

2. Goals, Objectives, Management Policies, and Guidelines

This chapter includes sections addressing two major topics: Refuge goals and objectives, and Refuge management policies and guidelines. Refuge goals, objectives, and management policies and guidelines are features of the alternatives (described in detail in Chapter 3). Chapters 2 and 3 must be read together for a full view of the alternatives.

This chapter includes the following sections:

- Section 2.1 identifies Refuge goals and objectives that would be implemented regardless which alternative is selected.
- Section 2.2 provides an overview of Refuge policies and guidelines.
- Section 2.3 describes land management categories on Alaska’s national wildlife refuges. Note that the Moderate Management and Intensive Management categories are not used nor proposed for use on Arctic National Wildlife Refuge (Arctic Refuge, Refuge).
- Section 2.4 describes Arctic Refuge management policies and guidelines in detail.
- Section 2.5 is a summary table comparing allowed activities, uses, and facilities by management category.

2.1 Refuge Goals and Objectives

Arctic Refuge purposes and vision statement (see Chapter 1) provide the framework for developing goals and objectives for managing the Refuge. Goals are broad statements of desired future conditions; objectives are concise statements of what the Refuge wants to accomplish.

Objectives identified for one goal are often applicable to other goals. To avoid unnecessary duplication, each objective is listed only under the goal that represents the clearest connection.

The full range of objectives presented here provides an overview of the management priorities currently being addressed or that should be addressed during the life of the Comprehensive Conservation Plan (Plan, Revised Plan). The objectives span three broad periods: current and ongoing priorities, short-term priorities (5–8 years), and long-term priorities (15 years).

2.1.1 Goal 1: Ecological processes shape the Refuge, and its management remains essentially free of the intent to alter the natural order, including natural population densities and dynamics, and levels of variation of native fish, wildlife, and plants.

Current and Ongoing Priorities

Objective 1.1: Refuge Management—All management programs will recognize the Refuge’s unique role as a benchmark for biological integrity, diversity, and environmental health in the National Wildlife Refuge System (Refuge System), and will protect and maintain this function in all management activities (see Objective 2.3 and 9.2).

Rationale: Natural ecological processes shape the environment and influence biological structure and function at the genetic, organism, and community levels. Biological integrity, which is a measure of natural biological structure and function and the processes that control

them, lies along a continuum from extensively altered by human impacts to unaltered and intact. Similarly, environmental health, or the structure and function of abiotic features such as soil, water, and air, varies from altered and degraded to natural and intact. No landscape retains absolute biological integrity, diversity, and environmental health. However, Arctic Refuge is widely recognized as anchoring the intact and natural end of the spectrum of ecological and environmental conditions in the Refuge System.

Refuge managers must weigh all the factors identified by establishing purposes, laws, policy, and science when considering whether proposed activities support or detract from the refuge's biological integrity, diversity, and environmental health. We favor the least intensive approaches wherever possible. We start by considering the historical structure and function of Refuge ecosystems that, based on sound professional judgment, were believed to exist prior to substantial human-related changes to the landscape. Refuge management actions will be focused on maintaining those conditions but will recognize that climate change or other factors external to the Refuge may ultimately make maintenance of historic conditions unattainable. In some cases, adaptive management that restores or mimics natural ecosystem processes or functions to achieve Refuge purpose(s) will be considered, but active manipulation of habitats and populations will generally be avoided.

Objective 1.2: Inventory and Monitoring of Wildlife and Habitats—Within two years of Plan adoption, biological staff will begin revising the draft Ecological Inventory and Monitoring (I&M) Plan for Arctic Refuge. The I&M Plan will be consistent with regional U.S. Fish and Wildlife Service (Service) guidelines, and will be finalized following the Ecological Review (see Objective 1.4).

Rationale: Data on abundance, distribution, and population trends for the fish, wildlife, and plants of the Refuge provides baseline knowledge of Refuge resources and helps guide adaptive management for conservation of natural diversity. An intensive program to inventory the biological resources of the Refuge and monitor their status and trends over time has been in place for many years. The Refuge is vast and biologically diverse, however, and gaps still exist in our knowledge of biological resources, water quality and quantity, and the ecological processes that affect them. Current efforts are guided in part by the Refuge's Draft Ecological I&M Plan, which was completed in 2000. That plan needs updating to reflect recent priorities and information needs, and to bring it into compliance with the Region 7 standards.

Strategy: In the I&M Plan, Refuge staff will summarize available ecological data (including geospatial databases) and information on physical processes such as hydrological regimes and climate. The I&M Plan will include an ecosystems model for the Refuge that illustrates ecological relationships among plants, fish, wildlife, and their habitats. It will also identify data gaps, including geospatial data needs for change detection and resource monitoring, and will assist prioritization of future I&M needs. I&M sampling designs and field protocols will be peer reviewed, and data-management procedures will be addressed. The Refuge will solicit input from partners during revision of the I&M Plan, including Alaska Department of Fish and Game (ADFG), U.S. Geological Survey (USGS), academic institutions, and science-based non-governmental organizations.

Objective 1.3: Applied Research—Within two years of Plan approval and concurrently with I&M Plan revision (Objective 1.2), biological staff will begin preparing a Research Plan that identifies and prioritizes needs for applied research, and identifies potential cooperators.

Rationale: Biological inventories will document the species and habitats present on the Refuge, and monitoring will allow us to track the status and trends of those species and habitats over time. To further develop effective conservation measures for the Refuge, research is needed to understand why species occur where they do and what factors affect population sizes and movements, as well as to evaluate potential threats to natural diversity on the Refuge. Much of the biological research that occurs on the Refuge relies on partnerships between the Refuge and ADFG, USGS, academic institutions, and science-based non-governmental organizations. We will promote research that contributes to conservation of Refuge species and their habitats.

Strategy: The Research Plan will be prepared concurrently with the I&M Plan and will be incorporated as an appendix to the I&M Plan. It will receive peer review by a multidisciplinary team during the Refuge's Ecological Review to ensure relevance and project prioritization. The Research Plan will be reviewed annually in conjunction with work planning and budgeting, and it will be revised annually based on staff review of additional information obtained through inventory, monitoring, and research.

Objective 1.4: Ecological Review—Within three years of Plan approval, Refuge staff will conduct an Ecological Review of the Refuge's biological program and draft I&M and Research plans.

Rationale: The Ecological Review will be an unbiased evaluation of our biological program by a panel of ecologists, fish and wildlife biologists, physical scientists, and land managers. Members of the panel will represent other State and Federal agencies, academia, non-governmental organizations, and independent scientists. The review will help ensure that our inventory, monitoring, and research efforts are appropriate, effective, and efficient. The review will serve as the basis for revision and refinement of the I&M and Research plans.

Strategy: We will convene a scientific review panel that includes specialists with expertise in arctic and subarctic ecosystems of North America. The panel's recommendations will be considered as we subsequently revise our I&M and Research plans.

Objective 1.5: Climate Change and Other Stressors—Within two years of Plan approval, the Refuge will identify the most important stressors affecting Refuge species and/or ecosystems and will begin developing strategies to evaluate and manage them.

Rationale: Stressors are external stimuli, including biotic and abiotic factors and environmental conditions, that cause stress to an organism or its habitat, or to an ecosystem. Stressors may be natural, such as extreme weather events or native disease organisms, or anthropogenic, such as human developments near the Refuge or along migratory pathways, or disturbance of feeding or nesting wildlife. Climate change may be a dominant stressor in arctic systems with both anthropogenic and non-anthropogenic components. The Refuge will evaluate the source and effects of primary stressors affecting Refuge fish, wildlife, and their habitats. Strategies to monitor or mitigate effects of stressors will be developed consistent with Refuge goals, objectives, and management guidelines.

Objective 1.6: Fire Management Planning—Refuge staff will revise the Refuge’s Fire Management Plan within two years of the signing of this Plan and will continue to update and revise it on a schedule that is consistent with Refuge needs and national policy.

Rationale: Fire Management Plans (FMPs) are step-down planning documents. Every unit managed by the Service that has burnable vegetation must have an approved FMP, unless exempted in writing by the regional director. Arctic Refuge’s current FMP was signed in 2008 and needs to be revised and updated to ensure it is consistent with current policy, as well as the goals, objectives, and management framework outlined in the Revised Plan. The FMP allows a manager to consider a wide range of management responses to wildfires and to conduct prescribed fires.

Strategy: The revised Arctic FMP will address concerns raised in this planning process about smoke impacts and the protection of inholdings and adjacent properties, while recognizing wilderness values and attempting to minimize unintended consequences to the Refuge’s natural fire regime.

Objective 1.7: Wildlife-Management Proposals—As a continuing commitment, Refuge staff will participate in State of Alaska Boards of Fisheries and Game and Federal Subsistence Board processes to ensure Refuge purposes and management objectives are considered in evaluation of proposals that could affect resources within the boundaries of the Refuge.

Rationale: The State of Alaska’s Board of Fisheries is responsible for conservation and development of the State’s commercial, sport, and personal-use fisheries. This board also has responsibility for some subsistence fisheries. The Board of Game is responsible for conservation and development of the State’s wildlife resources. The Federal Subsistence Board is the decision making body that oversees the Federal Subsistence Management Program, which is a multi-agency effort to provide the opportunity for a subsistence way of life by rural Alaskans on Federal public lands and waters while maintaining healthy populations of fish and wildlife. Various advisory committees or councils advise these boards, and they meet periodically to deliberate proposals that affect management of fish and wildlife. Regulations enacted by these boards may affect the taking of fish and wildlife on Arctic Refuge. Therefore, Refuge staff have a responsibility to monitor proposals; evaluate potential effects on Refuge resources in relation to purposes, policies, and laws governing management of the Refuge; and provide comments to the decision making bodies on proposed actions.

Objective 1.8: Water Quality and Quantity—The Refuge will monitor water quality and quantity at appropriate intervals at previously sampled sites and new additional locations to document baselines and changes over time.

Rationale: Water rights were applied for in selected rivers on the Refuge’s North Slope in the 1980s. To date, no action has been taken by the State of Alaska. Additionally, water quality samples have been taken at selected lakes and at Formerly Used Defense Sites on the Refuge’s North Slope, and these results are being tabulated and reported.

Strategy: Within five years, we will take follow-up samples at selected previously sampled sites and at long-term ecological monitoring sites to continue documenting changes over time. Additional water quality samples will be taken at popular rafting put-in and/or take-out

locations and in camping areas at transportation hubs to monitor human waste impacts and establish a baseline for sample sites.

Objective 1.9: Water Rights—Establish legal protection for water quality and quantity to ensure Refuge purposes.

Rationale: Water of sufficient quality and in sufficient quantity is a necessary component of fish and wildlife habitat and population management. It is also specifically identified in ANILCA as a primary purpose of the Refuge, and it is a core component of the Refuge System’s mission “to administer a network of lands and waters” for future generations.

Though the Refuge has Federal reserved water rights to meet the purposes of the Refuge, it is Service policy to work within the State’s water right system when practicable. The Refuge program, between 1994 and 1998, identified the water bodies on Arctic Refuge most likely to experience competing water uses and applied to the Alaska Department of Natural Resources (ADNR) for instreamflow reservations for fish and wildlife purposes. To date, 152 instreamflow reservations have been filed with ADNR, with priority dates based on the date of each application, but ADNR has not adjudicated a single reservation. Though each reservation identifies an amount or elevation of water to be reserved, the amount of water reserved is unquantified until adjudicated.

Strategy: The strategy of the Refuge System in Alaska is to work within State statutes to obtain State-based instreamflow reservations for fish and wildlife purposes, as practicable, and to explore other options, including Federal reserved water rights when necessary.



Short-term Priorities (5–8 years)

Objective 1.10: Ecological Review Implementation—Within five years of plan approval, the Refuge will implement appropriate baseline inventories of priority Arctic Refuge biological components and initiate monitoring and cooperative research projects, consistent with scientific and management recommendations resulting from the Ecological Review.

Rationale: At this step, recommendations from the Ecological Review panel are incorporated into our I&M and research efforts.

Objective 1.11: Status of Rare Species—Within five years of Plan approval, efforts to identify and determine the status of rare species will be initiated, with special emphasis on those that are threatened, endangered, declining, or otherwise at risk.

