

1. Introduction

This document is a revision of the 1987 Comprehensive Conservation Plans (Plan) for the management of the Koyukuk and Northern Unit Innoko (locally referred to as the Kaiyuh or Kaiyuh Flats) and Nowitna National Wildlife Refuges (the three refuges combined will hereafter be referred to as Refuge or individually as the Koyukuk, Northern Unit Innoko, or Nowitna). The two plans will be combined into one Plan. It describes two alternatives for managing the Refuge and assesses the effects of implementing each of the alternatives. When this revised Plan is finalized, it will replace the management direction for the Refuge described in the Koyukuk and Northern Unit Innoko National Wildlife Refuge Final Comprehensive Conservation Plan/Environmental Impact Statement/Wilderness Review October 1987 and Nowitna National Wildlife Refuge Comprehensive Conservation Plan/Environmental Impact Statement/Wilderness Review/Wild River Plan Final 1987 and associated records of decision.

The U.S. Fish and Wildlife Service (Service) administers approximately 7,302,000 acres of land and water in western interior Alaska as the Koyukuk and Northern Unit Innoko and Nowitna National Wildlife Refuges (Figure 1-1). This chapter provides background information that establishes the framework used to develop this document, including (1) the purpose of and need for the Plan; (2) an overview of the Refuge, including historical perspective and refuge establishment; purposes, vision, and goals of the Refuge; and the environmental setting; (3) the legal context of refuge management; and (4) the planning process, including identification of significant planning issues addressed in the Plan.

1.1 Purpose of and Need for Action

The purpose of this planning action is to revise the Koyukuk and Nowitna plans originally developed and adopted in 1987. The Koyukuk and Nowitna Plans provide broad policy guidance and establish management direction for the Refuge. It defines long-term goals and objectives toward which refuge management activities are directed and identifies which uses may be compatible with the purposes of the Refuge and mission of the National Wildlife Refuge System. Conservation plans are viewed as dynamic documents, requiring periodic review and updating.

Federal statute, specifically section 304(g) of the Alaska National Interest Lands Conservation Act of 1980, as amended, 16 U.S.C. 140hh-3233, 43 U.S.C. 1602-1784 (ANILCA), directs the Secretary of the Interior to prepare, and from time to time revise, a “. . . comprehensive conservation plan . . . for each refuge (in Alaska) . . .”

Following guidance found in ANILCA and other federal laws—primarily the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee (Refuge Administration Act); and the National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321-4347 (NEPA) as implemented by the Council on Environmental Quality’s (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, 40 CFR 1500-1508—the Service is revising the Koyukuk and Nowitna National Wildlife Refuge plans to provide direction for

management of the Refuge for the next 15 years. Revising the Plans allows the Service to accomplish the following:

- Update management direction related to national and regional policies and guidelines implementing federal laws governing refuge management;
- Incorporate new scientific information on refuge resources; and
- Reevaluate current refuge management direction based on changing public demands for use of the Refuge and its resources.

This document includes an Environmental Assessment and draft Koyukuk Nowitna Refuge Comprehensive Conservation Plan. It describes current management and two alternatives for managing the Refuge, including the Service's preferred alternative (Alternative B). Each alternative represents different options for addressing and resolving issues raised by the public and the Service. It includes an assessment of the effects on resources of the refuge.

In addition to the preceding requirements, a comprehensive conservation plan serves to do the following:

- Ensure that the purposes of the Refuge and the mission of the Refuge System are being fulfilled;
- Ensure that national policy direction is incorporated into the management of the Refuge;
- Ensure that opportunities are available for interested parties to participate in the development of management direction;
- Provide a systematic process for making and documenting decisions about refuge resources;
- Establish broad management direction for refuge programs and activities;
- Provide continuity in refuge management;
- Provide a basis for budget requests; and
- Provide a basis for evaluating accomplishments.

1.2 Planning Context

The Refuge is part of the National Wildlife Refuge System (Refuge System). The Service places an emphasis on managing individual refuges in a manner that reflects national priorities of the Refuge System. As a result, the revised plan must contribute to meeting the mission and goals of the entire Refuge System.

1.2.1 The U.S. Fish and Wildlife Service

Part of the Department of the Interior, the Service is the principal federal agency responsible for conserving, protecting, and enhancing the nation's fish, wildlife, plants, and their habitats. In addition to the Refuge System, the Service operates national fish hatcheries, fishery resource offices, and ecological services field stations. The service enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts. It oversees the Federal Aid in

