the dominant understory species. The average fire return interval in Black Spruce Interior across Alaska is about 80-100 years, but in the western part of the state intervals are in excess of 120 years, based on studies of stand age distribution (Rupp and Mann 2005).

(3) Riparian Spruce Hardwood/Upland White Spruce

White spruce is scattered throughout the planning area along rivers and streams and in the uplands on south facing slopes. It occurs on warm well-drained sites or on depositional sites. It is also the treeline species in the northern parts of the planning area. It is usually mixed with one or more hardwood species. In the uplands, the dominant forest floor species are feathermoss with scattered herbaceous plants. In riparian areas, forest floor species are characterized by feathermoss, with a large amounts of alder, rose, equisetum, high bush cranberry, and other plants. The fire return interval is 150-200 years on upland sites and 300+ on riparian sites.

d) Fuel Condition

Fire Regime Condition Class is further defined by a relative measure of the degree of departure from the natural fire regime. There are three classes of departure (the condition class) for each fire regime. Condition Class 1 is defined as being within the natural range of natural variability of vegetation characteristics. Condition Class 2 is a moderate departure from the natural fire regime, and involves a moderate risk of losing key ecosystem components. In this class the fire return intervals have departed from natural frequencies by one or more return intervals. This can be either an increase or decrease in the fire frequency. There are moderate changes in one or more of the following ecological components: vegetation characteristics, fuel composition, fire type, or other associated disturbances. Condition Class 3 is a high departure from the natural fire regime. In this class fire regime has been substantially altered from its natural range and there is a high risk of losing ecosystem components. Fire frequencies have departed from natural frequencies by multiple fire return intervals. Dramatic changes can occur in one or more of the following ecological components: vegetation characteristics, fuel composition, fire type, or other associated disturbances. Condition class is combined with fire regime to determine a Fire Regime Condition Class (FRCC) classification for the area. FRCC is a measure of the departure from the natural fire regime. There are three possible FRCC classifications: FRCC 1 (low), FRCC 2 (moderate), and FRCC 3 (high departure).

The planning area has only seen fire suppression for the last fifty plus years and organized effective fire suppression for less than that. The majority of the planning area is in areas where wildland fires are only monitored. The area has little or no history of activities that would alter the natural fire regime. Available data is not sufficient to apply the FRCC modeling system to the planning area, but there is no reason to expect the condition class to be other than FRCC 1, though attempts to exclude fire may result in departures around some villages and towns in the future.

e) Fire Behavior

In Alaska, the BLM uses the Canadian Forest Fire Danger Rating System (CFFDRS) for both fire danger and fire behavior predictions. This system is a seamless system that addresses organic layer consumption. The vegetation in the planning area has been classified into established CFFDRS fuel types: Spruce Lichen Woodland (C-1), Boreal Spruce (C-2), Boreal Mixedwood, (M-1/M-2) and Matted or Standing Grass (O-1). M-1 and M-2 are the leafless and green stages of the boreal mixwood fuel type. There are two grass types contained in O-1: Matted grass (O-1a) and standing grass (O-1b). Within this analysis, no distinction is made between the standing and matted grass fuel types (Map 3-19 and Table 3-10).

Table 3-10. Fuel Types in the Planning Area

Fuel Type	Code	Percent of Planning Area in Fuel Type	Fire Intensity
Matted or Standing Grass	O-1	91.5	Generally low to moderate
Boreal Spruce	C-2	4	Often moderate to extreme
Spruce Lichen Woodland	C-1	3.5	Generally moderate to high
Boreal Mixedwood	M-1/M-2	0.1	Low to moderate
Water, glaciers, and snowpack	N/A	<1.0	None

(1) Matted or Standing Grass – O-1

The planning area is dominated by the O-1 fuel type. Approximately 91.5% of the planning area is represented by this fuel type. The fire behavior would usually be described as low to moderate burning intensity with low to moderate rates of spread and flame lengths. However, under extended drought conditions with strong winds and low relative humidities, this fuel type can exhibit high to extreme rates of spread and high intensity burning. Tussock tundra communities may burn with a higher intensity, rate of spread, and flame length if there is a large component of dead standing grass contained within them. The severity of burn depends on the amount of moisture in the organic layer. Most fires will be low severity surface fires; however, long period of dry conditions can produce fires that remove some to the entire organic layer, resulting in moderate to high severity fires.

(2) Boreal Spruce – C-2

A little more than 4% of the planning area is in C-2 fuel type. This is the most volatile and problematic fuel type in the planning area. Found mainly on the Selawik NWR, this fuel type is made up of moderate to very dense stands of black spruce with a very deep organic layer. It usually has a large component of volatile shrub species, such as dwarf birch or Labrador tea in the understory. Organic layer depth is usually around one foot, but can be as deep as two feet. This fuel type routinely exhibits moderate to extreme burning intensities and flame lengths, and moderate rates of spread. The fuel type burns as a dependant crown fire and almost always has a portion to the entire canopy involved. While it does not exhibit the extreme rates or spread of the grass fuel models, it will move at speeds up to two miles an hour. Combined with the intensities and flame lengths generated, this fuel type can be very volatile even under what would otherwise be considered moderate environmental conditions. Upland white spruce is

also placed in this fuel type. While it does not burn as often and needs drier condition to burn, it may exhibit the same extreme fire behavior as black spruce. Fires in riparian white spruce are very rare; during most burning conditions these communities slow the fire's progress. To burn, white spruce require extreme drought or stand degradation due to disease or over maturity.

(3) *Spruce Lichen Woodland – C-1*

The C-1 fuel type is the less volatile cousin of the C-2 fuel type. It has a black spruce component with the trees more widely scattered and the organic layer shallower than in the C-2 fuel type. The organic layer is commonly two to four inches in depth. It usually does not have the volatile shrub species in its understory. About 3.5% of the planning area is the C-1 fuel type. This fuel type is found in the southern portions of the Seward Peninsula and the western Kobuk Valley. It exhibits moderate to high burning intensities and flame lengths and will generate slightly faster rates of spread than the C-2 fuel model. Rates of spread are moderate to high. It will also involve the crown, but because of fewer trees, the intensities and flame lengths are lower than in the C-2 type. Fires also range in severity from just surface fuel consumption to severe fires that consume the entire organic layer.

(4) *Boreal Mixedwood – M-1/M-2*

Less than 0.1% of the planning area is in the M-1/M-2 fuel type, a mix of hardwoods and spruce. Hardwoods found with white spruce are either aspen or birch. Aspen and black spruce can be found on colder sites. Surface fuels are primarily leaf litter. This fuel type is prone to surface fires before green-up. Early season fires may or may not kill the trees. In late summer when drought conditions exist, fires have a smoldering phase that consumes the entire organic layer after the surface fire passes. These fires usually kill and tip over all the trees in the fire area. Fires do not burn in this fuel type after green-up or when drought conditions are absent, and during these conditions, boreal mixedwood areas may be used as safety zones for firefighters. Within the planning area, this fuel type is only found on the Selawik NWR.

The remaining 1% of the planning area is made up of non-burnable areas of water, glaciers and permanent snowpack.

f) Fire Policy

The overriding priority for all wildland fire actions in the planning area is firefighter and public safety. If an action on a wildland fire endangers firefighters or the public and cannot be mitigated, it will not be carried out. Once people have been committed to an incident, these human resources become the highest value to be protected.