Rationale: Detection of rare species is critical to characterizing natural diversity and levels of variation, but it is often difficult, expensive, and time consuming. Special emphasis is necessary to achieve adequate inventory and monitoring efforts for such species.

Strategy: We will consult with multiple sources to identify species for this objective, including federally designated threatened and endangered species lists, the State of Alaska Wildlife Action Plan, U.S. Fish and Wildlife Service Birds of Conservation Concern, Arctic and Northwestern Interior Forest, and the Landscape Conservation Cooperatives (LCCs).

Objective 1.12: Land Protection Plan—Within eight years of Plan approval, complete an Arctic Refuge Land Protection Plan.

Rationale: Land Protection Plans (LPPs) focus on private lands within the Refuge’s boundaries. LPPs identify high-quality habitat on private lands and develop strategies to conserve these habitats. The LPP guides the Refuge’s land protection activities and provides a framework for Refuge and private landowner cooperation. Any course of action would require mutual consent. An LPP does not obligate the Refuge or private landowners to undertake any of the land conservation measures identified in the LPP. The Refuge must consider management goals, priorities, and availability of funds when approached by private landowners with land conservation proposals. Until the Refuge starts the LPP, the Service will continue to offer to purchase inholdings from willing sellers when funding is available.

Long-term Priorities (15 years)

Objective 1.13: Long-term Ecological Monitoring—Within 10 years of Plan approval and after the acquisition of baseline inventories, staff will implement necessary changes to the I&M Plan with emphasis on long-term ecological monitoring to ensure relevancy and sustainability of long-term monitoring efforts.

Rationale: Long-term monitoring will provide information about changes in Refuge resources and ecological systems over time, and will support development of conservation strategies.

Strategy: We will revise the I&M Plan based on recommendations from the Ecological Review; subsequent peer review of proposed projects; and results of ongoing inventory, monitoring, and research projects. We will also consider emerging issues, Refuge priorities, and budgetary constraints. This work will be conducted in partnership with others, including

the Refuge System I&M Program, Landscape Conservation Cooperatives, National Park Service Vital Signs Monitoring Program, USGS Alaska Climate Science Center, and ADFG.

2.1.2 Goal 2: The Refuge retains its exceptional wilderness values without loss of natural condition and wild character and manages designated wilderness consistent with the intent of the Wilderness Act and ANILCA.

Current and Ongoing Priorities

Objective 2.1: Appropriate Wilderness Management—All administrative activities in designated wilderness, including scientific research, must complete a Minimum Requirements Analysis (MRA), and all existing MRAs will be reviewed within one year of Plan approval.

Rationale: Section 4(c) of the Wilderness Act prohibits activities in designated wilderness unless these activities are determined to be necessary to meet the minimum requirements for the administration of the area as wilderness. Such administrative activities are analyzed through a process called an MRA, which is designed to help managers decide and document how they should conduct management actions in designated wilderness (610 FW 1 and 2). By regularly conducting new MRAs and reviewing and updating the old ones, Arctic Refuge can maintain the character and unique values of its designated wilderness. Existing MRAs will be reviewed and updated within one year of Plan approval; new MRAs will be reviewed at least once every five years.

Objective 2.2: Wilderness Training—All Refuge staff working in designated wilderness will be required to complete wilderness stewardship and MRA training within two years of assuming their work duties in designated wilderness.

Rationale: Wilderness is a unique resource with legal requirements and physical, biological, symbolic, and experiential components that require a level of awareness and special knowledge that may not be provided in most employees' previous career experience and training.

Objective 2.3: Wilderness Stewardship Plan—Within two years of Plan approval, the Refuge will initiate a multi-year planning process to develop a Wilderness Stewardship Plan.

Rationale: Service policy requires the development of a Wilderness Stewardship Plan to ensure appropriate management of designated wilderness and its various qualities and opportunities. The Wilderness Stewardship Plan would also provide the Service and the public the opportunity to consider and plan for a variety of wilderness experiences. Wilderness is a composite resource with physical, ecological, and experiential components; and many issues the Wilderness Stewardship Plan will address are interrelated with issues to be addressed in other step-down plans. The Refuge will coordinate the Wilderness Stewardship and Visitor Use Management planning processes (Objective 5.3) through concurrent and prolonged scoping and preplanning phases, and by sharing information and planning decisions. While the Wilderness Stewardship and Visitor Use Management plans are distinct planning processes and may evolve and be finalized independently of one another, the Refuge might choose to combine the two plans. The Wilderness Stewardship Plan will also take into account management direction and decisions from the Comprehensive River Management Plans

(CRMPs) developed for the Refuge’s three wild rivers (Objective 3.1) and the Refuge’s Ecological Inventory and Monitoring Plan (Objective 1.2). Coordinated development of all these plans will insure that across the Refuge, including in designated wilderness, planning provisions are consistent and the opportunity for meaningful public involvement is maximized.

Strategy: The Refuge will consult with the State of Alaska and with Alaska Native tribes and corporations at each step of the planning process. The Refuge will recruit an experienced planner to assist Refuge staff in developing and implementing the Wilderness Stewardship and Visitor Use Management plans.

Objective 2.4: Comprehensive Wilderness Management—The Refuge will manage designated wilderness in a comprehensive manner and integrate it into other Refuge programs and planning processes, and prioritize management activities that maintain or restore wilderness characteristics on minimal managed lands across the Refuge.

Rationale: Arctic Refuge’s designated wilderness is similar to an ecosystem in that it is a composite resource with interrelated parts. Our mandate to protect designated wilderness and its unique characteristics depends on protection of all the parts. Comprehensive management means that managers include the legal requirements of wilderness designation and wilderness conservation issues and public concerns in all other management plans, programs, and actions that affect designated wilderness in the Refuge.



Strategy: The Refuge will continue to use the least intrusive methodology and field activity for managing the Refuge's designated wilderness, including rigorously adhering to MRA protocols. Refuge staff will continue to work with agencies, conservation organizations, Alaska Friends groups, private land and allotment owners, special use permittees, and visitors in preserving wilderness resources. Priority activities include picking up trash, cleaning up abandoned cabins and hunting guide camps, removing downed aircraft, facilitating cleanup of Formerly Used Defense Sites, removing contaminants and other debris along the old bulldozer trail in the southeast portion of the Refuge, and reviewing the effectiveness and efficiency of remote administrative sites. The Refuge will coordinate with the National Aeronautics and Space Administration's (NASA) Sounding Rocket Program regarding any rockets or rocket parts found on the Refuge; only NASA can remove these.

Objective 2.5: Administrative Facility at Peters Lake—Within two years of Plan approval, the Refuge will complete required analysis to remove at least one of the buildings at Peters Lake, and the identified building(s) will be removed within four years of Plan approval.

Rationale: The G. William Holmes Research Station, located on the east side of Peters Lake, was originally established in the late 1950s by the Department of the Navy as a substation of the Naval Arctic Research Laboratory in Barrow, Alaska. In 1999, the footprint from the original facility was altered and greatly reduced. The facility now includes a 500-gallon aircraft fuel tank in a spill containment structure, a bunkhouse (448 square feet), a cookhouse (360 square feet) with a full kitchen, a warehouse (320 square feet) to store tools and equipment, and a newly renovated outhouse. The remote site is in designated wilderness and is very costly to access and maintain. The facility is too large for current and projected needs, and some of the public asked us to remove the facility during scoping for the Plan.

Strategy: The Refuge manager will develop a detailed project proposal that identifies the specific actions to be taken, and how and when the work would be accomplished. The appropriate level of environmental analysis would be completed, including any required permits or consultation, such as with the State Historic Preservation Office. The project would be implemented and all work completed within four years of Plan approval.

Objective 2.6: Wilderness Character Monitoring—The major tangible qualities of wilderness character, including untrammeled, undeveloped and natural conditions, and outstanding opportunities for solitude or a primitive and unconfined type of recreation, will be monitored through protocols developed through four step-down plans.

Rationale: Relevant, reliable, and cost-effective indicators of change in essential wilderness qualities is needed to determine if those qualities are stable, improving, or degrading over time. Four step-down planning efforts will be initiated soon after approval of the Plan, and each will include lands and waters in designated wilderness. Collectively, and in an integrated manner, the monitoring components of the Wilderness Stewardship Plan (Objective 2.3), Visitor Use Management Plan (Objective 5.3), Comprehensive River Management Plans (Objectives 3.1), and the Ecological Inventory and Monitoring Plan (Objective 1.2) will enable trends in related wilderness qualities to be observed, quantified, and addressed. Some components of wilderness character, such as symbolic meanings and the humility, restraint, and respect shown by managers, may not be amenable to measurement and will be described qualitatively where possible.

2.1.3 Goal 3: The Refuge's designated wild rivers flow freely through unaltered corridors; their ecological functions, character, and values are protected; and opportunities for recreation and traditional uses are consistent with the Wild and Scenic Rivers Act and ANILCA.

Current and Ongoing Priorities

Objective 3.1: Comprehensive River Management Plans (CRMPs) for Designated Wild Rivers—Refuge staff will complete a baseline resource assessment and CRMP for each currently designated wild river within three years of Plan completion. The Refuge will follow the guidance provided by the Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC) (2010).

Rationale: The Wild and Scenic Rivers Act requires land managers to complete a CRMP within three years of a river being designated. Three rivers on Arctic Refuge were designated in 1980 via ANILCA, but to date, their CRMPs have not been developed. The assessment and plan for each wild river will incorporate all elements required by the Wild and Scenic Rivers Act, including descriptors of desired conditions and, where applicable, user capacities. To ensure management of the Refuge's wild rivers compliments and is consistent with other areas of the Refuge, CRMPs should be reviewed, and potentially modified, after completion of the Visitor Use Management and Wilderness Stewardship plans (see Objectives 2.3 and 5.3).

Strategy: Baseline resource assessments will be conducted as part of the preplanning effort and will use established scientific methods and data collection techniques to document current conditions related to the river's free-flowing condition, water quality, and outstandingly remarkable values. Data collection will follow IWSRCC guidance (2010). The river management plans will: 1) identify measurable indicators for long-term monitoring; 2) identify indicator thresholds (to detect a problem as it is developing); 3) identify management actions for indicator thresholds (to address the problem); and 4) describe monitoring and take management actions as needed (to solve the problem or take alternative measures).

A key element of the CRMPs will be to identify appropriate monitoring indicators and intervals. The issue with the greatest potential to affect the outstandingly remarkable values of designated rivers in Arctic Refuge is public use. Periodic monitoring of public use impacts (e.g., campsite condition, human waste accumulation, visitor experience, etc.) would provide valuable feedback as to whether management is successfully maintaining each river's outstandingly remarkable values. Additionally, the Refuge's wild rivers serve as suitable locations for ongoing inventory and monitoring of water quality and quantity, which is one of the Refuge's purposes mandated by ANILCA. Any monitoring efforts identified in the CRMPs will be developed and coordinated with other step-down plans and monitoring implemented elsewhere on the Refuge (see also Objectives 1.2, 2.3, 2.6, and 5.3).

The Service will fund and staff the baseline assessment and CRMP for each of the three designated wild rivers. An interdisciplinary team will conduct resource assessments and gather data during the preplanning field season. The team should consist of specialists familiar with the Wild and Scenic Rivers Act and related guidance, and should include the following areas of expertise: a wildlife biologist, a fish biologist (could be a single individual with fish and wildlife expertise), a cultural resource specialist or archaeologist, an outdoor recreation or visitor's services specialist, a hydrologist, and a geologist. Expertise in visual resource assessments is also desirable. Staff could come from the Refuge, the regional office, or other

Service stations, or they could be detailers from universities or other resource agencies who have the expertise and suitable knowledge, skills, and abilities. An experienced outdoor recreation planner with expertise in wild and scenic rivers will be hired to oversee the baseline resource assessments and the development and completion of the three CRMPs.

Objective 3.2: Assessments and Plans for Newly Designated Rivers—Should Congress designate any more of the Refuge’s rivers for inclusion in the National Wild and Scenic River System, the Refuge will complete a baseline resource assessment and CRMP within three to five years of designation, incorporating all elements required by the Wild and Scenic Rivers Act. The Refuge will follow guidance provided by the IWSRCC (2010).