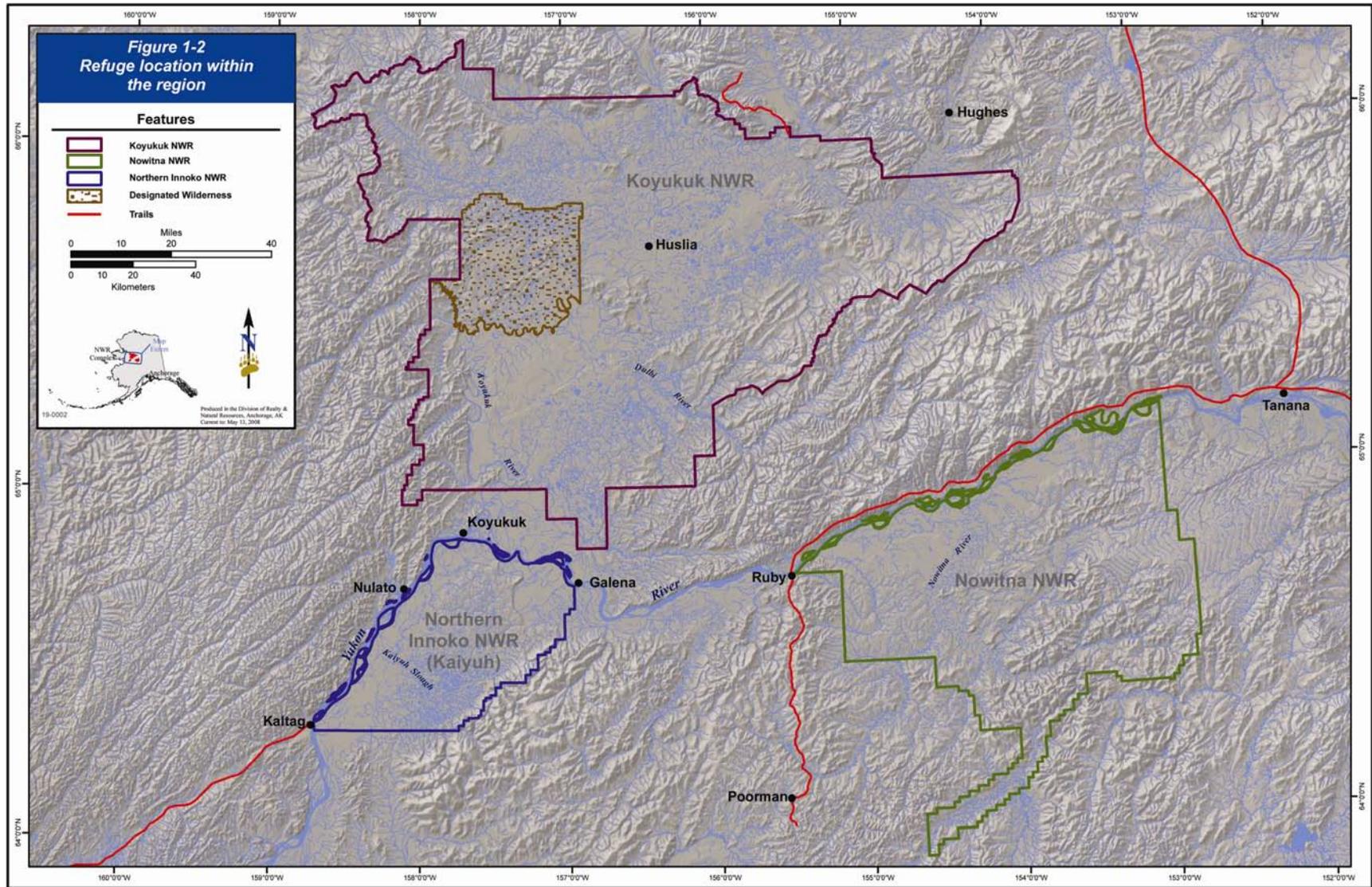


Figure 1-2. Refuge location within the region

The mission of the Refuge System is:

To administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans [Refuge Administration Act; 16 U.S.C. 668dd(a)(2)].

1.2.3 Principles for Managing the National Wildlife Refuge System

The Refuge System Administration Act, as amended, states that each refuge shall be managed to fulfill both the mission of the Refuge System and the purposes for which the individual refuge was established. It requires that any use of a refuge be a compatible use (one that will not materially interfere with or detract from fulfillment of the mission of the System or the purposes of the refuge, based on sound professional judgment).

The 1997 amendments to the Refuge Administration Act identified a number of principles to guide management of the Refuge System:

- Conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Maintenance of biological integrity, diversity, and environmental health of the Refuge System;
- Carrying out the mission of the Refuge System and the purposes of each refuge (except that if a conflict exists, refuge purposes are protected first);
- Effective coordination, interaction, and cooperation with adjacent landowners and State fish and wildlife agencies;
- Maintenance of adequate water quantity and water quality to meet refuge and system purposes and acquisition of necessary water rights under State law;
- Recognition of hunting, fishing, wildlife observation and photography, and environmental education and interpretation as the priority general public uses of the Refuge System;
- Provision of opportunities for compatible priority wildlife dependent public uses within the Refuge System;
- Provision of enhanced consideration for priority wildlife-dependent uses over other public uses in planning and management within the Refuge System;
- Provision of increased opportunities for families to experience compatible wildlife-dependent recreation, particularly traditional outdoor activities such as fishing and hunting; and
- Monitoring of the status and trends of fish, wildlife, and plants within each refuge.

To maintain the health of individual refuges, and the National Wildlife Refuge System as a whole, managers must anticipate future conditions. Managers must endeavor to avoid adverse impacts and take positive actions to conserve and protect refuge resources. Effective management also depends on acknowledging resource relationships and acknowledging that refuges are parts of larger ecosystems. Refuge managers work together with partners—including other refuges, federal and State agencies, tribal and other governments, Native organizations and entities, and nongovernmental organizations and groups—to protect, conserve, enhance, or restore all native fish, wildlife, plants, and their habitats.

1.3 Legal and Policy Context and State Coordination

The Service manages national wildlife refuges pursuant to various legal and administrative requirements. Management of the Refuge is dictated, in large part, by ANILCA, which established the Refuge and identified the purposes for which it was established. However, numerous other laws, treaties, executive orders, and agreements with other parties (e.g., the State of Alaska) also guide management of the Refuge.

1.3.1 Legal Guidance

Operation and management of refuges throughout the Refuge System are influenced by a wide array of laws, treaties, and executive orders and the regulations and policies developed to implement them. Among the most important are the Refuge System Administration Act as amended by the Refuge System Improvement Act, the Refuge Recreation Act, the Alaska Native Claims Settlement Act (ANCSA), and the Endangered Species Act. Brief descriptions of these and other pertinent legal documents that influence management of the Refuge are found in appendix A.

For national wildlife refuges in Alaska, ANILCA, as amended, provides key management direction. ANILCA sets forth the purposes for each refuge and provides administrative direction for management of the refuges, including requiring development of comprehensive conservation plans for each refuge. Additional provisions authorize studies and programs related to wildlife and wildland resources, subsistence opportunities, and recreation and economic uses. How ANILCA influences management of the Refuge is reflected throughout this document.

After reviewing the requirements for Wilderness reviews, we determined that the comprehensive planning requirements of section 304(g) of ANILCA have been satisfied by the Wilderness recommendation of the current Plans.

A similar approach was taken with Wild and Scenic River reviews. We determined that we would meet the intent of the Wild and Scenic Rivers Act of 1968 by focusing our efforts on describing river values and providing better direction for how the Refuge could be managed to protect these values.