DOI Departmental Manual 620, Wildland Fire Management (DOI 1998), directs the BLM to provide fire suppression services on all DOI-managed and Native lands within Alaska. The BLM has implemented this direction by creating the Alaska Fire Service (AFS). AFS is authorized to provide safe, cost-effective emergency wildland fire suppression services in support of management plans on DOI-administered land and on those lands that require protection under ANCSA, as amended. AFS executes these services within the framework of approved fire management plans or within the mutually agreed upon standards established by the respective land managers/land owners (DOI 1998). Fire suppression operations within the planning area are the responsibility of the AFS Galena Zone Fire Management Officer. The Galena Zone is

headquartered in Galena during the fire season, and is housed on Fort Wainwright the rest of the year.

All other fire management activities such as fire planning, education and prevention, use of prescribed fire, establishing emergency suppression strategies, and setting emergency suppression priorities are all the responsibility of the appropriate BLM Office. The Fairbanks District Office and the Anchorage Field Office maintain the overall fire management responsibility and accountability for activities occurring within the planning area (DOI 1998).

Fire is an essential mechanism of change in the boreal forest resulting in multiple resource benefits. The current policy for the planning area is application of the appropriate management response considering firefighter and public safety, resources benefits, values at risk, and suppression cost.

The Northwest Management Framework Plan (MFP) (BLM 1982) contains little guidance on fire management. There are no fire management goals or objectives, and there is only one decision about wildland fire suppression: "Allow fire under prescribed conditions." The rationale for this decision is that, "[f]ire suppression cost frequently exceeds the value of resource values protected. Fire management plans which consider both positive and negative effects of fire must be developed within constraints of the Departmental policy." The MFP makes one recommendation regarding wildland fire and fuels management, and that is to: "[a]llow fire under prescribed conditions," with the rationale of, "[b]y allowing natural or prescribed fires to burn, it may be possible to reduce suppression costs while providing benefit to wildlife." The MFP contains no guidance on fire prevention.

In order to comply with the National Fire Plan and the 2001 Review and Update of the 1995 Federal Wildland Fire Management Policy (IFWFPR Working Group 2001), the BLM amended the fire management direction in the Northwest MFP in July 2005. The Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska (BLM 2004b, 2005c) identifies land use and resource objectives, wildland fire suppression options, and fuels (vegetation) management activities that achieve those objectives. The amendment is applicable to all BLM-managed lands in Alaska until such time as new RMPs are completed. Fire management options emphasize the protection of human life and site-specific values and also recognize fire as an essential ecological process and natural change agent of the Alaskan ecosystems. Firefighter and public safety are identified as the number one priority in all fire management activities. The amendment also reinforces BLM-Alaska's commitment to support the interagency wildland fire program, consider the latest available technology and methods, and support scientific research to study fire effects and improve business practices.

Between 1980 and 1988, the BLM participated with other Federal and State land management agencies and Native groups in completing 13 interagency fire management plans. Alaska interagency fire management plans for the following planning areas are applicable to this RMP:

- Alaska Interagency Fire Management Plan: Kobuk Planning Area (1984)
- Alaska Interagency Fire Management Plan: Seward/ Koyukuk Planning Area (1984)
- Alaska Interagency Fire Management Plan: Yukon/Togiak Planning Area (1984)
- Alaska Interagency Fire Management Plan: Arctic Slope Planning Area (1986)

This set of plans provided a statewide, coordinated, cost-effective, landscape scale approach to fire management. Each plan contains a description of the local environmental and socioeconomic conditions, natural and cultural resources, fire history and behavior, and local

subsistence activities. The plans also provided a consistent interagency approach to operational procedures and the identification and prioritization of values-to-be-protected. The four management options defined in the plans (Critical, Full, Modified, and Limited) are flexible enough to allow different agencies to manage fire on their lands according to policies and mandates exclusive to their agencies.

In 1998 the 13 original plans were consolidated into one document, the Alaska Interagency Wildland Fire Management Plan (AIWFMP 1998). This consolidated plan updated language in the original plans, eliminated the boundaries of the 13 original plans, and combined common elements into a single operational document. Area-specific documentation still resides in the original planning documents.

To meet Federal fire planning requirements, comply with 2001 Federal fire policy, and address national fire program analysis requirements, BLM-Alaska completed its Wildland Fire Management Plan in September 2005 (BLM 2005m). This plan is based on the Land Use Plan Amendment for Wildland Fire and Fuels Management for Alaska (BLM 2004b, 2005c), the Alaska Interagency Wildland Fire Management Plan (AIWFMP 1998), and the policies and standards outlined in the 2001 Review and Update of the 1995 Federal Wildland Fire Management Policy (IFWFPR Working Group 2001).

The four management options (defined in Table 3-11 and displayed on Map 3-20) defined in the original interagency fire management plans and further described in the Alaska Interagency Wildland Fire Management Plan (1998) and the BLM's Wildland Fire Management Plan are utilized statewide by all Federal, State, and Native land managers. Options are assigned on a landscape scale across agency boundaries. BLM Field Office staffs have selected management options based upon an evaluation of their legal mandates, policies, regulations, resource management objectives, and local conditions. Local conditions include but are not limited to population density, fire occurrence, environmental factors, and identified values. Fuel type, access, topographic features, fire regime and political boundaries are considered for determining management option boundaries but are not necessarily determining factors for landscape scale management option designations. The intent in assigning these management options is to have designations that are ecologically and fiscally sound, operationally feasible, and sufficiently flexible to respond to changes in objectives, fire conditions, land-use patterns, resource information, and technologies. The designation of a management option pre-selects initial strategies (appropriate management response) to a wildland fire; responses range from immediate and aggressive suppression to periodic surveillance. The map atlas at the local fire suppression office and the Alaska Interagency Coordination Center is the official record that delineates fire management option boundaries and site-specific designations. AFS maintains the statewide management option data and an updated GIS file is available annually by May 1. BLM Field Office staffs are responsible for updating and reviewing management option and site designations annually. More detailed policy, objectives, operational considerations, operational procedures and other information for each fire management option are contained in the Alaska Interagency Wildland Fire Management Plan (1998).

Table 3-11. Fire Management Options

Fire Management Option	Intent	Management
Critical	Protect areas where there is a threat to human life, inhabited property, designated physical developments, and structural resources designated as National Historic Landmarks.	Highest priority for assignment of available suppression resources to exclude fire from the area or site.
Full	Protect cultural and historical sites, uninhabited private property, natural resource high-value areas, and other high-value areas that do not involve the protection of human life and inhabited property.	Priority is below Critical for available suppression resources to suppress fires at the smallest reasonably possible acres.
Limited	Allow fires to burn under the influence of natural forces within predetermined areas to accomplish land and resource management objectives. Estimated costs of suppression efforts are a factor.	Surveillance to observe fire activity and to determine if site-specific values or adjacent higher priority management areas are compromised. Site-specific actions when necessary to protect human life and site-specific values.
Modified	Balance acres burned with suppression costs and accomplish land and resource objectives. Strategies are based on an annual conversion date.	Priority for assignment of available suppression resources is below Full. Suppression efforts vary: when risks of large fires are high, the initial response to a fire is analogous to Full without the intent to minimize acres but to balance acres burned with suppression costs. When the risks are low, the appropriate response to a wildland fire is analogous to Limited.