Rationale: The Wild and Scenic Rivers Act requires land managers to complete a CRMP within three years of a river being designated. The assessment and plan for each wild river will incorporate all elements required by the Wild and Scenic Rivers Act, including descriptors of desired conditions and, where applicable, user capacities. To ensure management of the Refuge’s wild rivers compliments and is consistent with other areas of the Refuge, development of CRMPs will be guided by the Visitor Use Management and Wilderness Stewardship plans, where appropriate.

Strategy: Baseline resource assessments will be conducted as part of the preplanning effort and will use established scientific methods and data collection techniques to document current conditions related to the river’s free-flowing condition, water quality, and outstandingly remarkable values. Data collection will follow IWSRCC guidance (2010). The river management plans will: 1) identify measurable indicators for long-term monitoring; 2) identify indicator thresholds (to detect a problem as it is developing); 3) identify management actions for indicator thresholds (to address the problem); and 4) describe monitoring and take management actions as needed (to solve the problem or take alternative measures). Any monitoring efforts identified in the CRMPs will be developed and coordinated with other step-down plans and monitoring implemented elsewhere on the Refuge (see also Objectives 1.2, 2.3, 2.6, and 5.3).

The Service would fund and staff the baseline assessment and CRMP for any newly designated rivers. An interdisciplinary team would need to conduct resource assessments and gather data on river values during preplanning field seasons (see Objective 3.1). An experienced outdoor recreation planner with expertise in wild and scenic river policies and procedures would be recruited to oversee the baseline resource assessments and the development and completion of each CRMP.

Objective 3.3: Wild River Information Sharing—Upon completion of the Plan, Refuge staff will provide information and educational materials to the public, and internally to the Service, about designated rivers and how such designation affects the access, use, and management of river corridors.

Rationale: Much of the public, and many people in the Service, are unfamiliar with the full scope of the Wild and Scenic Rivers Act, especially how it affects the access, use, and management of the Refuge’s designated rivers. Ongoing outreach and communication will better inform and educate all users of the Refuge, including administrative users. This objective will be coordinated with other outreach efforts, per Objectives 9.1 through 9.7.

Strategy: A webpage and informational pamphlets addressing access, use, and management of designated rivers in Arctic Refuge will be developed. Refuge staff will be required to complete training on the Wild and Scenic Rivers Act within two years of the Plan’s approval, and newly hired employees will be required to complete training within two years of assuming duties. The Refuge will work closely with the Service’s regional and national Wild and Scenic River coordinators to help inform and educate agency employees.

2.1.4 Goal 4: The Refuge provides continued subsistence opportunities to federally qualified rural residents, consistent with ANILCA.

Current and Ongoing Priorities

Objective 4.1: Subsistence Use—The Refuge will continue to actively communicate and work with local communities and advisory groups to address subsistence issues and concerns and participate in Federal and State regulatory processes to provide the opportunity for continued subsistence uses essential to Native and non-Native physical, economic, traditional, and cultural and/or social existence.



Rationale: The Refuge is mandated by ANILCA to provide the opportunity for continued subsistence uses by local residents when consistent with other Refuge purposes. ANILCA also requires a priority preference for subsistence uses. To meet these mandates, the Refuge will annually evaluate the effects of proposed research and other uses of the Refuge, as directed by ANILCA Section 810, to ensure that these uses and activities do not “significantly restrict” subsistence opportunities on Refuge lands.

Strategy: Regular meetings in local villages are the most effective way to explain Federal and State regulations regarding conservation of fish and wildlife populations and discuss issues of local concern to subsistence users. It is essential that affected parties communicate and work cooperatively towards achieving common subsistence goals. The Refuge will continue to conduct annual meetings in Arctic Village, Fort Yukon, Kaktovik, and Venetie to share information and maintain an active dialogue with local residents about subsistence management. The Refuge will work cooperatively with tribal and village councils to issue permits for Federal subsistence hunts on Refuge lands, including hunts for moose, muskoxen, and sheep. There are currently no subsistence fish permits on Arctic Refuge.

Objective 4.2: Refuge Information Technician Program—The Refuge will continue the Refuge Information Technician Program with local employees in Arctic Village and Kaktovik and within five years, expand this program to the adjacent villages of Venetie and Fort Yukon as shared staff and funding become available with Yukon Flats Refuge.

Rationale: Locally hired Refuge information technicians (RIT’s) are excellent Refuge liaisons to local residents, schools, tribal and village councils, and other community groups who do not have ready access to Refuge staff stationed at headquarters in Fairbanks. They exchange information with local residents, answer questions from visitors, assist with monitoring and research, provide logistics for studies, advise staff on community issues and concerns, and provide translation services when necessary. Many local residents are more comfortable interacting with a familiar person who better understands the local language, culture, and community.

Short-term Priorities (5–8 years)

Objective 4.3: Subsistence Access—Within five to eight years of Plan approval, the Refuge will conduct a traditional access study in cooperation with local communities and the State of Alaska.

Rationale: ANILCA ensures that rural residents engaged in subsistence uses will have reasonable access to subsistence resources on public lands, including the appropriate use of snowmobiles, motorboats, and other means of surface transportation traditionally employed by local residents for subsistence purposes, subject to reasonable regulation. A traditional access study will help determine where and what activities have occurred on the Refuge. An understanding of traditional access will assist the Refuge in monitoring and managing current and future access.

Strategy: In preparation for the traditional access study, the Refuge will interview and document elders and other long-term residents of the region immediately upon Plan approval and continuing through the preplanning phases of the traditional access study. Other methods for the traditional access study would include a thorough review of the Refuge’s annual

narrative reports, 1988 Comprehensive Conservation Plan, and other relevant documents and publications of a historical nature.

Objective 4.4: Compile Existing Subsistence Use Data—Within one year of Plan approval, the Refuge will develop formal partnerships to seek funding for compiling contemporary and historical subsistence use data and to develop a comprehensive and functional repository of subsistence use and harvest information from existing sources.

Rationale: Most of the information on the location and intensity of subsistence activities in the Refuge was collected in the 1980s and may not accurately portray recent patterns in subsistence use, demographics, harvest limits, hunting seasons, or community needs. A comprehensive review of existing information is needed to identify gaps in the data and to identify priorities for future subsistence research and monitoring needs. Sources of published and unpublished subsistence use and harvest data reside with various agencies, organizations, tribal governments, and village councils. An effective strategy for providing continued subsistence opportunities should take into account all available current and historical knowledge of subsistence activities, relying on scientific data and traditional ecological knowledge gained through partnerships with local communities, tribal representatives, and other organizations.

Strategy: To achieve this objective, the Refuge will develop formal partnerships with local tribal and village councils, the Council of Athabascan Tribal Governments, Tanana Chiefs Conference, North Slope Borough, ADFG, the Office of Subsistence Management, and the Alaska Migratory Bird Co-management Council.

Objective 4.5: Village Harvest Monitoring Programs—Within two years of Plan approval, the Refuge will develop formal partnerships seeking funding to expand and/or implement subsistence harvest monitoring programs in the communities of Arctic Village, Venetie, and Kaktovik.

Rationale: Continued communication and collaboration between the Refuge and local governments and communities is critical in conducting successful and accurate subsistence harvest monitoring programs. A community-supported harvest monitoring plan with implementation protocols based on an accurate estimate of harvest are needed to ensure long-term conservation of subsistence species and the continued opportunity for subsistence uses by federally qualified subsistence users. The majority of the information on the location and intensity of subsistence activities in the Refuge was collected in the 1980s and may not accurately portray recent patterns in subsistence use, demographics, harvest limits, hunting seasons, or community needs. Updated subsistence information is needed to identify potential areas of social conflict and to manage for subsistence opportunities that are sustainable.

Strategy: The most effective way for the Refuge to implement this objective is through coordination and partnerships with local communities, tribal governments, and other organizations, including the Council of Athabascan Tribal Governments, Tanana Chiefs Conference, North Slope Borough, Alaska Migratory Bird Co-management Council, ADFG, the Service's Office of Subsistence Management, and the Service's Division of Marine Mammals Management.

2.1.5 Goal 5: The Refuge provides a place for wildlife-dependent and wilderness-associated recreational activities that emphasize adventure, independence, self-reliance, exploration, and solitude while protecting the biological and physical environments.

Current and Ongoing Priorities

Objective 5.1: Visitor Independence, Self-reliance, and Freedom—Consistent with resource protection, the Refuge will continue to maximize the visitor’s freedom and independence by employing the least intrusive means of managing public use, minimizing on-site contacts, and emphasizing self-reliance, preparation, and the understanding that there can be risk in wilderness.

Rationale: Information on visitor experiences and preferences gained through the Plan scoping comments, previous planning efforts, the 2008 Visitor Study, media accounts, and personal contacts indicates that freedom and independence are highly valued components of visitors’ experiences. They are vulnerable, however, to well-intended and often small measures that make the visitor’s experience more convenient or predictable. To avoid the incremental, but cumulative, erosion of these qualities, freedom and independence will be recognized as valued, legitimate trip components and considered in the development and implementation of all visitor use programs and policies.

Strategy: Strategies to assess visitor experience dimensions include public contact, permit compliance, law enforcement contacts, the Visitor Study (Objective 5.7), and the National Interest Study (Objective 9.8).

Objective 5.2: Experience of Adventure, Challenge, Exploration, and Discovery—The Refuge will perpetuate opportunities to experience of adventure, challenge, exploration, discovery, and sense of the unknown by avoiding placement of public use interpretive signs, structures, and installations and by cautiously considering how the content of proposed informational materials might affect these valued experiences.

Rationale: Information on visitor experiences and preferences are central to those seeking authentic adventure and expeditionary opportunities for which the Refuge is renowned. Recreational “improvements” such as bridges, hand rails, established trails, and signs pointing the way would detract from the unique character of the experience. Standard information and interpretive materials recommending trip routes, river crossings, best fishing areas, and featuring landmarks would also diminish the area’s quality as an adventuring ground. General information can be provided that enables visitors to access and enjoy the Refuge in a safe and environmentally sound manner and that enhances their appreciation of the increasingly rare opportunity for one to search out their own way.

Strategy: Strategies to assess the impacts of interpretation on visitor experience dimensions include public contact, permit compliance, law enforcement contacts, the Visitor Study (Objective 5.7), and the National Interest Study (Objective 9.8).



Objective 5.3: Visitor Use Management Plan—Within two years of approval of this Plan, the Refuge will initiate a multi-year planning process to develop a Visitor Use Management Plan (VUMP).

Rationale: The Refuge is mandated to provide opportunities for the public to use and enjoy Refuge lands while meeting its primary mission of conservation stewardship. To meet this mandate, the Refuge needs comprehensive information to direct public use management and guide visitor services programs on Refuge lands, including in designated wilderness. The VUMP will identify and address a full range of visitor use issues, including but not limited to group encounter rates, transportation hub congestion, human waste disposal practices, and adequate analysis of environmental effects. Public comments and issues identified through the Comprehensive Conservation Plan process will be incorporated into the VUMP. This planning process and environmental analysis will allow for substantial public input at the village, local, State, and national levels. This work will also allow the Refuge and its partners to clarify legal requirements, describe policy guidance, and synthesize current research and social science information on visitor experience and public use management. The Refuge will consult with the State of Alaska and Alaska Native governments, tribes, and corporations at each step of the planning process.

Because visitor use and wilderness stewardship issues are often interrelated, the Refuge will coordinate the Visitor Use Management and the Wilderness Stewardship planning processes (Objective 2.3) through concurrent and prolonged scoping and preplanning phases, and by sharing information and planning decisions. While the Visitor Use Management and Wilderness Stewardship plans are distinct planning processes and may evolve and be finalized independently of one another, the Refuge might choose to combine the two plans. The VUMP will also take into account management direction and decisions from the Comprehensive River Management Plans developed for the Refuge's three wild rivers (Objective 3.1).

Strategy: An initial task for the Refuge will be to recruit an experienced planner to assist Refuge staff in developing and implementing these step-down plans.

Objective 5.4: Commercial Visitor Use—The Refuge will continue to authorize appropriate special use permits to facilitate wildlife-dependent and other compatible recreation by the public, such as transportation services, guided hunting and fishing*, and recreational activities.