Wilderness values and river-related values are discussed in chapter 3, sections 3.5 and 3.6 of this Plan. Programs and actions to protect all refuge-related values are discussed in the alternatives section and in management direction sections of chapter 2.

1.3.2 Policy Guidance

Programmatic guidance and policy documents provide additional direction for management of national wildlife refuges throughout the Refuge System. These documents include the U.S. Fish and Wildlife Service Manual, director's orders, national and regional policy issuances, handbooks, director's memorandums, and regional directives. Although it is not practical to provide information about all of these documents in this Plan, they are critical to management of the Refuge and the Refuge System as a whole. Much of the management direction described in chapter 2, and in other parts of this Plan, is derived from these programmatic and policy documents.

Several of these documents direct that an ecosystem approach be used in refuge management. We must consider the health of the entire ecosystem when managing the Refuge. This concept requires close coordination with others. Appendix A provides a brief description of this concept and of several of the national and regional management plans and programs that were considered during the development of this Plan. Other key policies, such as the compatibility policy, are described in later chapters, as they provide guidance in this Plan.

1.3.3 Coordination with the State of Alaska

The Alaska Department of Fish and Game (ADF&G) has primary responsibility for managing Alaska's fish and resident wildlife populations. On all Refuge lands, the Service and ADF&G share a concern for all fish and wildlife resources and their habitats, and both are engaged in fish and wildlife conservation, management, and protection programs. In 1982, the Service and ADF&G signed a Master Memorandum of Understanding that defines the cooperative management roles of each agency and sets the framework for cooperation between the two agencies (see appendix B.)

The State of Alaska establishes fishing, hunting, and trapping regulations at the direction of the Alaska Boards of Fisheries and Game. These regulations apply to federal public lands unless superseded by federal regulations. If Service restrictions on hunting were needed, they would be done through a rule making or through closures or restrictions under 50 CFR 36.41. The State is divided into 26 game management units (GMU); see Figure 1-3. Management objectives are developed for populations within each GMU. The Refuge is within GMU 21 and 24. The ADF&G management objectives for big-game and fish populations on the Refuge are described in chapter 3.

The Alaska Department of Natural Resources (DNR) and its divisions are key management partners. DNR manages all state-owned land, water, and surface and subsurface resources except for fish and wildlife. The DNR - Division of Mining, Land, and Water manages the State's water and land interests, including any within national wildlife refuges in Alaska. These interests will become increasingly significant in the next 15 years, especially with regard to water rights, navigable waters, ownership of submerged lands, and rights-of-way over refuge lands. The division is responsible for development of plans for management of State lands (e.g., the plan currently being developed).

Additional information about key State programs is provided in appendix B.

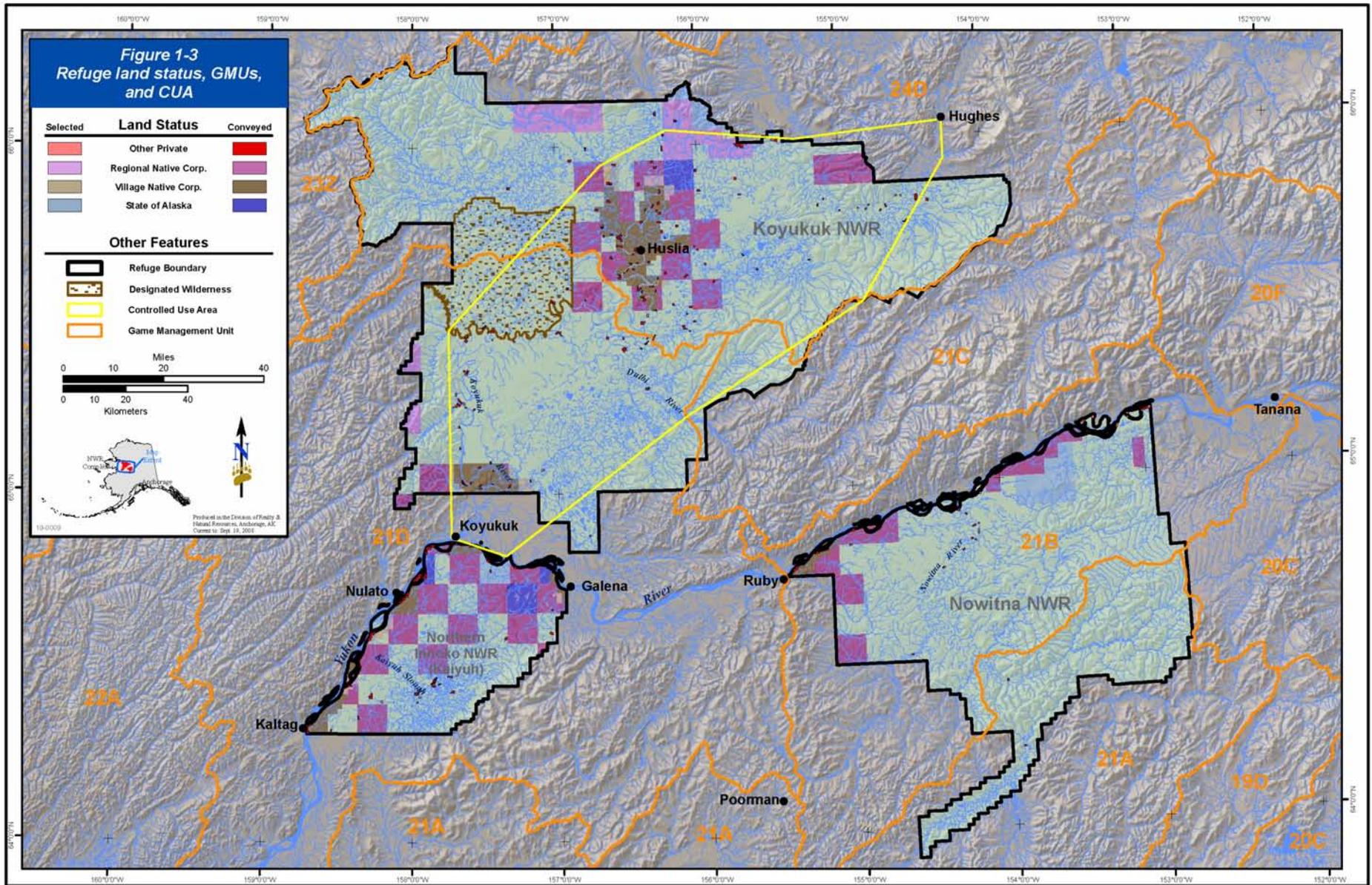


Figure 1-3. Refuge land status, CMUs, and CUA

1.4 Refuge Purposes, Vision, and Goals

1.4.1 Purposes of Koyukuk National Wildlife Refuge

Section 101(b) of ANILCA identifies purposes for all conservation system units in Alaska and states,