Option designations are based on the land manager(s) values to be protected as well as land and resource management objectives. These management strategies are currently implemented in the planning area. Management options are reviewed yearly and adjustments are made to ensure resource goals and objectives are being met.

Table 3-12. Current (2006) Fire Management Options in the Planning Area

Fire Management Option	Acres of Total Lands in Management Option	Acres of BLM Lands in Management Option	General Description of Lands
Critical	32,000	1,074	Majority is in and around villages; under the ownership of village and regional corporations; protects areas of human habitation
Full	2,000,000	466,000	Majority surrounds critical management option areas near villages; ownership of those lands is mostly village and regional corporations; high resource values.
Modified	13,200,000	3,200,000	Low resource value; surrounds Full option; few values at risk
Limited	15,100,000	7,500,000	Low resource value; areas where fire is considered beneficial; few values at risk

In order to prioritize assignment of suppression forces and determine the appropriate actions to be taken within the landscape-scale management option classifications, site designations of Critical, Full, Avoid, and Non-sensitive have been established for structures, cultural and paleontological sites, small areas of high resource value, and threatened and endangered species habitat in order for the resource staff to give suppression agencies more specific guidance for small sites.

Sites designated as Critical and Full are to be protected from degradation from fire and are prioritized in a manner similar to landscape scale designations. A Critical site is either a national historic landmark or a permanent year-round residence. Sites meeting the criteria in the structure protection policy will either be designated as critical or full and will be protected from degradation by fire.

Sites designated as Non-sensitive are acknowledged as known to BLM staff, but require no additional suppression efforts or restrictions. A Non-sensitive site is a site the Fairbanks District Office has decided, through application of policy, not to protect. A Non-sensitive designation does not warrant risks to firefighters.

Sites designated as Avoid are areas where fire suppression efforts should be avoided and effects from suppression efforts minimized. All aircraft should be restricted from these areas. An Avoid site may identify endangered species or their habitat or a prehistoric site. Fire suppression activities at these sites would be detrimental to the values associated with each site.

These four categories of sites receive protection priority as would a fire in one of the Fire Management Options. Critical sites are the first priority for protection, while Full sites are second priority. No protection is afforded Non-sensitive or Avoid sites. There is no Site Designation that corresponds to the Modified or Limited Fire Management Option, though any of the four Site Designations may be located within any of the four Fire Management Options (e.g., a Critical Site Designation located within a Limited Fire Management Option, or an Avoid Site Designation within a Critical Fire Management Option).

Designations are recorded on the map atlas in the fire dispatch office; it is the joint responsibility of the BLM Field Office staff and the suppression staff to keep the atlas current. Site designations are subject to annual review and updating. When a structure is discovered during fire management activities, the Field Office representative is notified immediately. Under normal circumstances during suppression operations, the suppression agencies are not responsible for and will not provide protection to unauthorized structures unless they meet one or both of the following criteria:

- It is necessary to preserve structures to save human life.
- The structure is evaluated and determined to be eligible for consideration for the National Register of Historic Places.

The BLM Policy for Structure Protection (Appendix E) serves as guidance to AFS and the Alaska Division of Forestry concerning structure protection priorities in relation to wildland fire monitoring and suppression activities on BLM-managed lands in Alaska. As with all other aspects of fire management, safety of fire suppression personnel and the public is the number one priority of the policy. The policy defines the protection criteria for structures, and criteria for establishing historic value for structures if those values had not been determined prior to a fire event.

Under the authority granted by ASS 41.15.010, the State is responsible for determining the Fire Management Option and Site Designation (i.e., the protection level) for inholdings or lands adjacent to BLM-managed lands that are fee simple titled (i.e., private property). The BLM sets the protection level of private possessions (cabins or personal belongings) of BLM permit holders or other occupants on public land managed by the BLM.

The BLM's fire trespass procedures are found in the Fire Trespass Handbook (H-9238-1) which is currently being updated. Interim guidance was issued in August 2005 (BLM 2005d). For Alaska, the Handbook is supplemented by the BLM Alaska State Fire Trespass Operating Plan (BLM 2005b). AFS is responsible for notifying the Field Office immediately when a fire is suspected of being human-caused; the Field Office is responsible for investigation and case pursuit. At the Field Office staff's request, AFS may assist or facilitate an investigation. AFS maintains fire records, tracks associated fire costs, and produces a final fire cost for each fire.

g) Fuels Management

No prescribed burns or other fuels treatment projects have been implemented in the planning area on BLM-managed lands, nor are any fuels treatment projects currently being planned. Manual, mechanical, and prescribed fire projects are allowed in the planning area to either protect natural, biological, or cultural resources or to meet the desired future condition of any natural or biological resource. Fuels treatment projects require activity level plans and an environmental analysis. An ANILCA Section 810 analysis may also be appropriate. At present, Wildland Fire Use is permitted in the planning area, but has not been implemented.

h) Smoke Management

Alaska Department of Environmental Conservation (ADEC) is responsible for declaring air episodes and issuing air quality advisories, as appropriate, during periods of poor air quality or inadequate dispersion conditions. ADEC is a member of the Alaska Wildland Fire Coordinating Group. During periods of wildland fire activity, the Multi-agency Coordinating Group, a subgroup of the Alaska Wildland Fire Coordinating Group, addresses air quality and smoke management issues. As ADEC develops a State Implementation Plan for regional haze, changes may be necessary to address additional fire tracking and emission management needs based upon policies and guidelines developed by the Western Regional Air Partnership. Under State law, all agencies, corporations, and individuals that burn 40 or more acres of land require written approval from ADEC prior to burning. The Enhanced Smoke Management Plan being developed by ADEC will outline the process and items that must be addressed by land management agencies to help ensure that prescribed fire activities minimize smoke and air quality problems. The Enhanced Smoke Management Plan will also address elements required by the EPA's Interim Air Quality Policy on Wildland and Prescribed Fire (EPA 1998).

i) Fire Prevention

Human-caused fires are not a significant problem in the planning area in that they do not occur with much frequency. Of the 876 fires that have occurred between 1950 and 2004, only 89 were caused by humans. Most human-caused fires occurred near villages and towns. Only 20 human-caused fires have occurred on BLM-managed lands since 1956 (BLM 2005a). There is

no prevention plan for the planning area at this time. Should human-caused fires begin increasing in frequency, an activity plan would be developed to address human-caused fires.

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3_18_fire_history

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3_20_fire_mgt

10. Cultural Resources

a) Prehistory

There are many unknowns in Alaskan archaeology, but enough is currently known about northwest Alaska that there is a generally accepted cultural chronology for the region. There are some differences between the northern part of the planning area and the Seward Peninsula, but this chronology can nonetheless provide a framework for understanding the prehistory of the area.

Anderson (1984) and Dumond (1984) present similar formulations of this sequence, the former for northern Alaska and the latter for the Bering Sea area. A composite of the two chronologies is shown in the figure below.

Figure 3-2. Cultural Chronology for Northwest Alaska

Date	Stage	Tradition/Culture	Period
1900			Eskimo 5
1500	V	Thule Tradition	Thule Birnik 4
1000			
500			
A.D.	IV	Norton Tradition	Arctic Small Tool Tradition 3
B.C.			
500			
1000	III	Arctic Small Tool Tradition	
2000			
3000	II	Northern Archaic Tradition	Northern Archaic Tradition 2
4000			
5000			?
6000			
7000	I	Paleo-Arctic Tradition	Paleo-Arctic Tradition 1
8000			
9000			

Source: derived from information in Anderson (1984) and Dumond (1984).