Rationale: Commercial services can be provided on national wildlife refuges, and the Service is required to monitor all commercial uses to ensure they are compatible with the purposes of the Refuge. This requirement is formalized through the special use permit system, which was designed to meet the mission of the Service while allowing for responsible commercial activities. The Refuge values commercial service providers as partners in its work to monitor visitor use trends, assess resource impacts, and inform visitors about resource values and key Refuge stewardship messages. The VUMP will also address commercial visitor use concerns (see Objective 5.3). The Wilderness Act, as modified by ANILCA, has special provisions for commercial services in designated wilderness.*

Objective 5.5: Visitor Management Coordination with Neighbors—The Refuge will continue to coordinate with landowners in the region to identify key opportunities to achieve best Refuge stewardship behaviors and respect for private lands, and to encourage a conservation ethic in visitors to the Refuge and the region.

Rationale: The Refuge will work with its partners to address human impacts, such as trespass, and other issues of concern to adjacent landowners and on private lands within the Refuge's boundaries that may result from public use of the Refuge. Partners include the Arctic Slope Regional Corporation, other Federal agencies, the State of Alaska, tribal councils, Native corporations, and Toolik Research Station.

Strategy: To begin meeting this objective, the Refuge will closely cooperate with the Alaska Native corporations in the region to develop a detailed map of current land status that can be used by the public to navigate to 17(b) easements and locate public and private lands. This map would be posted on the Refuge's Internet site and be made available as a printed map to provide the public with better information and assistance when planning trips to the Refuge.

Objective 5.6: Coordination of Law Enforcement—The Refuge will continue to coordinate with its partners to improve the efficiency and effectiveness of law enforcement on Refuge lands and waters.

Rationale: Arctic Refuge is vast and remote. With limited personnel and challenging travel conditions, it makes sense to strengthen and unify law enforcement efforts with partners who share similar ideals and purposes such as protecting resources on private and public lands and promoting conservation stewardship.

* Currently there are no guided fishing permits on Arctic Refuge.

Strategy: To implement this objective, the law enforcement staff of the Refuge will partner with agencies such as Arctic Slope Regional Corporation, National Park Service, Bureau of Land Management (BLM), U.S. Coast Guard, Department of Homeland Security, and the State of Alaska. Additionally, the Refuge will hire one additional law enforcement officer.

Objective 5.7: Visitor Study—The Refuge will maintain a long-term data set that provides information to Service leadership and Refuge managers about the reasons people visit Arctic Refuge and what they experience while they are there.

Rationale: To achieve the Refuge purpose of preserving unique recreational values, and to best serve the visiting public, the Refuge needs to understand and monitor trends in the experiences and preferences of Refuge visitors.

Strategy: The Arctic National Wildlife Refuge Visitor Study, completed in 2008, collected and analyzed information from a sample of Refuge visitors to characterize their experiences and preferences. The study provided important information about the qualities of the place, the experiences that are most important to visitors, the reasons why people visit the Refuge, demographic information, and the opinions of visitors regarding current and potential actions to manage recreation on Refuge lands. The Refuge will repeat this study every five years, beginning in 2012. The study will provide information important for the development of the Visitor Use Management Plan (Objective 5.3) and the Wilderness Stewardship Plan (Objective 2.3). The study design might be modified somewhat after completion of these planning efforts so that the study results provide feedback on the implementation of the Visitor Use Management and Wilderness Stewardship plans.

Objective 5.8: Visitor Use Management—Prevent degradation of Refuge natural conditions and visitor experiences by implementing the actions necessary to preserve the social components of natural quiet, solitude, and pristine landscapes; and the biophysical components of an environment essentially free from visitor impacts (see Objectives 2.4, 5.1, and 5.2).

Rationale: Arctic Refuge is a nationally important benchmark for wilderness character and visitor experience in the Refuge System. Arctic Refuges' traditional primary constituencies—those who live nearby and those who visit—are clearly important, but the Service also needs to be mindful of the larger constituency across the nation that this Refuge serves. Both interests need to be among the factors considered in programs that describe the special function of this Refuge and that affect its management and future. We will protect and maintain this function in all public use management activities. A key to effective visitor use management is to identify the specific conditions and visitor experiences across the entire Refuge needed to meet establishing purposes, and to recognize how Refuge management actions can—or might not be able to—influence these conditions and experiences. The specific Refuge conditions and visitor experiences needed to meet Refuge purposes will be determined in a Visitor Use Management Plan (Objective 5.3). This plan will identify the specific social and biophysical components of the visitor experience to be managed. For example, natural quiet and/or solitude may be identified as a component to be managed. The plan will also identify management actions needed to preserve these conditions.

Strategy: All public use management activities will perpetuate the Refuge's primeval character and natural conditions while protecting opportunities to experience unconfined recreation. Actions will include employing the appropriate means of managing visitor impacts,

informing and orienting the public, and minimizing in-the-field group encounters. The whole toolbox to implement these actions will be considered Refuge-wide with a focus on the least intensive and visible management activities in designated wilderness. These actions include a balance of active and passive management activities that disperse use and protect or harden areas of concentrated use, set use capacity and zone areas, establish group size limits and/or boat launching protocols to manage encounter rates, reduce wildlife and habitat impacts, carefully consider when and where staff management presence is necessary and appropriate in the field, protect sound and viewscape resources, and manage people and resources in designated wilderness areas with respect and restraint. Interpretation, outreach, and orientation programs have the following priorities, in descending order: 1) web-based; 2) off-Refuge in gateway communities at interagency and community visitor centers and kiosks; 3) commercial service provider cooperation; 4) staff contacts at established airports, remote landing areas, and transportation hubs; and 5) through minimal remote field contacts by law enforcement and/or Refuge rangers necessary and sufficient to preserve and conserve Refuge purposes. The Refuge has already begun to work with commercial service providers to reduce impacts in known problem areas such as the Kongakut River basin. Some interim holding actions may also be required before a step-down VUMP is completed and implemented in other areas with emerging crowding issues.

Short-term Priorities (5–8 years)

Objective 5.9: Aircraft Landing Impacts—The Refuge will implement aircraft management strategies to address impacts to sensitive vegetation caused by aircraft landings on Refuge lands.

Rationale: Aircraft landings on sensitive tundra surfaces are creating new and unofficial landing areas and causing visible scarring and occasionally rutting. These types of impacts are directly related to public use and are increasingly a source of complaint.



Photo by Dave Prestipino

Strategy: During the planning process, the Refuge will work closely with commercial air service providers and other partners to: 1) document the condition and trends in established and emerging landing areas; 2) examine availability of durable landing areas, recognizing their often ephemeral nature; 3) ensure that safety remains a primary concern; and 4) formulate management objectives that balance the provision of reasonable public access to Refuge lands with protection of vegetation and wilderness character.

2.1.6 Goal 6: The effects of climate change on Refuge resources are evaluated through scientific research and monitoring, the sharing of traditional knowledge in local communities, and are considered in Refuge management.

Current and Ongoing Priorities

Objective 6.1: Effects of Climate Change—Within two years of Plan adoption, evaluate potential effects of climate change on Refuge resources, and incorporate study of these effects into the revised I&M and research plans.

Rationale: Climate change is intensified at high latitudes, making the Refuge particularly vulnerable to ecological disruption. Long-term studies are needed to detect changes that may be subtle and/or cumulative. To ensure that long-term monitoring efforts will be consistently applied and subjected to peer review, they should be specified in the Refuge’s I&M and research plans.

Strategy: We will incorporate assessment of climate change effects into our long-term ecological research and I&M programs. Evaluation of potential climate change effects will be based on literature review, including the Arctic Climate Impact Assessment (ACIA 2005) and the work of the Intergovernmental Panel on Climate Change (e.g., IPCC 2007a, b, c). Work will be conducted with partners, including the Refuge System I&M program, the Arctic and Northwestern Interior Forest LCCs, North Slope Science Initiative, the USGS Alaska Climate Science Center, and the State of Alaska, and it will include modeling of future scenarios. Modeling efforts will focus on the potential effects of climate change on such Refuge resources as threatened and endangered species, species at risk of endangerment (e.g., birds of conservation concern [Service 2008a]), vulnerable habitats, and fish and wildlife species important for subsistence. Research and monitoring conducted in designated wilderness would be subject to an MRA.

Objective 6.2: Consider Climate Change and Non-climate Stressors—The Refuge will consider climate change and other non-climate stressors when making management and administrative decisions.

Rationale: The effects of climate change are exacerbated at high latitudes, including Arctic Refuge. Contemporary climate change has already affected Refuge habitats, and more severe future effects are likely. At the same time, other stressors such as development in adjacent areas or along wildlife migration routes, contaminants, and disturbance may have cumulative effects on Refuge resources. The Refuge manager must consider effects of current and likely future climate change and other stressors when evaluating management activities such as monitoring and research, special use permitting, and changes to wildlife harvest seasons or

limits. Maintaining migratory pathways and reducing stressors when possible will help facilitate adaptation of fish and wildlife to our changing world.

Strategy: Develop scenarios for management strategies that incorporate current and predicted effects of climate change and other stressors on Refuge resources. Scenarios will include a range of potential responses, from active manipulation of habitats and species to monitoring change without active intervention. Managers and scientists will review strategies, and implementation will occur in an adaptive fashion.

Short-term Priorities (5–8 years)

Objective 6.3: Biological Components Vulnerable to Climate Change—Within five years of approval of the I&M and Research plans (Objectives 1.2 and 1.3), implement monitoring of biological components identified in the Ecological Review as vulnerable to climate change.

Rationale: Emphasis will be on vulnerable species, ecological communities, or lands for which the Service has trust responsibility. We will implement protocols identified in our draft I&M and Research plans and evaluated in our Ecological Review to acquire information related to environmental changes.

Objective 6.4: Collaboration on Climate Change—The Refuge will continue to be involved in programs studying the effects of climate change in arctic and subarctic environments.

Rationale: Climate change and other environmental perturbations occur on a worldwide scale and include many potential effects and other considerations that are beyond the expertise of Arctic Refuge staff. We need to engage colleagues and partners from diverse fields of expertise to address issues of environmental change.

Strategy: We will strengthen collaboration with others on climate change research and monitoring (e.g. Arctic and Northwestern Interior Forest LCCs, USGS Alaska Climate Science Center, Study of Environmental Arctic Change, Global Observation Research Initiative in Alpine Environments, Arctic Coastal Dynamics). Our efforts will include evaluation of abiotic and biotic components, plus modeling efforts to predict and detect environmental changes. Management decisions will incorporate the best available science, but we will acknowledge the uncertainty of predictions and be adaptive to accommodate changing situations. In addition, the Refuge will work with local villages and tribes to collect traditional ecological knowledge of how the area's fish, wildlife, habitats, and ecosystems are responding to a changing climate.



2.1.7 Goal 7: The Refuge and its partners conduct research and monitoring in support of the Refuge's role as an internationally recognized benchmark for naturally functioning arctic and subarctic ecosystems.

Current and Ongoing Priorities

Objective 7.1: Encouraging Scientific Research by Cooperators—Within one year of Plan approval, develop and implement protocols and priorities that identify and encourage scientific research necessary for making informed management decisions, while ensuring that work conducted by cooperators is appropriate and compatible with Refuge purposes and values, and the I&M and Research plans (see Objectives 1.2 and 1.3).

Rationale: The expertise and resources that scientific cooperators provide are essential for understanding complex ecological and physical systems on the Refuge. By identifying research needs and providing cooperators with a streamlined permitting process that also ensures appropriate protection of Refuge resources, we will attract specialists with skills that complement those of the Refuge's staff and ultimately result in more informed management decisions.

Strategy: We will evaluate the process for permitting scientific work in the Refuge to ensure that high-priority scientific endeavors are encouraged. We will work with partners in the scientific community to address research needs in a collaborative manner, while ensuring that resources are appropriately protected (e.g., by conducting an MRA when research is proposed in designated wilderness) and permit stipulations are met.

Objective 7.2: Collaborative Research—The Refuge will support and/or participate in collaborative studies of arctic and subarctic ecological and physical systems that depend upon the essentially undisturbed environments and ecological processes on the Refuge.

Rationale: The Refuge is vast, and direct human impacts are substantially unnoticeable to a degree that is increasingly rare in the modern world. Those who established the Refuge stressed its value as a natural laboratory for understanding ecological systems. The size and diversity of the Refuge and the complexity of ecological processes that can be studied here necessitates cooperation and collaboration with scientists in diverse fields of specialization.