“It is the intent of Congress in this Act to preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems; to protect the resources related to subsistence needs; to protect and preserve historic and archeological sites, rivers, and lands, and to preserve wilderness resource values and related recreational opportunities, including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wild lands and on free-flowing rivers; and to maintain opportunities for scientific research and undisturbed ecosystems.”

Section 302(5) (B) of ANILCA states:

“The purposes for which the Koyukuk National Wildlife Refuge is established and shall be managed include—

- (i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to waterfowl, raptors and other migratory birds, furbearers, moose, caribou (including participation in coordinated ecological studies and management of the Western Arctic caribou herd), furbearers, and salmon;
- (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;
- (iii) to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents;
- (iv) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge.”

The purpose of the Koyukuk Wilderness is to secure an enduring resource of wilderness, to protect and preserve the wilderness character of the area as part of the National Wilderness Preservation System, and to administer the area for the use and enjoyment of the American people in a way that will leave it unimpaired for future use and enjoyment as wilderness.

Major purposes for which the Innoko Refuge was established and shall be managed were set forth in section 302(3) of ANILCA. Only the first purpose differs from those for the Koyukuk Refuge. This purpose is:

- (i) to conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to waterfowl, peregrine falcons, other migratory birds, black bear, moose, furbearers, and other mammals, and salmon.

Major purposes for which the Nowitna Refuge was established and shall be managed were set forth in section 302(6) (B) of ANILCA. Only the first purpose differs from those for the Koyukuk Refuge. This purpose is:

- (i) to conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to trumpeter swans, white-fronted geese, canvasbacks and other waterfowl and migratory birds, moose, caribou, martens, wolverines, and other furbearers, salmon, sheefish, and northern pike.

The lower 223 miles of the Nowitna River is managed as a Wild River under the Wild and Scenic Rivers Act. This segment of the river was recognized for its outstandingly remarkable scenic, geologic, wildlife, historic, and recreational values. There are 142,400 acres that fall under this management category.

1.4.2 Refuge Vision Statement

Service Planning Policy (Service Manual 602 FW 3.4G) directs each national wildlife refuge to develop a vision statement for the refuge during the comprehensive conservation planning process. A vision statement is “[a] concise statement of what the planning unit (refuge) could be, or what we could do, in the next 10 to 15 years, based primarily upon the Refuge System mission and specific refuge purposes, and other relevant mandates (Service Manual 602 FW 1.6S).” The following statement provides this vision for the Refuge:

The National Wildlife Refuges in the Koyukon region of Alaska encompass a vast area of boreal forest, wetlands, lakes and rivers that is home to an abundance of waterfowl, songbirds, mammals and fish. An experience of solitude in this intact ecosystem imparts the sense that this place is completely untouched by man. And yet, the land is thoroughly known and essential to people whose lives are intertwined with its bounty. We use our understanding of the respect, value and love of this place by the people who live in, use, or simply treasure this wild land and sound biological research and monitoring to ensure proper stewardship of the Koyukuk, Northern Unit Innoko, and Nowitna National Wildlife Refuges.

1.4.3 Refuge Goals

Refuge goals are based on the purposes of the Refuge and the refuge vision statement. They reflect the contribution of the Refuge to the Refuge System as well as other key management responsibilities that stem from law and policy. The Plan adopted as a result of this planning process must work toward meeting all of these goals.

- Conserve fish and wildlife populations and habitats in their natural diversity in a manner consistent with natural ecological processes.

- Ensure the natural character, vigor, and species diversity of the boreal forest and tundra environments by perpetuating a fire regime both natural and prescribed, which maintains a mosaic of habitats native to interior Alaska.
- Maintain a fire management program that helps achieve other refuge goals and objectives while providing for the protection of human life, private property, and identified cultural and natural resources.
- Ensure the natural function and condition of water resources necessary to conserve fish and wildlife populations and habitats in their natural diversity.
- Provide information and maintain open communication for a greater understanding and appreciation of fish and wildlife ecology, habitat preservation, and refuge management that assists in addressing resource issues important to local residents, the Service, and others.
- Continue to provide quality opportunities for hunting, fishing, wildlife observation and photography, and other outdoor recreation in a natural setting.
- Provide and promote the opportunity for local residents to continue their subsistence activities on the Refuge, consistent with the subsistence priority and with other refuge purposes.
- Maintain the special values of the Nowitna Wild River and Koyukuk Wilderness and the wild character of the Refuge.
- Conserve, appreciate, and interpret the cultural, historic, and prehistoric resources of the Refuge.
- Promote close working relationships through effective coordination, interaction, and cooperation with other federal agencies, State agencies, local communities, tribes, organizations, industries, the public, and the landowners within and adjacent to the Refuge whose programs relate to refuge management activities.
- Provide and maintain adequate facilities and equipment in Galena to ensure a safe and secure working environment to accomplish refuge purposes, goals, and mandates.
- Ensure the Refuge has adequate personnel to meet operational needs.

1.5 Refuge Overview

1.5.1 Historical Perspective and Refuge Establishment

On December 2, 1980, President Jimmy Carter signed into law the Alaska National Interest Lands Conservation Act (ANILCA). Section 302 of this act established the Innoko, Koyukuk, and Nowitna refuges as part of the National Wildlife Refuge System.