(1) *Paleo-Arctic Tradition*

The earliest archaeological sites known to occur in the planning area are assigned to the Paleo-Arctic Tradition, first defined from Onion Portage, a large stratified site on the Kobuk River (Anderson 1970). There are only a few sites within the planning area that can be securely assigned to this period, and none of them are located on BLM-managed lands. There are few known Paleo-Arctic sites in Alaska, so it is very difficult to describe the way these people lived. Anderson (1984) sees this period as one in which people were primarily adapted toward tundra hunting. The Paleo-Arctic Tradition spans a period of 3,500 to 4,500 years, from about 9500 BC to 5000-6000 BC, as shown in the previous figure.

(2) *Northern Archaic Tradition*

The next defined tradition in northwest Alaska is the Northern Archaic, based on morphological similarities with artifacts from outside of Alaska. The relationship of this tradition to the earlier one is not clear, but the Northern Archaic is often interpreted as representing the movement into Alaska of new peoples at about the same time as the boreal forest spread into new areas of the state. As with the earlier Paleo-Arctic Tradition, there is only limited information on how these peoples lived.

There are only a few sites belonging to the Northern Archaic Tradition in the planning area; all of them in the northern portion of the area, and none of them on BLM-managed lands.

(3) *Arctic Small Tool Tradition/Denbigh Flint Complex*

The next entity in the chronology of northwest Alaska is the Arctic Small Tool tradition, which is characterized by some of the finest stone tools known from the state. In Anderson's formulation the tradition spans the period between about 2500 BC and AD 1000, and begins with the Denbigh Flint Complex which is followed by Choris, Norton, and Ipiutak (1984).

Dumond (1984), on the other hand, defines a much briefer Arctic Small Tool Tradition, lasting from just before 2000 BC to a little after 1000 BC. In Dumond's formulation, the Arctic Small Tool tradition consists only of Denbigh, and subsequent materials are classified as a separate Norton tradition.

In any case, the Arctic Small Tool tradition first appears about 2500 BC, is widespread in Arctic and subarctic North America, and represents the first extensive occupation of Arctic regions in the new world (Dumond 1984).

The Denbigh Flint Complex was first defined from excavations at Cape Denbigh (Giddings 1964), on Norton Sound, and has also been discovered at the Cape Nome site (Bockstoe 1979), Cape Espenberg (Giddings and Anderson 1986), and from the Choris type site, just north of the Seward Peninsula (Giddings and Anderson 1986). Schaaf (1988) reports locating a Denbigh site near Kuzitrin Lake in the interior of the Seward Peninsula.

Little is known about Denbigh Flint Complex peoples. The number of Denbigh sites that have been excavated is small, and artifact collections have mostly been limited to stone implements and detritus. Nevertheless, the locations of known sites and the types of artifacts recovered indicate a people that were at home on both the coast and in the interior, and who hunted marine mammals and caribou. At present, known coastal sites appear to be seasonal, probably

spring hunting camps, and it is presumed that Denbigh peoples spent most of the year in the interior (Giddings 1964, Giddings and Anderson 1986).

(4) Arctic Small Tool Tradition/Norton Tradition

A people whose artifacts bear strong resemblances to those of Denbigh occupied western and northern Alaska followed the Denbigh Flint Complex. As mentioned above, there is disagreement as to the degree of continuity between Denbigh and the subsequent cultures. There is also a difference in the terms applied to the cultures. South of the Seward Peninsula the term "Norton" has been applied to the entire sequence, and the archaeological remains are generally seen as more homogenous than in the north. In the north, the sequence has long been divided into three separate cultures labeled "Choris," "Norton," and "Ipiutak."

Whatever terms are applied, beginning about 1500-1000 BC the area was inhabited by peoples who appear to be more oriented toward the coast and marine resources than were the Denbigh peoples. Large coastal villages have been discovered at Cape Nome, at Point Hope, and near Unalakleet, and smaller winter settlements are also known from the Choris Peninsula.

We know much more about the peoples of this period than we do about those from the earlier Denbigh/Arctic Small Tool tradition period. Not only have several houses been excavated, but the archaeological record for these peoples is richer and more extensive. They are represented not only by stone implements and their by-products, but also by a range of organic tools and faunal remains, which allow a fuller picture of the lives of the people who made them.

During this period we see the first large winter coastal settlements, and faunal remains and artifact types document the importance of marine resources. This period also sees the first evidence of fishing as an important subsistence activity, although it may become much less important during the later part of the period. Peoples of this period made pottery and carved implements of bone, antler, ivory, and wood. Houses were of several different forms, but were all semi-subterranean pit houses similar in many respects to those known from historic Eskimo settlements. Villages seem to have been located mostly in coastal areas, with short-term use of the interior, primarily for the hunting of caribou. In many respects, the peoples of this period appear very similar to modern Eskimo cultures in terms of their subsistence and settlement patterns.

(5) Birnirk

At the end of Norton times there appears to have been a period during which no one inhabited the coastal areas of northwest Alaska, or at least not in numbers sufficient to leave a significant archaeological record. At least one author has interpreted this hiatus as the result of climatic changes that reduced or eliminated salmon runs followed by a decline in the caribou herds (Bockstoce 1973, 1979:90). Following the break in the archaeological record, a new culture, referred to as Birnirk, appears at scattered locations in northwestern Alaska. Bockstoce interprets the distribution of Birnirk sites as an indication that Birnirk peoples specialized in the hunting of marine mammals, and suggests that improved harpoon technology, especially use of the inflatable float, gave them the ability to exploit these resources more efficiently than Norton peoples (Bockstoce 1979:91-92).

(6) Thule

The marine mammal hunters of Birnirk were followed by the Thule culture, clearly antecedent to modern Eskimos, and possibly developing out of Birnirk. In the years after about AD 1000 the people of this tradition spread quickly across Arctic Alaska, Canada, and into Greenland, and also along the subarctic Bering Sea coasts of Alaska. Thule peoples continued the strong orientation toward marine resources that characterized their predecessors. Whaling was an important subsistence activity in many coastal areas, and the hunting of smaller sea mammals and caribou continued. In certain areas, notably the Kobuk River and the central Brooks Range, subsistence patterns developed that were more dependent on inland resources such as salmon and caribou.

Over time, local variations developed in groups belonging to the Thule tradition. At the Nukleet site at Cape Denbigh, Giddings excavated remains that document more or less continuous occupation from the twelfth to the eighteenth centuries, and which show a subsistence pattern involving roughly equal reliance on sea mammals, fish, and caribou (Giddings 1964). Bockstoe (1979) hypothesizes a similar pattern at Cape Nome, but with greater use of walrus and less of beluga and birds.

In general, it appears that Thule times represent the spread of mostly coastal-oriented peoples into what was largely unpopulated portions of the Arctic and subarctic, followed by adaptation to local conditions. This trend continued until the historic period when contacts with European and American culture initiated major changes in the cultures of the region.

b) History

It is useful to organize the history of the planning area into three general periods based primarily on the nature of contacts between Euroamericans and Alaska Natives. The first period lasted from about 1732 to 1850, and was characterized by a few short visits by Euroamerican explorers. The second period, from about 1850 to 1900, involved more extensive contact as ships began to overwinter in the area and non-Alaska Natives began to be present for extended periods of time. The final period, from about 1900 on, is the post-gold-rush era, characterized by permanent Euroamerican settlements and more or less continual interaction between the two cultures.