Strategy: We will seek funding and partnerships to participate in broad-scale collaborative studies of arctic and subarctic ecosystems. The Refuge is well positioned to contribute to broader understanding of how these ecosystems are changing and how such changes will affect the biosphere. Partners will represent governmental agencies, academic institutions, non-governmental organizations, private industry, and tribes. We will actively participate in the Arctic and Northwestern Interior Forest Landscape Conservation Cooperatives. We will continue ongoing efforts such as collaboration with the Arctic and Boreal Long Term Ecological Research sites, the Arctic Coastal Dynamics Program, national and international bird and mammal working groups (e.g., Muskox Working Group, Porcupine Caribou Technical Committee, Arctic Shorebirds Demographic Network), and other regional, national and international programs. When appropriate, biological staff will seek publication of research results in peer-reviewed literature. Staff will also transmit results through public media and other outreach methods to educate the public about the ecology of the Refuge and its scientific values.

Objective 7.3: International Treaties and Agreements—The Refuge will continue to work with international partners to effectively manage resources across the broader landscape.

Rationale: ANILCA requires the Refuge to fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats. This purpose recognizes the role the Refuge plays in meeting treaty obligations related to conservation of the fish, wildlife, marine mammals, and migratory birds shared by many nations. The Refuge is an important part of circumpolar arctic and subarctic conservation units and resource agencies in Canada, including the International Porcupine Management Board, Vuntut and Ivavik National Parks, Old Crow Management Area, Arctic Borderlands Ecological Knowledge Cooperative, Department of Environment North West Territories, Department of Environment Yukon, and the Porcupine Management Board of Yukon and Northwest Territories.

Strategy: We will coordinate and cooperate with adjacent land management units, resource management agencies, and conservation organizations on mutual fish and wildlife resource issues, fish and wildlife resource inventory and monitoring schedules, and climate change documentation; and we will work with Native Alaskan and First Nations people on conserving subsistence resources.

Objective 7.4: Baseline Water Quality Study—Within five years of Plan approval, the Refuge will repeat the 1990 baseline water quality study for the Coastal Plain.

Rationale: The comprehensive data set collected from 1988–1990 serves as baseline data for water quality and contaminants levels in key ecological media on the Refuge’s Coastal Plain.

Those data showed water quality and contaminants levels in the expected range for relatively pristine, undeveloped Arctic areas. The exceptions occurred around Kaktovik; for example, fuel-based petroleum hydrocarbons were detected in the sediments of Kaktovik Lagoon. In the 20 years since these baseline data were collected, environmental changes have occurred in the Arctic, including changes in contaminant transport and mobilization due to climate change. The effects of these changes on the quality and contaminants levels of Coastal Plain lakes, ponds, and wetlands are unknown.

Strategy: We will seek funding through partnerships to repeat collection of water quality and contaminants data on the Refuge's Coastal Plain. The comparison between the 1990 results and these newly acquired data will provide insight into water quality and contaminants changes in undeveloped Arctic ecosystems experiencing climate change, and will populate a database of contaminants monitoring results for the Refuge. We will seek publication of data and analyses in peer-reviewed scientific publications and will transmit results through outreach to researchers, other agencies, and the public.

2.1.8 Goal 8: The Refuge's cultural resources, historic and prehistoric, are conserved to allow visitors and community members to appreciate the interconnectedness of the people of the region and their environment.

Current and Ongoing Priorities

Objective 8.1: Integrated Cultural Resource Management Plan—Within one year of Plan approval, develop an Integrated Cultural Resource Management Plan that includes the objectives listed in subsequent text and provides additional details about cultural resource management of the Refuge.

Rationale: An Integrated Cultural Resource Management Plan (ICRMP) has never been prepared for the Refuge. The ICRMP will contain an overview of Service cultural resource management authorities, responsibilities, and compliance requirements. It will also identify inventories, archival research, ethnographic research, field surveys, evaluations, protections, and information dissemination projects that have taken place on the Refuge, in addition to providing avenues for future research that could be undertaken.

Strategy: Refuge staff and the regional historic preservation officer will revise the ICRMP every 10 years based on review of new information obtained through inventory, monitoring, and research.

Objective 8.2: Cultural Resource Partnerships—Continue to seek out and develop partnerships with Native communities and corporations, regional historical societies, the University of Alaska System, other government agencies and organizations, and other researchers to cooperatively define projects to inventory, evaluate, investigate, and protect cultural and historical resources.

Rationale: Cooperative projects with museums, universities, and other institutions allow parties to pool scarce resources and increase the amount of work completed. They allow the Service to receive the advantages of working with recognized experts in the region, which greatly increases the value of completed work.

Strategy: Each agreement should spell out participation of the Refuge, the regional office, and the partner in terms of funding and tasks. At least one partnership agreement will be completed within two years of Plan approval.

Objective 8.3: Consultation—The Refuge will continue to actively consult with Native groups and other local entities regarding issues affecting cultural resources management, permitting, or human remains.

Rationale: The United States recognizes a specific legal and political relationship with Alaska Native tribal governments. Pursuant to the National Historic Preservation Act; Archaeological Resources Protection Act; Native American Graves Protection and Repatriation Act; Executive Order 13175 of November 6, 2000; the Department of the Interior’s January 18, 2001, Alaska Policy on Government-to-Government Relations; and the President’s November 5, 2009, Executive Memorandum on Tribal Consultation, the Refuge will engage in meaningful consultation with tribal officials. Consultation will also serve to improve communication about research, monitoring, and management, and to learn about local concerns about activities and important resources of the Refuge. Integrating Iñupiat and Gwich’in perspectives on the human history of the Refuge will strengthen cultural and community ties to the Refuge and its mission.

Objective 8.4: Traditional Knowledge—The Refuge will continue to work with Arctic Borderlands Ecological Knowledge Cooperative and local villages to collect traditional ecological knowledge of the areas ecosystems and wildlife occurrences to gain an understanding of past conditions and current observations.

Rationale: Local elders with knowledge of the area before the Refuge was established possess valuable information regarding past ecological conditions of areas of the Refuge, and this information should be recorded as soon as possible. Historical knowledge of species occurrence, abundance, and distribution, and of weather and ecosystem changes will help focus and direct future studies. Cooperative efforts will help bring together traditional knowledge and western stewardship to promote conservation of wildlife and wild landscapes for future generations.

Strategy: Collected data will be incorporated into a searchable database. The Refuge will also cooperate with the communities of Arctic Village, Fort Yukon, Kaktovik, and Venetie to develop a plan to collect and document traditional knowledge related to cultural resources and important sites.

Objective 8.5: Cultural Resource Training—Provide basic cultural resource and historic preservation training to Refuge managers, full-time and seasonal staff, and volunteers that includes information about protecting historic properties and the legal requirements of Federal land-managing agencies.

Rationale: Training for appropriate staff on the kinds and value of cultural resources will provide the Refuge with several tools to manage cultural resources, monitor at risk sites, and incorporate cultural resource values in their natural resource protection message. Identification of specific problem areas for monitoring will target high-profile activity areas for maximum deterrence.

Strategy: Refuge staff such as resource specialists, outreach specialists, and Refuge managers will be required to complete training on cultural resources within two years of Plan's approval, or for new hires, within two years of assuming duties. Law enforcement personnel should receive specialized training (see also Objective 8.6).

Objective 8.6: Cultural Resource Monitoring and Law Enforcement—The Service will identify sites or areas at risk for vandalism and monitor them with periodic law enforcement patrols.

Rationale: Cultural resource protection on the Refuge will be more effective if those conducting law enforcement patrols are aware of the locations of important resources and efforts are focused on those areas where resources are at greatest risk for vandalism. Upon Plan approval, law enforcement staff will initiate patrols of known sites. Sites will be added to these patrols as they are identified from surveys, interviews, and data compilations (see Objectives 8.7, 8.8, and 8.9).

Objective 8.7: Cultural Resource Inventory—Within two years of Plan's approval, the Service will inventory and organize records of the Refuge's administrative and scientific history, including oral history collections.

Rationale: Over time, Refuge staff and former employees have amassed a wealth of institutional information on Refuge history. An organized and accessible comprehensive inventory would make the information available to researchers and the public, and identify gaps to be filled by collection of oral histories or archival research. The intent of this objective is to build records for a comprehensive history of Arctic Refuge. It is especially important that oral histories be carefully documented.

Objective 8.8: Cultural Resource Surveys— Conduct cultural resource surveys in priority areas for archaeological and other cultural sites as time and personnel permit.

Rationale: Section 110 of the National Historic Preservation Act requires that all land-managing Federal agencies take action to identify, evaluate, and nominate to the National Register of Historic Places those historic properties that meet the criteria set forth in 36 Code of Federal Regulations (CFR) 800. Only limited areas of the Refuge have been systematically studied, leaving the vast majority unknown archaeologically. A high degree of regional site variability exists in this Refuge, but many questions about why such diversity exists and how it developed and was maintained are not well understood. In addition to addressing these questions about regional and temporal variability, surveys in unknown areas will provide immediately useful information on the site locations, characteristics, and conditions needed to effectively manage these resources. This information will allow continued and focused research on prehistoric and historic cultural resources, including environmental and cultural change over time.

Strategy: Surveys will be conducted at a level sufficient to evaluate eligibility of sites identified for inclusion on the National Register of Historic Places without requiring a follow up visit. While actual surveys will be conducted as funding and personnel become available, the initial identification of priority areas and scoping for the surveys should be completed as part of the Integrated Cultural Resources Management Plan (Objective 8.1). In the case of an

emergency, such as severe erosion threatening an important site, the Refuge will take immediate action to survey and document the threatened resource.

Short-term Priority (5–8 years)

Objective 8.9: Cultural Resource Atlas and Archive—Within five years of Plan approval, identify and acquire published and unpublished materials relating to archaeological, historical, and ethnographical resources; work with local tribes, elders, and the University of Alaska Fairbanks to compile a place name directory and atlas of cultural and historic sites.

Rationale: Archaeological, cultural, and historical resources are irreplaceable archives of human and environmental history. Much valuable, cultural, historic, and scientific information about the Refuge is contained in existing published and unpublished material. Similarly, place names contain an enormous amount of information on traditional uses, culturally important places, historic camps and settlements, and other essential cultural information. This information is an untapped archive that could potentially benefit both the Refuge and surrounding communities. Accessing place name information will recognize the critical role of local people in the natural and cultural heritage of the Refuge. Compiling all known information will make it possible to evaluate information needs and data gaps, and to set priorities for surveys and research in archaeological and historic site protection, public interpretation, and historic ecological information that is useful in wildlife and habitat management.

Strategy: The cultural resource atlas and place name directory should include a comprehensive Geographic Information System (GIS) of place names for use in Refuge management. A working database should be completed within five years of Plan approval and should be continually updated as new information is gathered.

2.1.9 Goal 9: *The Refuge provides information to diverse audiences, near and far, to enhance their understanding, appreciation, and stewardship of the Refuge and its resources, and reflecting the nation’s interest in this place.*

Current and Ongoing Priorities

Objective 9.1: Inform the Public—The Refuge will continue to provide timely and accurate information and programs to the public about the Refuge and its resources to promote conservation of wildlife and natural landscapes and to inform the public about the purposes and management of the Refuge and its recreational potential.

Rationale: Outreach efforts by Arctic Refuge provide information about a variety of topics, including the biological sciences, public use, wilderness conservation, Refuge management, and the Service. Outreach methods include personal communications, public presentations, printed materials, interpretive writing, and the Internet. Examples of outreach efforts include responding to public inquiries, creating interpretive programs, working with village students on the migratory bird calendar contest, partnering with communities for the Service-wide priority of “connecting people with nature,” producing and printing a current bird list for distribution and posting on the Internet, and creating Refuge exhibits.

Objective 9.2: Inform Refuge Users—The Refuge will continue to inform as many people as possible (before they enter the Refuge) about trip planning, best practices, and regulations to help them enjoy a safe and rewarding experience and to minimize human impacts.

Rationale: A variety of people either live near, visit, and/or use Refuge lands. These individuals may be recreational visitors, subsistence users, scientific researchers, commercial operators, or others. The Refuge produces a variety of outreach products directed at the needs of these people. Topics include “leave no trace” protocols, bear viewing protocols and bear conflict prevention, identification of and respect for private lands in and adjacent to the Refuge, limiting invasive plants, and minimizing impacts where people tend to concentrate.