The Northern Unit Innoko contains 751,000 acres and is situated adjacent to the Yukon River on the Kaiyuh Flats. The Koyukuk Refuge contains 4,500,000 acres, and the southern boundary is situated seven miles north of Galena, which is located on the Yukon River. The Nowitna Refuge contains 2,051,000 acres and is located less than two miles east of Ruby and south of the Yukon River. The Koyukuk and Northern Unit Innoko, along with the Nowitna, are managed out of the Galena office.

1.5.2 Refuge Environment

The Koyukuk Refuge is situated in a circular floodplain basin of the Koyukuk River just north of its confluence with the Yukon River. The variably forested floodplain is surrounded by the Nulato Hills on the west, the Purcell Mountains and Zane Hills on the north, Galena Mountain on the east, and the Yukon River on the south. Numerous lakes, sloughs, and rivers are prominent across the refuge landscape with the Koyukuk River being the dominant natural feature.

Boreal forest with inclusions of tundra, willow-dominated brush fields, and muskeg is the dominant vegetation pattern across the refuge. White spruce is common along the major rivers. Fire is the major element of change to affect the vegetation pattern across the interior Alaska landscape.

The combination of wetlands and terrestrial habitats supports a relatively high population of moose, furbearers, waterfowl, and fish. These resources are important to local subsistence users.

The Northern Unit Innoko is an extensive floodplain with over 80 percent of the area being either water or wetlands. It is bounded on the north and west by the Yukon River and on the east and south by the Kaiyuh Mountains. The area has a rich history of local Athabascan use.

Waterfowl utilize the Northern Unit Innoko for nesting and brood rearing. Moose and especially beaver are common to the area. Northern pike are common to most lakes, ponds, and streams.

The Nowitna Refuge consists primarily of black spruce forests, wetlands, ponds and streams, bench lands, and foothills. The Refuge is bounded by the Yukon River on the north, the Boney Creek Bench lands on the east, the upper slopes of the Nowitna River Canyon on the south, and the Poorman Road Mountains on the west. The Nowitna River is a congressionally designated Wild River. It forms a wide, meandering floodplain except for the Nowitna River Canyon.

The Nowitna River floodplain is the Refuge's most productive area. It supports the majority of the Refuge's waterfowl, furbearers, wolves, moose, and bear.

The majority of the use of the refuges is by local residents from the surrounding communities of Tanana, Ruby, Galena, Koyukuk, Nulato, Kaltag, Huslia, and Hughes for subsistence activities. Ten outfitters, guides, and transporters currently operate on the Refuge annually.

1.5.3 Special Values of the Refuge

Section 304(g) of ANILCA directs the Secretary of the Interior to identify and describe "special values of the refuge, as well as any other archaeological, cultural, ecological, geological, historical, paleontological, scenic, or wilderness values of the refuge."

The following special values have been identified for Koyukuk and Northern Unit Innoko Refuges.

Mosaic of early successional habitats: The incidence of fire on the Refuges is one of the highest in Alaska. The Refuge's fire return interval is 275 years based on the past 57 years of fire history. The mosaic of seral vegetation stages reflects the strong influence of fire. Early seral habitats are present over a large area of the Refuge. Ice scouring in the floodplain has created a significant amount of early seral stage willow, which provides the major source of

winter moose browse. The abundance of such habitats, which are dominated by herbaceous and shrub species, supports a relatively high density of moose and other wildlife in some areas.

Diverse system of streams, lakes, and wetlands: The relatively natural free-flowing waters of the Refuge result from an ecological process that creates a mosaic of continuously evolving habitat and maintains a diversity of fish and wildlife populations. These free-flowing waters recharge lakes and wetlands during periods of flooding and move sediment and nutrients throughout the riparian area. The Koyukuk Refuge was created in large part to protect the wetlands adjacent to the Koyukuk River and its tributaries. These wetlands include an estimated 15,000 lakes and 5,500 miles of rivers and streams.

Kaiyuh Flats: This area is unique because over 80 percent of the refuge is water or wetlands. It is one of the few areas along the Yukon River that has a water level that fluctuates with the rise and fall of the Yukon River. The area is widely used by local Athabascan people and has a very rich history.

Nogahabara sand dunes: The Nogahabara sand dunes are one of the largest active sand dunes in Alaska. It is a small portion of a Pleistocene dune field that is now mostly inactive. The active area is about 16,000 acres and consists primarily of dunes 20 to 50 feet high and 100 feet or more in length. The dunes form the central core of the Koyukuk Wilderness, which encompasses approximately 400,000 acres. The dunes contain significant cultural sites.

Salmon habitat: The Koyukuk River and its major tributaries, the Gisasa, Kateel, Huslia, and Dulbi rivers, provide migration corridors and spawning and rearing habitat for chum salmon. A smaller population of Chinook and coho salmon use these rivers for migration and spawning and rearing habitat. Chinook, coho, and chum salmon, whitefish, sheefish, and northern pike comprise an important subsistence fisheries resource.

Boreal-nesting white-front goose habitat: The Koyukuk and Northern Unit Innoko provide significant nesting, rearing, and molting habitat for the white-front goose.

Trumpeter and Tundra swan habitat: Trumpeter and tundra swan range overlaps on the Koyukuk Refuge. The Refuge lies at the northwestern limit of trumpeter swan habitat. Swans of both species nest in significant numbers on the Refuge, making the area ecologically unique. The population of both species has been steadily increasing.

Subsistence harvest on the Koyukuk and Northern Unit Innoko: One of the purposes for the refuges set forth in ANILCA is to provide the opportunity for continued subsistence use by local residents. Residents of nearby villages continue to depend upon the Refuge for their subsistence needs. Moose and salmon comprise the most used refuge resources. Trapping provides additional income to some individuals but not to the degree it did 15–20 years ago. Annually, a variety of berries are picked, and some medicinal plants are harvested. The Refuge issues 2–4 special use permits for cabin logs each year. This subsistence-based socioeconomic system characteristic of the Refuge is a dynamic. The system depends on the continuing relationship between subsistence users and the resources used.