(1) Early Contact

Vitus Bering is often credited with “discovering” Alaska and the strait that bears his name, but the inhabitants of Siberia had considerable knowledge of Alaska prior to Bering’s voyages. The primary source of this knowledge was the Chukchi peoples of Siberia, who interacted with the Eskimo inhabitants of Alaska through trade and warfare (Ray 1975).

Trade was an important aspect of life in aboriginal Alaska, and an important trade fair was held on a regular basis in the Kotzebue area. Groups from as far away as the Diomed Islands and the north slope of the Brooks Range would travel to the Kotzebue area for the trade fair (Spencer 1959).

The first recorded non-aboriginal visit to any location within the planning area occurred in 1732 when the Russian explorers Mikhail Gvozdev and Ivan Federov landed on Alaskan soil, probably somewhere near Cape Prince of Wales (Holland 1994).

Captain Cook visited the area in 1778, exploring Norton Sound, naming several geographic features, and noting a small village, probably at the mouth of the Kwik River just west of Bald Head (Ray 1975). Cook's party traded for food with Alaska Natives near Bald Head and Cape Denbigh, leaving the area after a stay of about 10 days.

Two explorers passed through the Bering Strait area in 1791. Ivan Kobelev visited the Diomed Islands, Wales, and King Island in June, and an expedition in the charge of Joseph Billings visited Cape Rodney, about 40 miles northwest of Nome, in July (Ray 1975). The Billings expedition produced the first detailed recorded description of the inhabitants of the area.

In 1816 the Russian Otto von Kotzebue visited the planning area, "discovering" Shishmaref Inlet and continuing into Kotzebue Sound. The expedition named several features in the area, including Cape Espenberg, Eschscholtz Bay, and Cape Krusenstern (Holland 1994).

Another explorer who visited the area during this earliest period of contact was Frederick William Beechey, who arrived in Kotzebue Sound in July 1826 on HMS *Blossom*, intending to meet with an overland expedition led by Sir John Franklin. Members of the crew explored the area, naming Hotham Inlet and recording the Buckland River. In 1827 the Beechey expedition visited the west coast of the Seward Peninsula, visiting Cape Rodney, and "discovering" Port Clarence and Grantley Harbor (Ray 1975).

(2) Sustained Contact

Contacts between Euroamericans and Alaska Natives increased after about 1850. In 1848 Thomas Roys became the first whaler to pass through the Bering Strait and to take whales in the Chukchi Sea (Bockstoce 1986). The success of this voyage led almost immediately to the era of Arctic Whaling, and by 1851 some 250 ships had been involved in hunting whales in northern Alaska waters (Ray 1975). Whalers had a significant impact on the Eskimos of the North Slope, but mostly passed through the Bering Strait area without much contact until they began using steam ships. In 1884 a coaling station was established at Point Spencer, and following that, a number of steam whaling ships would gather each summer to meet ships bringing supplies to the fleet. This drew Eskimos from the surrounding area who gathered to trade with the whalers (Ray 1975).

In 1845 Sir John Franklin with two ships, the HMS *Erebus* and *Terror*, was sent by the Admiralty to explore the Canadian Arctic for the Northwest Passage. The expedition disappeared with its entire complement of nearly 130 men. Between 1847 and 1880 numerous search parties were sent to the Arctic to try to locate the Franklin expedition or evidence of their passing (Holland 1964). Several of these parties visited the Bering Strait region, in the hope that Franklin might have successfully navigated the Passage, resulting in a sustained presence in northwest Alaska between 1851 and 1854. Ships sailed into Kotzebue Sound and the Norton Sound area, and several ships spent the winter at Port Clarence (Ray 1975). In 1851 a party traveled overland from the *Plover* at Port Clarence to St. Michael, passing through Fish River, Golovnin Bay, and Shaktoolik, and returning by way of Egavik, Shaktoolik, Golovin, White Mountain, Casedepaga, and Kauwerak (Ray 1975). In 1853 a small party from the supply ship *Rattlesnake* made the trip from Port Clarence to Kotzebue Sound, producing the earliest recorded account of people in the interior of the Seward Peninsula (Ray 1975).

In the years 1865-1867 the attempt to construct a telegraph line across Alaska and the Bering Strait resulted in additional contacts. Although ultimately unsuccessful, the attempt produced

the first Euroamerican settlements in the planning area. Base camp for the telegraph expedition was first established in St. Michael in 1865, with a smaller group established at Port Clarence in 1866 (Ray 1975). This Port Clarence group was under the command of Daniel B. Libby (Ray 1975). A party associated with the telegraph expedition is credited by Brooks (1908a) with the first significant inland exploration and with the discovery of gold on the Niukluk River.

Beginning in 1879 and continuing well into the twentieth century, the U.S. Revenue Marine Service began regular patrols of Alaskan waters. The purpose of the voyages was to watch over trade with Alaska Natives and to provide aid to commercial vessels in the event problems developed. For much of this period the cutter *Bear* and its captain Michael A. Healy became frequent visitors to ports on both sides of the Bering Strait (Holland 1994).

The initial discovery of gold on the Seward Peninsula in the 1860s produced no rush to the north, and in fact appears to have had no immediate effect on the history of the area at all. Indeed, the first attempts to extract minerals from the Seward Peninsula had nothing to do with gold or the Niukluk River, although they would occur in the same general area. In 1880 reports of rich silver ores from the Omilak Mine near the Fish River were published in San Francisco, and in 1881 a small mining company was formed to exploit them (Ray 1974). Over the next decade several attempts were made to develop a mine at Omilak, none of them very successful. Only a few hundred tons of ore were ever mined, and some of this never made it to market as a result of ships going astray (Ray 1974).

One employee of the Omilak silver mine was to play a role in the subsequent history of the region, however. John Dexter began prospecting on the Niukluk River in 1891 and continued in 1892. He established a trading post at Cheenik on Golovnin Bay, and supported at least one other prospecting effort into the Niukluk River (Castle 1912). Although these various expeditions are reported to have resulted in the discovery of gold, the discoveries were apparently not significant enough to justify further development. Dexter's trading post developed into something of a center for developments in the region, and a Swedish Evangelical Mission and Protestant Episcopal Mission were both established there.

Exploration continued during this period, one significant example being the parties led by George Morse Stoney in 1883 through 1886. Stoney explored the length of the Kobuk River, wintering in 1885-86 at a place he named Fort Cosmos. During that winter parties from Fort Cosmos explored a large area in northwest Alaska, including the Kobuk, Noatak, upper Alatna, and upper Colville rivers, and much of the surrounding terrain (Holland 1994).

(3) Intense Contact

Significant quantities of gold were discovered in the interior of the Seward Peninsula in 1898, leading to the establishment of Council and the beginnings of the rush to the region. After 30 years away from Alaska, Daniel Libby returned to the area in 1897, intent on relocating the streams where he had seen gold during his days with the telegraph expedition (Cole 1984). With his three partners, Louis Melsing, H. L. Blake, and A. P. Mordaunt, he arrived at Dexter's trading post in the fall of 1897. By spring of the following year, the Libby party had discovered gold on Melsing and Ophir creeks, and with N. O. Hultberg, a missionary from Cheenik, P. H. Andersen, a mission teacher, and Dr. A. N. Kittlesen, assistant superintendent of the reindeer station at Port Clarence, had formed a mining district and staked out the townsite of Council City (Cole 1984).