Strategy: Outreach efforts will be focused in gateway communities and on the Refuge’s website. Kiosks and signage will not occur on the Refuge, and on-site contacts will be minimized in recognition of the importance that the qualities of freedom and independence have to Refuge visitors (see Objective 5.2) and to encourage Refuge users to emphasize self-reliance and preparation.

Objective 9.3: Communities—The Refuge will continue to work with gateway community members on collaborative projects that benefit residents and promote conservation of wildlife and natural landscapes.

Rationale: Members of the Refuge staff work directly with residents in the neighboring communities of Kaktovik and Arctic Village, Fairbanks (where the Refuge headquarters is located), and other gateway communities. The purpose of this outreach is to improve communication, inform residents about the Refuge and its programs, and support communities that may have concerns about non-local visitors to Refuge lands or management activities.



Strategy: Outreach activities include distributing posters, kiosk materials, and pamphlets and brochures, and sponsoring community-wide events. Refuge information technicians are integral to community collaboration because they attend traditional tribal meetings, host Refuge events, and work with communities to address potential conflicts among local residents and other Refuge users. Refuge information technicians will work to translate outreach and environmental education efforts into Gwich'in and Iñupiaq language.

Objective 9.4: Technology—The Refuge will continue to format its outreach materials and information for distribution on the Internet to reach a wide audience, and it will make use of new media technologies as these opportunities arise.

Rationale: Many national wildlife refuges focus outreach efforts on face-to-face interactions with visitors on site and with school children or community members living in nearby towns and cities. This is not the case with Arctic Refuge, which has a broader outreach focus. Arctic Refuge needs to reach out to audiences both near and far because 1) the Refuge is large and remote with very few facilities, so the majority of those who enter the Refuge have no personal contact with Refuge staff; 2) only two small communities are situated in or adjacent to the Refuge, while Refuge headquarters are located in a larger community hundreds of miles from Refuge borders; and 3) the Refuge is of national and international interest to large and diverse groups (e.g., school students and their teachers, those with development interests, and those with conservation interests), who may never have an opportunity or desire to visit Arctic Refuge. Accordingly, Arctic Refuge focuses most of its outreach efforts on an Internet-based system that provides access to the widest range of users. The Refuge also recognizes that to keep future pathways of communication open, it must adopt new technologies and media as these become readily available to the public.

Objective 9.5: Visitor Centers—The Refuge will continue to partner with Federal agencies and communities to jointly support and staff visitor centers or other community-based facilities to provide information to the visiting public and local residents about the Refuge and how it is being managed.

Rationale: One effective method for Arctic Refuge to share its outreach messages and products with visitors and residents in Alaska is through visitor centers and other facilities where people gather to learn about the Refuge before entering the field. The Refuge will cooperate with gateway communities and other Federal agencies to provide information and staff at visitor centers in Fairbanks, Coldfoot, and Arctic Village, and at facilities in Kaktovik, Happy Valley, Toolik, or other places in interior and northeast Alaska as requested and needed.

Objective 9.6: Education—The Refuge will continue to prepare and present educational materials and/or programs to students (pre-kindergarten to college) in outdoor and/or indoor learning situations to promote conservation and understanding of wildlife and natural landscapes for future generations.

Rationale: Students and teachers at every grade level have an ongoing interest in Arctic Refuge, especially when they study arctic and boreal environments and wildlife, climate change, or issues of energy development. The Refuge also recognizes its responsibility to help

train the children of today to understand the natural world and their place in it. Outreach efforts therefore include presentations of in-classroom programs, summer camps, and production and posting of educational materials on the Internet for distance learning.

Objective 9.7: Volunteers—The Refuge will continue to provide opportunities for volunteers to assist with Refuge activities and projects to enhance the work of the Refuge and empower the public to take part in Refuge programs.

Rationale: Refuge staff recognize the benefit to both the Refuge and the public when managing volunteers to assist with Refuge activities and projects. Refuge staff continue to welcome and encourage volunteer participation through the work of individuals and organizations such as the Friends of Alaska National Wildlife Refuges.

Long-term Priorities (15 years)

Objective 9.8: National Interest—The Refuge will maintain a long-term data set to provide information to Service leadership and Refuge managers about the diverse national interest and values the public has for Arctic Refuge.

Rationale: The people who live nearby and/or visit Refuge lands will always be important constituents of the Refuge and Service. The Refuge also needs to be mindful of the millions of people across the nation that have an interest in this place. There is a large constituency that will never set foot on the Refuge but value the Refuge as a symbolic landscape and heritage for future generations. Their interests need to be among the factors considered as the Refuge develops its management plans, conducts field work, and informs the public about the Refuge environment.

Strategy: The Arctic Refuge National Interest Study, completed in 2009, is a survey of news articles and other documents that identifies and categorizes the various and numerous opinions, values, and discussions that Americans have and hold regarding Arctic Refuge and the issues relating to it. The study uses computers to analyze the content of articles and documents that exist in the comprehensive LexisNexis database. Results from this study provide evidence and understanding of the diversity of both tangible and intangible values that the American public holds for the Refuge. The Refuge will repeat this study every 10 years to reveal how Americans' values for the Refuge change or persist.

2.2 Overview of Management Policies and Guidelines

Sections 2.3 through 2.4 describe direction for the management of Arctic Refuge. This management direction is primarily derived from the laws governing the Refuge System and national and regional regulations, policies, and guidance developed to implement these laws. Although Arctic Refuge is unique, it is only one piece of the Refuge System. The management direction presented here was developed for Arctic Refuge from the common base for management of the Alaska refuges.

While some deviations from regional management policies and guidelines are likely to appear in each comprehensive conservation plan, given differing establishing orders or refuge purposes, the direction for Arctic Refuge varies more than other comprehensive conservation plans. Because the Service intends to manage Arctic Refuge at the far end of the unaltered spectrum, the Refuge plan calls for a more hands-off approach to management and allows less manipulation of the environment than other refuge plans. The descriptions of management categories presented in this plan are not identical to those in the 1988 Plan for Arctic Refuge (Service 1988). Until a final revised Plan is adopted for the Refuge, if there is any conflict between the existing Plan and the new management categories, the direction in the existing Plan will take precedence over that contained in these guidelines, unless the conflict is the result of changes in law, judicial ruling, or other non-discretionary guidance.

2.3 Management Categories

Five management categories (Intensive, Moderate, Minimal, Wilderness, and Wild River) are used to describe the management levels throughout the Alaska refuges. A management category is used to define the level of human activity and development that is appropriate for a specific area of a refuge. A management category is a set of management directions applied to an area based on its resources and existing and potential activities or uses. These categories have been adopted and applied to accomplish refuge purposes and achieve management goals. Lands in the Arctic Refuge currently fall into three management categories: Minimal, Wild River, and Wilderness (see Alternative A, Section 3.2.2). The Management Activities Table (Table 2-1) shows the administrative, public, and commercial activities and facilities that may be allowed in each management category and under what conditions. Direction is presented for the Intensive and Moderate Management categories to provide a basis of comparison and to be available should the plan be amended in the future to include either of these management categories. Management categories that do not apply to current and proposed management of Arctic Refuge are shown over a grey background.

2.3.1 *Intensive Management*

The Intensive Management category is designed to allow compatible management actions, public facilities, and economic activities that may result in alterations to the refuge environment. In Intensive Management areas, the presence of human developments and interventions may be very apparent. Roads, buildings, and other structures are likely to be seen. Intensive Management is applied to the smallest area reasonable to accommodate human developments and interventions.

Ecological processes or habitats may be modified through human intervention in an Intensive Management area. Habitats may be highly modified to enhance conditions for one

or more species. For example, water regimes may be artificially controlled to improve habitat for waterfowl.

Substantial levels of public use may be accommodated and encouraged through alterations and modifications to the environment such as paving, buildings, developed campgrounds, and other facilities. Public facilities are designed to provide a safe and enjoyable experience of the resources on refuge lands and to increase understanding of fish and wildlife and their habitats for a wide range of visitors. Facilities are designed to accommodate a substantial number of visitors while protecting resources on refuge lands from damage and visitor impacts.

Compatible economic activities or uses of resources on refuge lands that result in alterations to the environment may be authorized in Intensive Management areas. All economic activities or uses must be compatible with refuge purposes and the mission of the Refuge System. Economic activities or uses require official authorizations such as special use permits.

2.3.2 Moderate Management

The intent of Moderate Management is to allow compatible actions, public uses, commercial activities or uses, and facilities that may result in changes to the refuge environment that are temporary or permanent but small in scale and that do not disrupt ecological processes. The natural landscape is the dominant feature of Moderate Management areas, although signs of human activities may be visible.

The intent of Moderate Management is to provide, restore, or enhance habitats to maintain healthy populations of plants and animals where ecological processes predominate. For example, logging and prescribed burning may be used to convert mature forests to an early seral stage to enhance browse for moose. In general, management facilities, both temporary and permanent, will be allowed for the purposes of gathering data to understand and manage resources and ecological systems of the refuges. Structures will be designed to minimize visual impact.

Public facilities provided in Moderate Management are designed to protect refuge habitats and natural resources while allowing the public to enjoy and use resources on refuge lands in relatively low numbers dispersed over a large area. The Moderate category also allows shorter-term enjoyment of resources on refuge lands in focused areas as a means to concentrate visitors and impacts. The emphasis is on small facilities that encourage outdoor experiences. Facilities such as public use cabins, rustic campgrounds, kiosks, boardwalks, viewing platforms, trails, and toilets may be provided. Facilities will be designed to blend with the surrounding environment to minimize visual impacts.

Compatible economic activities may be allowed where impacts to ecological processes and habitats are temporary (e.g., small-scale logging where an earlier seral stage meets management goals; facilities that support guiding and outfitting services such as tent platforms or cabins that encourage enhanced public use). All economic activities and facilities require authorizations such as special use permits.

2.3.3 Minimal Management

Minimal Management is designed to maintain the refuge environment with minimal or no evidence of human modifications or changes. Habitats are allowed to change and function

through ecological processes. Administration will ensure that the resource values and environmental characteristics identified in a refuge comprehensive conservation plan are conserved. Public uses, economic activities or uses, and facilities should minimize disturbance to habitats and resources. Ground-disturbing activities are to be avoided whenever possible.

Management actions in this category focus on understanding ecological systems and monitoring the health of resources on refuge lands. Generally, no roads or permanent structures are allowed (except cabins). Temporary structures may be allowed in situations in which removal of the structure is planned after the period of authorized use, and the site can be rehabilitated using native plantings from the immediate adjacent area. Existing cabins may be allowed for administrative, public, subsistence, commercial, or economic (e.g., guiding) purposes. New subsistence or commercial cabins may be authorized if no reasonable alternatives exist. Public use or administrative cabins may be constructed if necessary for health and safety.

Public use of the refuge is encouraged for hunting, fishing, wildlife observation and photography, interpretation and environmental education, and subsistence activities. Public use facilities are generally not provided. Mechanized and motorized equipment may be allowed when the overall impacts are temporary or where its use furthers management goals.

If a transportation or utility system, as defined in Section 1102 of ANILCA, is proposed to cross an area in Minimal Management, the authorization process would incorporate a corresponding comprehensive conservation plan amendment to change the management category in the affected area from Minimal to Moderate or Intensive Management, as appropriate.

Compatible economic activities may be allowed where the evidence of those activities does not last past the season of use, except as noted in the preceding discussion of cabins. The primary economic activities are likely to be guiding and outfitting of recreation activities such as hunting, fishing, hiking, river floating, and sightseeing. All economic activities and facilities require authorizations such as special use permits.

Under ANILCA Section 1004, the Coastal Plain Wilderness Study Area, which is currently designated minimal management, must also “be administered by the Secretary so as to maintain presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System.”

2.3.4 Wilderness Management

The Wilderness Management category applies to areas designated by Congress as units of the National Wilderness Preservation System. The Refuge manages approximately eight million acres of designated wilderness in the northeast corner of the Refuge. Any areas proposed for wilderness designation will be managed under Minimal Management, consistent with Section 1317(c) of ANILCA and Service policy. Designated wilderness will be managed under the Wilderness Act of 1964 and the special provision of ANILCA. Because the wilderness area in Arctic Refuge is part of the National Wilderness Preservation System, the Service recognizes that responsibilities for managing designated wilderness go beyond the mission of the Service. For the designated wilderness area, the purposes of the Wilderness Act are within and supplemental to the other purposes for which Arctic Refuge was established. (See Section 2.4.20 for guidelines on management of designated wilderness areas in Alaska.)