Caribou herds: The Western Arctic caribou herd is the largest caribou herd in Alaska, which numbered over 490,000 animals in 2004. The Koyukuk Refuge is part of the herd's traditional caribou range. The Galena Mountain caribou herd utilizes the Koyukuk for winter habitat.

The following special values have been identified for the Nowitna Refuge:

Nowitna River: The Nowitna River is a congressionally designated Wild River. The meandering nature of the Nowitna River has created a diversity of terrestrial and aquatic habitats that are very productive waterfowl, moose, furbearer, and northern pike areas. The river changes courses by forming and then cutting through oxbows, creating isolated oxbow lakes that are ideal nesting areas for swans, geese, and ducks. River erosion destroys mature terrestrial habitat on the outside of bends and forms—on the inside of bends—new gravel and sand bars that are quickly vegetated by willows, sedges, grasses, and forbs. All seral stages of terrestrial and aquatic habitats are represented in the Nowitna River floodplain. Spring flooding enriches the oxbow lakes and sloughs with nutrients and carbonates from the limestone bedrock in the river’s canyon area. As a result, the lakes are less acidic and more productive than most other Alaskan waters.

Sheefish: The population of sheefish found in the Nowitna River is currently being studied to unravel all of the unknowns surrounding this species. The population is anadromous, following a sinuous path before heading to the Yukon River. Sport fishing for trophy-size sheefish is an established activity on the Nowitna River.

Agates: The gravel bars on the upper Nowitna River are rich in agates. Agate hunting is a popular visitor activity there. The agates are believed to have originated in a layer of volcanic flows along the Nowitna River upstream from its confluence with the Sulukna River.

Palisades: The Palisades site on the Yukon River is an impressive series of silt bluffs rising up to 300 feet above the river and extending for about seven miles along the river. The bluffs are commonly referred to as the Boneyards because fossil remains of Pleistocene mammals periodically emerge from the eroding frozen silt. Preserved within the bluffs are layers of prehistory reaching back at least two million years (Matheus et al. 2003), and the site is unmatched in Alaska for paleoenvironmental study. The bluffs contain one of the oldest series of datable volcanic ash layers in the State. It preserves at least three buried forest layers representing interglacial periods within the early, middle, and late Pleistocene. The presence of datable layers, interspersed with buried ice wedges and abundant fossil plant and animal remains, provides researchers with detailed information about local past environments. Fossil collection is prohibited other than by researchers working under permit.

Boney Creek dissected bench land formation: This landscape feature consists of dissected bench lands and is unique to interior Alaska. The area has a canyon land landscape with flat-topped mesa or plateau-like areas dissected by small parallel streams. The bench lands are covered with vegetated dunes that have been modified by erosion and show a northeast-southwest orientation. The unusual drainage patterns are at various angles to the orientation of the dunes and seem to be unrelated to any underlying bedrock.

Waterfowl: The refuge is productive for trumpeter swans, white-fronted geese, and ducks.

Furbearers: The abundance of mature trees provides some of the best marten habitat found in Alaska. Beaver are abundant, particularly in the oxbow lakes in the Nowitna River lowlands and in grass lakes lying along the Yukon River.

1.6 Legal and Administrative Planning Requirements

Section 304(g) of ANILCA directs that comprehensive conservation plans be developed for each refuge. It also specifies procedures to follow while developing these plans

The following must be identified and described prior to developing a plan for any refuge.

- the populations and habitats of the fish and wildlife resources of the refuge;
- the special values of the refuge and any other archeological, cultural, ecological, geological, historical, paleontological, scenic, or wilderness values of the refuge;
- areas within the refuge suitable for use as administrative sites or visitor facilities, or for visitor services, as provided for in ANILCA sections 1305 and 1306;
- present and potential requirements for access with respect to the refuge, as provided for in ANILCA title XI; and
- significant problems which may adversely affect the populations and habitats of fish and wildlife identified.

Each comprehensive conservation plan shall:

- be based upon the identifications and the descriptions in the planning requirements above—
 - (i) designate areas within the refuge according to their respective resources and values;
 - (ii) specify the programs for conserving fish and wildlife and the programs relating to maintaining the values of the refuge that are proposed to be implemented within each area; and
 - (iii) specify the uses within each such area that may be compatible with the major purposes of the refuge; and
- set forth those opportunities which will be provided within the refuge for fish and wildlife- oriented recreation, ecological research, environmental education, and interpretation of refuge resources and values, if such recreation, research, education, and interpretation is compatible with the purposes of the refuge.

While preparing the plans, the Service is required to ensure adequate interagency coordination and public participation. Any interested and affected parties such as State agencies, Native corporations, local residents, and political subdivisions that would be affected by decisions in the plan must be provided meaningful opportunities to present their views. Prior to adopting a plan, the Service will issue notice of its availability in the *Federal Register*, make copies available in regional offices of the Fish and Wildlife Service throughout the U.S., and provide an opportunity for public review and comment.

1.7 The Planning Process for the Refuge

This section describes the process used to develop this Draft Conservation Plan and environmental assessment (EA). The process is consistent with the planning requirements specified in section 304(g) of ANILCA; the Refuge System Administration Act, as amended; the National Wildlife Refuge System Improvement Act; the Service's planning policy (602 FW 1 and 3); the National Environmental Policy Act (42 U.S.C. 4321-4347); and the Council on

Environmental Quality's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500–1508). The Service is using an eight-step planning process to revise the Refuge Plan:

- 1) Design the planning process (preplanning)
- 2) Initiate public involvement and scoping
- 3) Determine significant issues
- 4) Develop and analyze alternatives
- 5) Prepare draft comprehensive conservation plan and environmental assessment
- 6) Prepare and adopt a final plan by issuing a Finding of No Significant Impact or proceed in the development of an environmental impact statement
- 7) Implement the plan and monitor and evaluate it
- 8) Review and revise the plan

1.7.1 Design the Planning Process (Preplanning)

In 2007, the Service began reviewing the Koyukuk and Northern Unit Innoko plans and Nowitna National Wildlife Refuge Plan to determine how they should be revised. The Service found that, in most cases, on-the-ground management actions were meeting refuge objectives. However, some management direction needed to be updated. New laws (such as the Refuge System Improvement Act), new regulations and policies, and other changes (such as federal management of subsistence on Alaska refuges) needed to be included in the Plan. The Service decided to combine the refuge Plans into one because both refuges are administered out of the same office.