Later in 1898 a group of men who had met at Council traveled west to the Snake River, where they staked claims that would begin the great rush to Nome. Although there is confusion about who may have first discovered gold in the Nome area, the first claims to be staked were laid out by the three "lucky Swedes" Jafet Lindeberg, John Brynteson, and Eric Lindblom.

Through the winter of 1898-99 there was modest interest in the new find at Nome, with men traveling to the area from St. Michael and the diggings on the Yukon, but with little excitement in the outside world. Brooks estimated the population of Nome to have been about 250 by May of 1899, growing to 400 by June (1908a).

The first serious mining took place in the summer of 1899 and the results were spectacular. One source estimates that nearly \$800,000 worth of gold was removed from only two creeks (Trezona 1900). (At today's price for gold, the return from these two streams would be worth in excess of \$15 million.)

Once word of the mining that took place in the early part of the summer of 1899 reached the outside world and confirmed the richness of the ground, interest in the area increased. Many of the miners along the Yukon joined the first rush to Nome, along with several shiploads of hopefuls from the outside world, increasing the population to nearly 3,000 (Brooks 1908a).

This same summer gold was discovered on the beaches near Nome, where it could be profitably mined by one or a few individuals with simple technology. As word of this spread, a large part of the population took up beach mining with shovel and rocker, removing an estimated \$1 million in less than two months (Brooks 1908a). Tales of the easy pickings on the beaches, in conjunction with the millions taken from a few creeks, laid the ground for the major rush of 1900.

When the sea lanes opened to Nome in 1900 hopeful stampeders flooded into the area. According to one source, 15,000 people arrived at Nome within a period of two weeks (Harrison 1905). Brooks (1908a) states that more than 50 vessels had landed at Nome by the first of July, and that the first and second sailings had brought over 20,000 people to the area. Whatever the exact figures, the overall effect was that nearly overnight a large community developed where less than two years previously there had been only vacant tundra.

While many of these hopeful miners concentrated on the beaches in the hopes of quickly striking pay dirt, other prospectors spread out throughout the peninsula, and 1900 saw the first discovery of gold in the Bluestone and Kougurok valleys (Brooks 1908a, 1908b). By 1901 miners were working in the Agiapuk area (Nome Nugget 1901a) and the initial discovery of gold in the Candle area had been made (Nome Nugget 1901b). By the end of 1901 there were 200-300 people living in the Candle area (Nome Nugget 1901c). By no later than 1904 there was regular commercial travel between Nome and Council (Nome Nugget 1904) and by 1907 railroad had been constructed from Nome to Shelton in the Kugarok country, providing improved access to the interior of the peninsula (Nome Daily Gold Digger 1908).

The gold rush was not nearly as significant in the northern portion of the planning area. An abortive rush to the Kobuk River in 1898-99 resulted in several hundred miners spending the winter in the area. By the following year, however, almost all had left (Burch 1998). In 1909 placer gold was discovered on Klery Creek, a tributary of the Squirrel River (Smith 1911). While prospecting continued along the Kobuk River and its tributaries, the Squirrel River placers remain the only historically-significant mineral development in the northern part of the planning

area. A supply depot was established near the mouth of the Squirrel River at about this time, and grew into the current community of Kiana (Burch 1998).

Reindeer were first introduced to the Seward Peninsula by the Reverend Sheldon Jackson, General Agent for Education in Alaska, in 1892 (Stern et al. 1980). Between 1892 and 1914 reindeer were primarily owned by the government, missions, and individual Lapps and Eskimos. Non-Alaska Native ownership increased between 1914 and 1939, especially by the Lomen family, who shipped significant quantities of reindeer meat to markets in the continental U.S. The Reindeer Act of 1937 restricted ownership to Alaska Natives and by 1940 all herds and improvements owned by non-Alaska Natives had been purchased. Reindeer herd populations in Alaska reached a high of about 640,000 in 1932, dropping to around 250,000 in 1940 and to only 25,000 in 1950 (Stern et al. 1980).

Missionaries began to be active in the planning area beginning around 1890. Early missions were established at Golovin, Teller, Point Hope, Wales, and Kotzebue (Ray 1975, Burch 1998). When Sheldon Jackson began importing reindeer, he often selected missions as recipients of the animals, and between 1894 and 1901 herds were established at the missions at Wales, Golofnin Bay, Teller, and Kotzebue (Stern 1980). Jackson also funneled government education funds through mission schools (Mishler 1986). Missions thus became early and concentrated agents of culture change, combining access to new material culture with the opportunity for education and exposure to new spiritual ideas.

Missionaries spread out from the initial missions, establishing missions and schools in surrounding areas. Often, the mission and its school became the nucleus around which permanent communities developed. Such is the case with the current communities of Kobuk, where a mission was established in 1903 (Burch 1998) and Selawik, where a mission was established in 1908 (Burch 1998). Those missionaries who adapted to life in northwest Alaska and who stayed for an extended period made a significant impression on Alaska Natives. One example is Father Bellarmine Lafortune, who came to Nome in 1903 on a temporary assignment and stayed until his death in 1945. His spiritual leadership of the King Islanders and his role in the development of the orphanage at Pilgrim Hot Springs make him an important and enduring historical figure on the Seward Peninsula (Renner 1979).

c) Historical Themes in the Planning Area

This brief sketch of the history of the planning area suggests several historic themes that might apply. Mishler (1986) proposed six themes for northwest Alaska in a thorough review of the area completed for state land use planning. These themes were 1) Exploration and Discovery, 2) Commercial Whaling, 3) Mining, 4) Missionization and Education, 5) Reindeer Herding, and 6) Transportation and Communication. These themes apply equally well to Federal lands in northwest Alaska, although material remains representative of all themes are not likely to be found on BLM-managed lands.

d) Known Sites

The following discussion is based on an analysis of known cultural resources in the planning area derived from information in the Alaska Heritage Resources Survey (AHRs) database, and on land status as provided by the Fairbanks District Office's GIS layers. There are two major limitations to the accuracy of the data generated by both of these systems. First, there are a

number of sites within the AHRS whose exact location has never been verified. Many sites in the system were entered from published literature, and early reports often omitted precise site locations. Other database entries were based on information gathered from oral interviews, and these verbal descriptions of location have often not been verified. Second, due to the sheer amount of data involved, BLM's GIS tracks land status only down to the level of individual sections. If there is any non-BLM land within a given section, that entire section will display with ownership other than BLM based on a pre-determined, prioritized list of landowners. This "generalized" land status has the potential to affect the accuracy of site ownership.

When the generalized land status coverage is produced, each PLSS section in the state is queried against the Alaska Lands Information System (ALIS) to determine which major land holders have surface management responsibility for any lands in that section, then a prioritizing filter is applied. The first land owner/manager on this prioritized list that has surface management responsibility is the generalized land status for the entire section.

AHRS data and BLM GIS data can be used to generate a general idea of the current status of cultural resources in the planning area. This data is the latest available and can be treated as a very good estimate. There are approximately 2,000 known historic or prehistoric sites located within the planning area boundary. Of these, less than 300 are located on land currently managed by the BLM. Table 3-13 shows the known BLM-managed sites in the planning area, organized by land status and chronological period. Table 3-14 shows known sites organized by cultural affiliation. A few observations can be made from the information in these tables.