The history and intent of the Wilderness Act encourages managers to hold a broad perspective of the refuge landscape, one that extends beyond managing designated wilderness solely as

wildlife habitat. It is managed as an area “retaining its primeval character and influence.” Designated wilderness provides visitors with opportunities for “solitude or a primitive and unconfined type of recreation.” Recreation in designated wilderness areas has been characterized by an array of experiences such as discovery, self-reliance, remoteness, closeness to nature, challenge, self-reflection, and freedom from societal and managerial constraints (e.g., Hollenhorst and Jones 2001; Landres et al. 2008; Patterson et al. 1998).

Designated wilderness areas are managed to preserve numerous experiential values for people as well as aesthetic, scientific, and other related values. Research has shown that some values of designated wilderness areas extend beyond their boundaries to people who may never visit but who benefit from the protection of ecological processes—benefits such as clean air and water and the knowledge that such places exist (Cordell et al. 1998). In managing designated wilderness, refuge managers are encouraged to consider, in decision making, these off-site and symbolic values, as well as tangible resource values.

Permanent structures are generally prohibited. Exceptions include historic and cultural resources and, in certain circumstances, administrative structures or cabins that predate ANILCA, cabins that are necessary for trapping activities, and public use cabins necessary for the protection of human health and safety. Facilities and structures are rustic and unobtrusive in appearance.

Compatible commercial services or uses of designated wilderness areas are generally limited to those activities that facilitate solitude and a primitive, unconfined type of recreation (e.g., guided fishing, hunting, and float or hiking trips into designated wilderness areas). All commercial services and facilities require authorizations such as special use permits.

Actions such as prescribed fires or invasive species control may be conducted when it is necessary to protect life or property or when it is necessary to restore, maintain, or protect the aforementioned of designated wilderness. All management activities must be supported by an MRA and found to be necessary for administration of the area as designated wilderness.



2.3.5 Wild River Management

The Wild River Management River category applies to those rivers and corridors of the adjacent lands that have been designated by Congress as part of the Wild and Scenic Rivers System. This is a national system of designated rivers that have outstandingly remarkable scenic, recreational, geologic, fish, wildlife, historic, cultural, or other similar values. All designated rivers on refuges in Alaska are classified as Wild Rivers. (The Wild and Scenic Rivers Act provides for wild, scenic, and recreational river designations.) Wild rivers are those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and waters unpolluted.

In this management category, water bodies are maintained in natural, free-flowing, and generally undisturbed conditions. Wild rivers are managed to protect and enhance the values for which they were designated with emphasis on protecting esthetic, scenic, historic, archaeological, and scientific features. Any portion of a wild river that is in designated wilderness is subject to the provisions of both the Wilderness Act and the Wild and Scenic Rivers Act; in case of conflict between the provisions of these laws, the more restrictive provisions apply.

Each river in the Wild and Scenic Rivers System has particular values for which it was designated; the management of a wild river must protect those specific values. Management actions focus on understanding, monitoring, and maintaining the natural resources, ecosystem function, and aesthetics of the river corridor.

Permanent structures generally are not allowed, with the exception of historic and cultural resources and, in certain limited circumstances, subsistence or administrative cabins and associated structures. Cabins, temporary structures, and hardened sites should not be visible from the river; where this is impractical, facilities and structures are to be rustic or unobtrusive in appearance. Public use facilities would provide opportunities for low-impact, backcountry recreation experiences.

ANILCA designated those portions of the Ivishak, Sheenjek, and Wind Rivers in the boundaries of the Refuge as wild rivers under the Wild and Scenic Rivers Act. Sixty-one miles of the 95-mile long Ivishak River lie in Arctic Refuge. The segment of the Sheenjek River classified as wild, totals 191 miles. The Wind River, also classified as wild, flows for 102 miles, and is entirely within the boundary of Arctic Refuge. Please refer to section 4.1.3.4 in Chapter 4 for more information about these wild rivers.

Compatible uses of the Ivishak, Sheenjek, and Wind wild river corridors will be allowed where those activities do not detract from their outstandingly remarkable values (ORVs). Primary commercial activities or uses are likely to be recreation services such as guided float trips, sightseeing, photography, fishing, and hunting trips. The Wild and Scenic Rivers Act requires the Service to preserve the values and characteristics of the three wild river corridors. All commercial activities and facilities require authorizations such as special use permits.

2.3.6 Special Management Areas

Special management lands are managed in one of the categories described previously with added requirements related to their establishment and special status. Special management areas in Arctic Refuge include the Firth Mancha Research Natural Area, the Shublik Springs Research Natural Area, the Neruokpuk Lakes Public Use Natural Area, and the Arctic

National Wildlife Refuge Marine Protected Area. Please see Chapter 4 for more information about these lands.

2.3.6.1 Management of Selected Lands

The Service retains management responsibility for lands selected but not yet conveyed to Native village and regional corporations or to the State of Alaska. The appropriate Native corporation or agency of the State will be contacted and its views considered prior to issuing a permit involving these lands. Fees collected for special use or right-of-way permits will be held in escrow until the selected lands are conveyed or relinquished. Management of selected lands will be the same as for adjacent refuge lands.

2.3.6.2 Alaska Native Claims Settlement Act Section 22(g)

Section 22(g) of the Alaska Native Claims Settlement Act (ANCSA) provides that those Refuge lands established prior to December 18, 1971, and conveyed under that act remain subject to the laws and regulations governing the use and development of the refuge. The compatibility standard, as it applies to activities occurring on these lands, is described in 50 CFR 25.21 (b)(1). In addition, the Service retains the right of first refusal on village corporation lands if these lands are ever offered for sale.

Arctic Refuge will work with landowners to balance the commercial development and use of 22(g) lands with the protection of resources important to Refuge purposes.

2.4 Management Policies and Guidelines

2.4.1 Introduction

Refuge management is governed by Federal laws such as the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd), as amended, (Refuge Administration Act); the National Wildlife Refuge System Improvement Act of 1997, an amendment to the Refuge Administration Act (P.L. 105-57) (Refuge Improvement Act); and ANILCA; by regulations implementing these laws; by treaties; by Service policy; and by principles of sound resource management—all of which establish standards for resource management or limit the range of potential activities that may be allowed on the refuges.

ANILCA authorizes traditional activities such as subsistence, the exercise of valid commercial fishing rights, hunting, fishing, and trapping in accordance with State and Federal laws. Service regulations state that “public recreation activities within the Alaska National Wildlife Refuges are authorized as long as such activities are conducted in a manner compatible with the purposes for which the areas were established” (50 CFR 36.31(a)). Such recreation activities include but are not limited to sightseeing, nature observations and photography, hunting, fishing, boating, camping, hiking, picnicking, and related activities. The Refuge Administration Act, as amended by the Refuge Improvement Act, defines “wildlife-dependent recreation” and “wildlife-dependent recreational use” as “hunting, fishing, wildlife observation and photography, or environmental education and interpretation” (16 U.S.C. § 668ee). These public activities are encouraged and emphasized in visitor management programs on refuge lands in Alaska.

2.4.2 Human Safety and Management Emergencies

When emergencies occur on the Refuge, it may be necessary to deviate from policies and guidelines discussed in this Plan. Actions not normally allowed on the Refuge or under a specific management category, as shown in Table 2-1, may occur during or as a result of emergencies.

Emergencies include threats to human health and safety. Emergency situations could also arise, whereby threatened or endangered species, natural diversity, water quality and/or quantity or subsistence resources are seriously jeopardized, or the introduction of an invasive species potentially necessitate actions not normally permissible. In emergencies, the Refuge manager is authorized to take whatever prudent and reasonable actions are necessary. Urgent situations that require actions taking longer than 30 days require a compatibility determination, National Environmental Policy Act (NEPA) compliance, and an ANILCA Section 810 evaluation of potential impact to subsistence.

2.4.3 Land Exchanges and Acquisitions

Under Section 1302 of ANILCA, and subject to certain restrictions, the Service may acquire by purchase, donation, or exchange any lands within the boundaries of Alaska refuges. Proposed land exchanges or acquisitions must benefit fish and wildlife resources, satisfy other purposes for which the refuge was established, or be necessary to satisfy other national interests.

Other laws provide the Service authority to purchase conservation easements (Service Manual 341 FW 1, Exhibit 1) or enter into cooperative management agreements to satisfy Refuge purposes, national interests, or other objectives.

2.4.4 Land Protection Plans

Department of Interior and Service policies require development of a step-down plan, called a land protection plan, to address priorities for habitat conservation within refuge boundaries. LPPs inform private landowners what land within refuge boundaries the Service would like to see conserved for fish and wildlife habitat. The plans do the following:

- Identify the private lands within the refuge boundary that the Service believes should be conserved.
- Display the relative protection priority for each parcel.
- Discuss alternative means of land and resource conservation.
- Analyze the impacts on local residents of acquisition.

The Service acquires land from only those landowners who are willing to sell, and it only does so when other methods of achieving goals are not appropriate, available, or effective. Sometimes resource conservation goals can be met through cooperative management agreements with landowners or by similar means. The Service and Arctic Refuge would work with all landowners to ensure that overall fish, wildlife, and habitat values in the Refuge are conserved.

- A land protection plan for Arctic Refuge is scheduled to be completed within 5–8 years of approval of this plan.

A pre-acquisition environmental site assessment is required for all real property proposed for acquisition by the Service or for public domain lands returning to Service jurisdiction (Service Manual 341 FW 3).

2.4.5 Appropriate Refuge Uses

Comprehensive conservation plans include a review of the appropriateness and compatibility of existing refuge uses and of any planned future public uses. All uses of a national wildlife refuge over which the Service has jurisdiction must be determined to be appropriate under the Appropriate Refuge Uses Policy (Service Manual 603 FW 1). An appropriate use of a national wildlife refuge is a proposed or existing use that meets at least one of the following four conditions:

1. The use is a wildlife-dependent recreational use as identified in the Refuge Improvement Act, Section 5(2) (i.e., “hunting, fishing, wildlife observation and photography, or environmental education and interpretation”).
2. The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Refuge Improvement Act was signed into law.
3. The use involves the take of fish and wildlife under State regulations.
4. The refuge manager has evaluated the use following guidelines in the Service Manual 603 FW 1.11 in the subsequent text and found it appropriate.

- a. Do we have jurisdiction over the use?
- b. Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?
- c. Is the use consistent with applicable Executive orders and Department of the Interior (DOI) and Service policies?
- d. Is the use consistent with public safety?
- e. Is the use consistent with goals and objectives in an approved management plan or other document?
- f. Has an earlier documented analysis not denied the use, or is this the first time the use has been proposed?
- g. Is the use manageable with available budget and staff?
- h. Will this be manageable in the future with existing resources?
- i. Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?
- j. Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation in the future?



This Plan identifies those existing and proposed uses that are found appropriate and for which compatibility determinations were drafted for public review (Appendix G). The following uses have been found appropriate for Arctic Refuge:

- State of Alaska Management Activities
- Commercial Air Transportation Services
- Commercial Big-game Hunting Guide Services
- Commercial Recreational Fishing Guide Services
- Commercial Recreational Guide Services
- Commercial Filming and Audio Recording
- Commercial Shore-Fast Sea Ice Access
- Non-Wildlife-Dependent Recreational Activities
- Reburial of Human Remains per State and Federal Guidelines
- Recreational (General) Fishing
- General Hunting
- Furbearer Trapping (Non-Subsistence)
- Scientific Research
- Subsistence Harvest of House Logs
- Subsistence Activities
- Waste Cleanup and Site Remediation
- Wildlife Observation, Wildlife Photography, Environmental Education, and Interpretation

All current appropriate use documentation for Arctic Refuge is on file at the Refuge headquarters and the Alaska Regional Office. If additional activities or uses not addressed in this Plan are proposed for the Refuge, the Refuge manager will determine if they are appropriate uses following the guidance in Service Manual 603 FW 1.

2.4.6 Compatibility Determinations

The Refuge Administration Act states that “the Secretary [of the Interior] is authorized, under such regulations as he [or she] may prescribe, to ... permit the use of any area within the [Refuge] System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he [or she] determines that such uses are compatible ... ”

A compatible use is a proposed or existing wildlife-dependent recreation use or any other use of a national wildlife refuge that, based on sound professional judgment, would not materially interfere with nor detract from the fulfillment of the Refuge System mission or the purposes for which the national wildlife refuge was established. Economic activities or uses must contribute to achieving refuge purposes and the Refuge System mission.