The Service then identified all relevant laws, regulations, policies, and other direction that would have to be considered during revision of the Plan. These were discussed in the legal and planning context sections earlier in this chapter, and additional detail can be found in appendix A. The Service also reviewed data available on refuge resources and uses and identified some areas in which additional work was required.

1.7.2 Initiate Public Involvement and Scoping

This step informed people that the Plan revision process was beginning and that we were soliciting ideas on what should be addressed in the revision. Formal scoping began with publication of the Notice of Intent to revise the Koyukuk and Northern Unit Innoko and Nowitna National Wildlife Refuge Comprehensive Conservation Plan and prepare an EA, which was published in the *Federal Register* on October 9, 2007 (Vol. 72 No. 194, pp. 53343-53344).

In November 2007, a newsletter announcing the revision and seeking comments was mailed to numerous individuals and organizations on the mailing list developed by the regional office during August 2007. Copies of the newsletter were sent to all post office box holders in Galena. The newsletter contained information about the Refuge, described issues identified by the refuge staff and a group of village leaders, and provided an opportunity for the public to identify other issues that should be addressed during revision of the Plan.

Public meetings to gather input were held in eight communities adjacent to and lying within the Refuge. From 8–26 people attended the meetings, and 60 individuals or organizations provided written or oral comments. Topics identified by the public included wildlife populations, competition for refuge resources between local and non-local users, the public feeling they are not listened to, being sensitive to cultural ways, future public use, climate change, cabin permitting policy, timber harvest, mining, oil and gas leases, the effects of off-refuge mining activities on refuge land, and future development on and off the Refuge.

1.7.3 Determine Significant Planning Issues

The planning team reviewed the issues raised by the public, refuge staff, other Service divisions, tribal governments, and the State of Alaska to determine the significant planning issues to be addressed in the revised Plan. Significant issues are those that are within the range of control of the Refuge and may be handled differently in the alternatives. Eight issues were identified by the public that are addressed in the two alternatives. Section 1.8 of this chapter provides more detail on the process used to identify the significant planning issues and what those issues are.

1.7.4 Develop and Analyze Alternatives

Following the determination of significant planning issues in January 2008, the planning team developed a set of draft alternatives for management of the Refuge. A planning update was sent to over 300 individuals, State agencies, and local government agencies in the affected area asking for comments, suggestions, and questions. Sixty comments were received and the Refuge staff made minor revisions to the draft alternatives. The final set of alternatives is presented in chapter 2 with analysis of the environmental effects displayed in chapter 4 of this document.

1.7.5 Prepare Draft Plan and Environmental Assessment

The purpose of this step is to produce the document you are currently reading. This document describes two alternatives (including the current management) for managing the Refuge over the next 15 years. It includes an analysis of the potential impacts of implementing each alternative and describes how the Service determined its preferred alternative (Alternative B). Also included is a description of the management that would remain the same no matter which alternative is implemented. A public review and comment period of no less than 90 days is now underway. During this period, the Service will hold public meetings in the eight villages (Hughes, Huslia, Galena, Kaltag, Koyukuk, Nulato, Tanana, and Ruby) near the Refuge.

1.7.6 Prepare and Adopt a Final Plan

The planning team will review and analyze all comments received on the Draft Plan, modify the draft as needed, and either develop the Final Revised Comprehensive Conservation Plan or proceed in the development of an environmental impact statement (EIS). If no EIS is required, a Finding of No Significant Impact (FONSI) will be submitted to the Regional Director for approval and signature. Following approval, a Notice of Availability will be published in the *Federal Register*, and the Plan and FONSI will be distributed to interested parties.

1.7.7 Implement Plan, Monitor, and Evaluate

After the final Plan is distributed, the refuge staff will begin implementing any management changes called for in the revised Plan. A critical component of management is monitoring—measuring resource and social conditions to make sure that progress is being made toward meeting refuge purposes, goals, and objectives. Monitoring includes determining if the Refuge is implementing the plan and if actions being taken are effective in meeting the objectives. The Refuge will use an adaptive management approach, which means that information gained from monitoring will be used to evaluate and, as needed, modify refuge objectives and management direction.

1.7.8 Review and Revise Plan

Service policy directs that the Refuge review the Plan annually to assess any need for change in management direction. The Refuge will revise the Plan when important new information becomes available, when ecological conditions change, or when the need to do so is identified during the review. If major changes are proposed, public meetings may be held and a new environmental assessment (or an environmental impact statement) may be needed. Consultation with appropriate State agencies and others will occur during any future revisions. Full review and revision of the Plan will occur every 15 years or more often, if deemed necessary. The Refuge will continue to inform and involve the public through the appropriate means (such as reporting on activities at village meetings, via updates and/or other mailings) throughout the implementation and monitoring process.

1.8 Planning Issues

The Service defines an issue as any unsettled matter that requires a management decision, such as in initiative, opportunity, resource management problem, threat to Refuge resources, conflict in uses, public concern, or presence of an undesirable resource condition. Issues were initially identified by the refuge staff in April 2007. Several other means were used to identify issues. We obtained input from the public through a “village leaders” meeting in August 2007, at “open houses” in the villages, through issue worksheets that were distributed with the first planning update, and through visits with village elders and community leaders. We identified issues for consideration during revision of the refuge Plan. Some of the issues have already been addressed through existing laws, regulations, or policies or are outside the scope of the Plan. The remaining issues are addressed through the development of the alternatives described in chapter 2. The environmental analysis presented in chapter 4 discusses the effects of implementing each alternative. The following discussion briefly describes each of the eight issues. The Refuge’s role in identifying and analyzing the issues is to objectively consider a wide range of approaches that could be taken to address each issue.