Over 80% of all known sites are situated on lands selected by the State or by Native corporations. While this figure may be somewhat inflated as a result of the way land status is determined in GIS, one of the major factors that will influence management of cultural resources in the planning area over the next decade is the on-going resolution of land status. Both the State and Native corporations have selected more lands than will eventually be conveyed to them, and as the conveyance process proceeds, it is likely that some of the sites currently on selected lands will return to BLM management. Final ownership of cultural resources in the planning area should be carefully monitored to determine if new management opportunities become available.

Table 3-13. Known Cultural Resource Sites in the Planning Area by Land Status and Chronological Period

Land Status	Chronological Period			Total
	Prehistoric	Historic	Other	
BLM	35	14	3	52
Native-selected	70	52	11	133
State-selected	52	30	8	90
Total	157	96	22	275

Table 3-14 displays some other important aspects of the cultural resource base in northwest Alaska. This table contains totals for all of the sites or components of sites for which a cultural affiliation has been identified. Because some sites contain more than one component, the numbers are somewhat different from the previous table. Note that half of the known sites on BLM-managed lands cannot be associated with a particular culture or archaeological assemblage. This is primarily the result of a large number of sites that lack diagnostic artifacts. Surface lithic scatters, tent rings, cairns, hunting blinds, and rock caches are examples of the

kinds of sites that often lack any association with materials that can be assigned to a known archaeological assemblage or that can be used to date the site.

Table 3-14. Sites or Site Components by Cultural Affiliation

Culture	Occurrences
Known	
Denbigh	2
Choris	6
Norton	5
Ipiutak	2
Eskimo*	93
Euroamerican	37
Total Known	145
Total Unknown	145
Total	290

*In this table, the term "Eskimo" includes Birnirk, Thule, and recent Eskimo sites.

Of the 145 sites that can be placed in the chronology for the region, almost 90% are attributed to late prehistoric or historic Eskimo or Euroamerican cultures. This means that the earliest steps in the regional chronology are represented by only a handful of sites. In fact, because some of the information in the previous table is derived from sites with more than one component, the 15 occurrences from Denbigh, Choris, Norton, and Ipiutak actually come from only seven known sites. In other words, while there is an accepted chronology for northwest Alaska that spans 11,000 years, we currently know of no sites representing the first 7,000 years on BLM-managed lands, and we know of only seven sites that represent the next 3,000 years. Almost all known sites on BLM-managed lands in the planning area fall within the last 1,000 years of the regional chronology.

11. Paleontological Resources

Little work has been done to inventory paleontological materials on BLM-managed lands in northwest Alaska. BLM has conducted no program of baseline inventory, nor any compilation of existing information, for almost 20 years. In 1986, the BLM contracted for a compilation of data on paleontological resources on BLM-managed lands (Lindsey 1986). This discussion is based on information from this compilation.

There are 171 occurrences of paleontological resources on BLM-managed lands in the planning area. Of these, all but 20 are located in the northern part of the area. There are 93 recorded occurrences in the DeLong Mountains-Point Hope area, 58 in the area drained by the Kobuk and Selawik rivers, and only 20 in the Seward-Peninsula-Norton Sound area.

The distribution and nature of fossil occurrences in the planning area are undoubtedly a function of the severely limited amount of inventory that has been conducted and should not be taken as representative of the area. For example, Pleistocene fossils are known to occur in numerous coastal and riparian contexts on non-BLM-managed lands in the planning area, yet such materials are almost completely absent from the small collection originating on BLM-managed lands.

12. Visual Resources

The BLM's Visual Resource Management (VRM) program attempts to balance the uses of public lands with the protection of areas containing high scenic values. Scenic quality is an essential component of most recreation activities. The public enjoys a wide variety of outdoor activities that depend on high quality visual resources.

The BLM is responsible for managing the negative impacts that surface-disturbing activities can have on the visual resources of public lands. VRM ensures that scenic values are maintained, while allowing for multiple uses to occur on public lands.

a) Visual Resource Inventory Classes

The visual resource inventory process provides the BLM with a means of determining visual values. The inventory consists of a scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. Based on these factors, BLM-managed lands are placed into one of four visual resource inventory classes which represent the relative value of the visual resources.

Class I is assigned to those areas where a management decision has been made to maintain a natural landscape. These would include areas such as congressionally-designated wilderness areas, wilderness study areas, the wild sections of National Wild and Scenic Rivers, and other congressionally- and administratively-designated areas where the decision has been made to preserve a natural landscape. Classes II, III, and IV are assigned to areas of the planning area based on a combination of scenic quality, sensitivity level, and distance zones. Generally the lower the class number, the more sensitive the area is to visual intrusions.

Class I Objective: Preservation of the landscape is the primary management goal in Class I areas. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective: The objective of this class is to retain the existing character of the landscape. Activities or modifications of the environment should not be evident or attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The level of change to the characteristic landscape should be low.

Class III Objective: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes caused by management activities may be evident but not detract from the existing landscape.

Class IV Objective: The Class IV objective is to provide for management activities that require major modification of the existing character of the landscape. Changes may attract attention and be dominant landscape features but should reflect the basic elements of the existing

landscape. A Class IV rating is generally reserved for areas where visual intrusions dominate the viewshed but are in character with the landscape (areas such as rural communities, multiple subdivisions, mining, and oil and gas developments). The level of change to the characteristic landscape can be high.

b) Visual Resource Management Classes

The inventory classes discussed above do not establish management direction. Inventory classes are informational in nature and provide the basis for considering visual values during land management planning. During the planning process, the class boundaries are adjusted as necessary to reflect the resource allocation decisions made in the RMP, resulting in proposed visual management classes as shown in the alternatives in Chapter II (Map 2-1, Map 2-2, and Map 2-3). The maps vary by alternative and the information is not currently applied since as noted below, no management classes currently exist.

Under existing management, no VRM classes are assigned to the planning area. Although VRM is not addressed in the current MFP, permitted activities in the planning area are generally required to minimize impacts to visual resources. Using the VRM Contrast Rating Sheets, mitigation measures include such things as revegetation or recontouring of disturbed areas, using natural barriers as screening, and using materials and colors that blend into the environment.

c) Condition and Trend

During the summer of 2004 the BLM conducted a VRM field inventory that consisted of four overflights and driving the Nome road system (Dilts and Westcott 2004). VRM inventory classes were developed for all lands within the planning area through the spatial analysis of overflight information using GIS software, on-the-ground observations and photographs, scenic quality ratings, distance classes, viewshed analysis, sensitivity classes, and specialist input. Visual Resource Inventory classes are shown on Map 3-21 and displayed in Table 3-15.

Areas of high visual sensitivity include the road system out of Nome, areas with high levels of recreational use, Native allotments, and villages. Travel routes used in the inventory included the Nome-Teller Highway, Nome-Taylor Highway, Nome-Council Road, and selected rivers. Other major travel corridors include navigable rivers and inter-village winter trails. Winter trails are used in the winter when most of the landscape features are covered with snow. There is little public land in the vicinity of most villages in the planning area. Areas of high recreational use are primarily limited to the Squirrel River and lands near the Nome road system. Much of the access into public lands is via small fixed-wing aircraft. Visual scars only visible for short distances from the roads, trails, or rivers may be highly visible from the air.