1.8.1 How will the Refuge maintain and manage wildlife populations, especially moose, in the face of competition between users and predators?

The number and range of general comments about moose hunting and salmon fishing regulations indicates that this is a major concern of a large proportion of refuge users. Many people expressed concern for moose and salmon numbers, the difficulty of getting a moose, competition with non-locals for moose and salmon, predation of moose by black bear and wolf,

the need for changes in both the the moose hunting season and the salmon fishing season, and the concern for retaining as much of a subsistence lifestyle as is possible in today's society.

Representative comments include:

"Is the moose count indicating a stable population?"

"Before the 1980s there were more moose and we hunted whenever we needed meat."

"What kinds of king salmon studies are going on? Why don't they (State) limit commercial salmon and the take of salmon during pollock fishing?"

"Our freezers are empty again this fall."

"This moose hunting season there were planes landing north of Hughes with outside hunters."

"Doing away with the control use area would spread hunters out and relieve pressure on big bulls."

"Waterfowl hunters from Unalakleet are using the Kaiyuh."

"The grizzlies are a big predator on moose calves. They move into the Kaiyuh during the fall."

"Why can't we manage our own moose? How can we manage our area along with the Feds?"

"I want to maintain my subsistence way of life!"

"Will the State ever recognize the federal rural preference? If they do change, will that change hunting pressure here?"

1.8.2 How will the Refuge address future (off-refuge) mining, oil, and gas development and its effect on the Refuge environment?

Local and non-local residents expressed concern for future mining and its affect on the environment, especially water quality. There is a fair amount of concern regarding the development of future oil and gas leases on and off the Refuge.

Representative comments include:

"We do not want to see development occur in the area."

"If new mining development occurs adjacent to the refuge, how will it be addressed by the refuge?"

"How will you address future development such as mining and roads in the Plan?"

1.8.3 How will the Refuge identify and address contaminants that affect the wild food we eat and water quality?

There are two concerns: (1) is the food we eat that is gathered from the land contaminated and (2) how are off-refuge mining activity and the abandoned Air Force sites affecting water quality on the Refuge.

Representative comments include:

“What causes the accumulation of mercury in the pike that we catch in the Kaiyuh and elsewhere?”

“Are there any fish contaminant studies being done on the Kaiyuh?”

“Do we do any testing for contaminants in moose?”

“What is being done about contaminants studies of the Hog River Mine?”

“There are contaminants buried (drums and equipment) at the old Indian Mountain Air Force Base.”

1.8.4 How will the Refuge monitor and address the effects of climate change?

This was a general issue brought up in each village we visited during the scoping period. One village, Huslia, has been actively discussing climate change for the past five years and working with various groups to document it. Climate change is predicted to have far reaching impacts to the boreal forests across the world.

Representative comments include:

“With increasing temperatures in the fall, the rut gets pushed back until cooler temperatures arrive but this does not necessarily occur at the same time as the moose season dates. Is there a plan for dealing with this over the next 15 years?”

“With climate change, will we need to extend the moose hunting season?”

“What are you going to do about global warming?”

“Song birds are not finishing their song. They have been like this for the last eight years.”

1.8.5 How will the Refuge address maintaining the wild character of the Refuge and wilderness quality?

This concern was shared by local and non-local residents alike. One of the reasons for visiting the Refuge is because of its wild character and the experience it offers. Several of the Refuge users have visited the Koyukuk Wilderness and value the experience they obtained there.

Representative comments include:

“It is a true wilderness experience.”

“The untouched beauty of the land and rivers.”

“Good place to get away from it all.”

“Lack of human impacts – opportunity to fish and hunt in a wilderness setting.”

“I value the wilderness and all it has to offer. Not for the benefit of humans but for the benefit of nature itself. Keep the area as wild as possible for there are not many truly backcountry wilderness areas left in the U.S.”

“I have a high appreciation of the wilderness habitats. These ecosystems will be the most resilient to climatic changes... the harvested or impaired [areas] will not [be as resilient].”

1.8.6 How will the Refuge address future public use of the Refuge?

Two areas of concern were expressed regarding future uses of the Refuge. Most of the comments focused on the use of all terrain vehicles (ATVs) for recreational use and air boats for moose hunting. Concern for future development, such as an interior road system and oil and gas exploration, was expressed.

Representative comments include:

“How would the proposed interior road system affect refuge as well as Native lands?”

“What does the future hold for ecotourism in the interior?”

“How will the refuge distinguish between what is subsistence versus what is recreational use of ATVs?”

“We are interested in the refuge considering the creation of a local preference for local guides from nearby communities who are applying for permits to guide eco-tourists within their local refuge.”

“How do you stop ARGOs from going all over the place?”

“How will development (such as mining and roads) be addressed in the plan?”

1.8.7 How can the refuge fire management program help villages address their hazardous fuel accumulations?

People in the villages continue to express concern for adequate wildland fire protection. They recognize fire as a necessary natural process but are concerned for the protection of life, property, and natural and cultural resources.

Representative comments include:

“How can we secure funding to do a fuels reduction project around the village?”

“Will you be doing any fuels treatments around our village?”

“What was coming back after the Three Day Slough prescribed burn?”

1.8.8 How will the Refuge address the need for more outreach and better communication with the public?

People in the village expressed the need for more outreach in the schools, sharing of Refuge Inventory and Monitoring results, and a better understanding of overall refuge activities and policies.

Representative comments include:

“We need to get our younger people interested in managing the resources of the refuge (help them understand what you are hunting needs to be managed!)”.

“There is a need for more outreach/environmental education work to be done in our schools.”

“How will you address invasive species? Will you develop an invasive species management plan?”

“We are not getting the information about the March moose hunt on the (Koyukuk) refuge.”

“Would you clarify what the wood cutting policy is on the Refuge?”

“Does all of the permitting (especially guiding) go through the Galena office? Is it public information?”