There are no VRM Class I areas in the planning area. Class II and III areas are found in the mountainous areas such as the Squirrel River, Brooks Range, Nulato Hills, Bendeleben Mountains, and Kigluaik Mountains. The remainder of the planning area is Class IV.

Table 3-15. VRM Inventory for the Kobuk-Seward Peninsula Planning Area

VRM Class	Acres	Percent of Planning Area
I	0	0
II	3,760,000	28
III	790,000	6
IV	8,690,000	66

Note: Acres rounded to the nearest ten thousand.

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3_21_vrm_inv

13. Wilderness Characteristics

There are no Congressionally-designated wilderness areas in the planning area; however, almost all BLM-managed lands within the planning area, especially those removed a short distance from villages, possess wilderness characteristics of solitude, opportunities for primitive and unconfined recreation, and for the most part are natural.

Residents travel extensively by motorized vehicle (primarily snowmachines and four-wheelers) over parts of the planning area and occupy seasonal dwellings or fish camps outside of villages. These motorized uses are generally for subsistence purposes and are authorized per Section 811 of ANILCA. Other than the Nome road system and the Red Dog Mine Road, there are virtually no roads outside of the villages. Some mining is ongoing, mostly on State land. Mining is the major land impact other than ongoing subsistence activities and dispersed recreational use. The overall impression of the planning area is that it is a natural area, untrammled by humans, with very few obvious signs of modern humanity's influence or presence. Visitors and residents can easily find opportunities for solitude.

a) Characteristics by Unit

For the purposes of discussion of wilderness characteristics, the planning area was divided into the following nine units: De Long, Noatak, Squirrel River, Upper Kobuk, Nulato Hills, Deering, Shishmaref, Wales, and Southern Seward Peninsula. A general summary of wilderness characteristics in each unit follows (Map 3-22).

(1) De Long Unit

This area is located in the northern portion of the planning area, west of the National Petroleum Reserve-Alaska (NPR-A). It includes portions of the De Long Mountains, the Brooks Range foothills, and the North Slope. There are three coastal villages adjacent to this unit: Point Hope, Point Lay, and Kivalina. The unit includes approximately 3.1 million acres of BLM-managed land, 75% of which is currently selected by the State and Native corporations. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(2) Noatak Unit

This area is located north of Kotzebue. It is bounded on the east by the Noatak National Preserve and on the west by the Cape Krusenstern National Monument. It includes approximately 287,000 acres of BLM-managed land, 99% of which is currently selected. The village of Noatak is adjacent to the unit. This area includes the lower portion of the Noatak River and uplands. The area is roadless, natural outside of village influence and provides opportunities for solitude and unconfined recreation.

(3) Squirrel River

This area is located northeast of Kotzebue. It is bounded on the west and north by the Noatak National Preserve, on the east by Kobuk Valley National Park, and on the south by Selawik National Wildlife Refuge. The village of Kiana is located on the southern edge of the unit. This

area includes approximately 1.1 million acres of BLM-managed land. Of this acreage, 58% is currently selected. This area includes the Squirrel River valley and portions of the Baird Mountains. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(4) Upper Kobuk

This unit is located in the far eastern part of the planning area. The unit is surrounded by the Selawik NWR, Kobuk Valley National Park, State land, and Gates of the Arctic National Park and Preserve. There are three villages within the unit: Ambler, Shungnak, and Kobuk. The unit includes approximately 1.3 million acres of BLM-managed land, and approximately 57% of the land is currently selected. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(5) Nulato Hills

This area is on the southeastern edge of the panning area. The Selawik NWR bounds the northeastern edge of the unit and there is a large block of State land located to the west. There are two villages within this unit: Buckland and Shaktoolik. Kotzebue is located to the northwest. The area includes approximately 3.4 million acres of BLM-managed land, 41% of which is selected. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(6) Deering Unit

The Deering Unit is located on the northeastern Seward Peninsula. The unit is surrounded by the Bering Land Bridge National Preserve, State lands, and the Chukchi Sea. The village of Deering is located within this unit. The unit is approximately 128,000 acres of BLM-managed land, 99.8% of which is currently selected. It is split into three smaller subunits by private land. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(7) Shishmaref Unit

This unit is located on the northern edge of the Seward Peninsula and is surrounded by the Bering Land Bridge National Preserve and the Chukchi Sea. It encompasses approximately 76,000 acres of BLM-managed land, 99% of which is selected. It is primarily flat, coastal tundra. The village of Shishmaref is located north of the unit. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(8) Wales Unit

This unit is located on the northwestern edge of the Seward Peninsula and is surrounded by the Bering Land Bridge National Preserve, State land, and Native corporation land. It encompasses approximately 171,000 acres of BLM-managed land, 60% of which is selected. The village of Wales is located on the edge of the unit. The area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

(9) Southern Seward Peninsula Unit

This unit encompasses the entire southern half of the Seward Peninsula and includes about 3.6 million acres of BLM-managed land, 71% of which is selected. Nome and several coastal villages are located near the unit. The road system out of Nome crosses the unit with about 200 miles of road. There is very little BLM-managed land adjacent to the roads. The BLM land within the unit is scattered in large blocks among State and Native corporation land. The northern edge is bounded by Bering Land Bridge National Preserve and State land. The Elim Reservation bounds the southeastern edge of the unit. The unit includes various landforms including the Kigluaik, Darby, and Bendeleben mountains, coastal lowlands, marshes, and several large rivers. Outside of the road system in the Nome area, the area is roadless, natural outside of village influence, and provides opportunities for solitude and unconfined recreation.

In general, risk of losing the wilderness character of the planning area is minimal, given the remoteness of the area, rough terrain, and lack of projected development.

b) Legislative History Relevant to BLM Wilderness

The Wilderness Act of 1964 established a national Wilderness Preservation System in the United States. The Federal Land Policy and Management Act (FLPMA) of 1976 established principles and procedures for management of public lands, as well as a process to inventory and study lands potentially suitable for wilderness designation. In accord with FLPMA, the BLM initiated plans (Management Framework Plans) for lands in Alaska in the early 1980s. However, a wilderness inventory was not completed due to a congressional freeze on funds slated for wilderness reviews in Alaska. In 1981, Interior Secretary James Watt issued a departmental memo prohibiting the BLM from initiating wilderness studies. Twenty years later, Interior Secretary Bruce Babbitt rescinded this direction and enabled the BLM to review potential wilderness areas in Alaska. In 2002, the BLM was instructed to address wilderness as a component in any future land use plan.

On April 11, 2003, Interior Secretary Gale Norton issued a letter regarding wilderness proposals in Alaska. It stated that during the land use planning process, the BLM should consider specific wilderness study proposals that receive broad support among Alaska's elected officials. Without this support, wilderness proposals should not be considered in the planning process.

Referencing Secretary Norton's letter, the State of Alaska through the ADNDR sent a letter to the BLM expressing their desire that the BLM not consider wilderness study proposals in the Kobuk-Seward Peninsula RMP (ADNDR 2004). To this end and per the Secretary's instructions, some areas may be considered for management under other designations such as Area of Critical Environmental Concern (ACEC) or Research Natural Area (RNA).

As a result of Secretary Norton's direction on the wilderness process in land use plans in Alaska and the resulting State of Alaska letter stating their opposition to any further wilderness proposals being addressed in the plan, the BLM will not conduct any further impact analysis on wilderness in this EIS.

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