A refuge compatibility determination is the document that results from the analysis and public review conducted by the Service to find an activity or use compatible or not compatible with the purposes of a refuge. Compatibility determinations are not required for refuge management activities, except economic activities. They are also not required where statute directs mandatory approval of the activity, as in the case of facilities for national defense.

Arctic Refuge will follow normal administrative procedures for stopping an activity or use that is found to be incompatible. For example, the Refuge manager will not issue a special use permit for any new activity or use that is found to be incompatible. In the case of an existing activity or use already under permit, the Refuge manager will work with the permit holder to modify the activity or use to make it compatible or will terminate the permit.

Ending incompatible activities or uses on Refuge lands that do not require a special use permit or other formal authorization, or that cannot be addressed by other Federal or State agencies, will require the Refuge to go through the normal rule-making process. This will include publishing the proposed regulations in the Federal Register and providing adequate opportunity for public comment.

Compatibility determinations for existing hunting, fishing, wildlife observation and photography, and environmental education and interpretation must be re-evaluated with the preparation or revision of a comprehensive conservation plan or at least every 15 years, whichever is earlier. Compatibility determinations for all other activities or uses on Refuge lands must be re-evaluated every 10 years or earlier if conditions change or new information about an activity or use and its effects becomes available.

Compatibility determinations prepared concurrently with comprehensive conservation plans or step-down management plans undergo public review and comment at the same time as the Draft Plan and associated NEPA document (Service Manual 603 FW 2.11I). For compatibility determinations prepared separately from a Refuge plan, the Service will determine the appropriate level of public review and comment through a tiered approach based on the complexity and controversy of the use and the level of impact to the Refuge (Service Manual 603 FW 2.12A(9)).

Draft compatibility determinations for activities or uses on Arctic Refuge are included in this Plan in Appendix G. Public comments on the draft compatibility determinations will be addressed in the final determinations released with the final Plan for Arctic Refuge.

Additional details on applying compatibility standards and completing Refuge compatibility determinations are found in the compatibility regulations at 50 CFR (parts 25, 26, and 29) and in the Service Manual (603 FW 2). To review completed compatibility determinations for all refuges in Alaska, go to <http://alaska.fws.gov/nwr/planning/completed.htm>.

2.4.7 Mitigation

In the interest of serving the public, it is the policy of the Service, throughout the nation, to seek to prevent, reduce, or compensate for losses of fish, wildlife, and their habitats, and uses thereof, from land and water development. To that end, the Service developed a Mitigation Policy in 1981 that includes measures ranging from avoiding an activity that results in loss of such resources to seeking compensation by replacement of or substitution for resource loss.

The Service will promulgate regulations, develop stipulations, and issue permits to reduce or eliminate potential adverse impacts resulting from compatible activities that may be authorized under this Plan. These regulations, stipulations, and permits would mitigate impacts in a variety of means, as stipulated in the Mitigation Policy guidelines (Service Manual 501 FW 2.1). The means, in order of application, are as follows:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

When determining whether activities or uses are compatible, projects should be designed first to avoid adverse impacts. The Service generally does not allow compensatory mitigation on Refuge System lands. Only in limited and exceptional circumstances related to existing rights-of-way could compensatory mitigation be used to find a use compatible. The Service Manual (501 FW 2 and 603 FW 2) provides more information.

Mitigation may consist of standard stipulations such as those attached to right-of-way permits; special stipulations that may be attached to leases or permits on a site-specific basis; and site- and project-specific mitigation identified through detailed step-down management plans or the environmental assessment process. In all instances, mitigation must support the mission of the Refuge System and must be compatible with the purposes of the refuges. The degree, type, and extent of mitigation undertaken would depend on the site-specific conditions present and the management goals and objectives of the action being implemented.

2.4.8 Coastal Zone Consistency

Federal lands, including lands in the Refuge System, are excluded from the coastal zone (16 U.S.C., Section 1453[1]). The Coastal Zone Management Act of 1972, as amended (P.L. 92-583), directs Federal agencies conducting activities in 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 with approved state management plans “to the maximum extent practicable” (15 CFR, Section 930.32).

The Alaska Coastal Zone Management Act of 1977, as amended, and the subsequent Alaska Coastal Management Program, as amended, and the Final Environmental Impact Statement (1979) established policy guidance and standards for the review of projects in or potentially affecting Alaska’s coastal zone. In addition, specific policies have been developed for activities and uses of coastal lands and water resources in regional coastal resource districts. Most incorporated cities, municipalities, and boroughs, as well as unincorporated areas (coastal resource service areas) in the coastal zone, now have State-approved coastal management plans.

Although State and coastal district program policies are used to guide consistency determinations, more restrictive Federal agency standards may be applied. Federal regulations state that “(w)hen 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, Section 930.39[d]).

Certain Federal actions may require a Federal Coastal Consistency Determination. Arctic Refuge will contact the ADNR Coastal Management Program for program requirements and applicability before beginning a project that may affect the coastal zone.

[NOTE: Preliminary coordination with the Alaska Coastal Management Program and the North Slope Borough Coastal District in November 2010 indicates a consistency determination is not required for this Plan.]



2.4.9 Cooperation and Coordination with Others

2.4.9.1 Federal, State, and Local Governments

Arctic Refuge staff will continue to work closely with those Federal, State, and local governments and agencies whose programs affect, or are affected by, the Refuge. State and local government input will be sought during the development of regulatory policies addressing management of the Refuge System (Executive Order 13083, “Federalism”). When possible, the Service will participate in interagency activities (such as joint fish and wildlife surveys and co-funded research), cooperative agreements, sharing data, and sharing equipment and/or aircraft costs to meet mutual management goals and objectives.

The Refuge and the State will maintain a cooperative relationship in managing fish and wildlife resources in the Refuge. The Master Memorandum of Understanding between the Service and ADFG, dated March 13, 1982, defines the cooperative management roles of each agency (Appendix B). In this agreement, the ADFG agreed to “recognize the Service as the agency with the responsibility to manage migratory birds, endangered species, and other species mandated by Federal law, and on Service lands in Alaska to conserve fish and wildlife and their habitats and regulate human use.” Correspondingly, the Service agreed to “recognize the right of the ADFG as the agency with the primary responsibility to manage fish and resident wildlife within the State of Alaska.” Further discussion of intergovernmental cooperation regarding the preservation, use, and management of fish and wildlife resources is found in 43 CFR 24, “Department of the Interior Fish and Wildlife Policy: State and Federal Relationships.”

The Service does not require refuge compatibility determinations for State wildlife management activities on a national wildlife refuge pursuant to a cooperative agreement between the State and the Service where the refuge manager has made a written determination that such activities support fulfilling the refuge purposes or the Refuge System mission. When the activity proposed by the State is not part of a cooperative agreement or the State is not acting as the Service’s agent, a special use permit may be required, and a refuge compatibility determination will need to be completed before the activity may be allowed. Separate refuge compatibility determinations addressing specific proposals will be required for State management activities that propose predator management, fish and wildlife control (with the exception of emergency removal of animals posing an immediate threat to human health and safety), reintroduction of species, non-native species management, pest management, disease prevention and control, fishery restoration, fishery enhancement, native fish introductions, non-native species introductions, construction of facilities, helicopter and off-road vehicle access, or any other unpermitted activity that could alter ecosystems on the refuges.

The Service will cooperate with other State agencies such as ADNR and Department of Transportation and Public Facilities and with local governments on matters of mutual interest—and may enter into informal and formal management agreements.

2.4.9.2 Tribes and Native American Organizations

The Service’s Native American Policy (Service 1994) identifies general principles that guide the Service’s government-to-government relationships with tribal governments in the conservation of fish and wildlife resources. Additional guidance has been provided by Executive Order 13084, “Consultation and Coordination with Indian Tribal Governments,” issued May 14, 1998. The U. S. Department of the Interior (2001) issued the “Alaska Policy on

Government-to-Government Relations with Alaska Native Tribes”. Arctic Refuge will maintain government-to-government relationships with tribal governments. The Refuge will also work directly with regional and village corporations and respect Alaska Native cultural values when planning and implementing Refuge programs.

2.4.9.3 Owners of Refuge Inholdings and Adjacent Lands

Arctic Refuge will work cooperatively with inholders and adjacent landowners, providing information on Refuge management activities and policies. The Refuge will consult periodically with them regarding topics of mutual interest, respond promptly to concerns over Refuge programs, and participate in cooperative projects (e.g., water quality monitoring, fish and wildlife management).

2.4.9.4 Service Jurisdiction over Waters in Arctic Refuge

Where the United States holds title to submerged lands beneath waters in the Refuge, the Service has jurisdiction over certain activities on the water. In 1980, under ANILCA, the United States Congress established or expanded 16 national wildlife refuges. These areas of land and water may contain both navigable and non-navigable waters. Where water bodies are non-navigable in the Refuge boundaries, the Service has management authority over most activities on water where adjacent uplands are federally owned. Where State of Alaska lands exist beneath navigable water bodies or where the State, a Native corporation, or a Native allottee owns the adjacent uplands within the Refuge boundaries where the withdrawal process started after statehood, the Service’s management authority is more limited.

The Service’s statutory authority to manage these lands and waters comes from ANILCA; the Service manages these lands pursuant to the Refuge Administration Act. Under provisions of ANILCA, the Federal Subsistence Board manages fishing for federally qualified subsistence users on all inland waters with a Federal reserved water right within and adjacent to the external boundaries of the refuges (50 CFR 100.3(b)(c)). Fishing also occurs under State regulations throughout the Refuge. Submerged land ownership with Arctic Refuge is discussed in greater detail in Chapter 4, Section 4.1.2.8.

2.4.9.5 Cooperative Wildland Fire Management

The Service Region 7 (Alaska) has entered into a Master Cooperative Wildland Fire Management Agreement (Master Agreement) with:

- State of Alaska, Department of Natural Resources (DNR)
- United States Department of Agriculture, Forest Service, Alaska Region (Region 10) (USFS)
- United States Department of the Interior (DOI), Bureau of Indian Affairs, Alaska Region (BIA)
- DOI, Bureau of Land Management, Alaska (BLM)
- DOI, Bureau of Land Management, Alaska Fire Service (BLM-AFS)
- DOI, National Park Service, Alaska Region (NPS)

The Master Agreement documents the commitment of those agencies to improve efficiency by facilitating the coordination and exchange of personnel, equipment, supplies, services, and funds in sustaining wildland fire management activities. This includes prevention, preparedness, communication and education, fuels treatment and hazard mitigation, fire planning, response strategies, tactics and alternatives, suppression, and post-fire rehabilitation and restoration. The Master Agreement is also the basis from which the DOI agencies implement DOI Manual 620 (620 DM) and for the USFS to implement Forest Service Manual 5100.

The Master Agreement incorporates the following statewide planning documents:

- The Alaska Statewide Annual Operating Plan addresses issues affecting statewide cooperation and fiscal obligations.
- The Alaska Interagency Wildland Fire Management Plan (AIWFMP) specifies direction for the response to wildland fires that is based on a management option designation, and it provides guidelines to jurisdictional and protection agencies for decision support requirements as the complexity of a wildland fire increases.
- The Alaska Interagency Mobilization Guide identifies policy and agreements that establish the standard procedures that guide the operations of multi-agency and/or multi-jurisdictional logistical support activities. The guide is intended to promote uniformity of logistical support communications, facilitate interagency dispatch coordination, and ensure that the most timely and cost-effective support services are provided.

Individual agency policies and requirements are not superseded by the Master Agreement, the Alaska Statewide Annual Operating Plan, or the AIWFMP. These documents are meant to be used in conjunction with unit specific fire management plans that reference and cite agency and unit fire management policies, address the unit's enabling legislation and purpose, include a summary of the important resources and values of the unit, and identify, in broad programmatic terms, the direction found in the land and resource management plans, such as goals, objectives, standards, guidelines, and/or desired future conditions as they pertain to fire management.

2.4.9.6 *Other Constituencies*

Arctic Refuge will inform local communities, special interest groups, and others who have expressed an interest in or are affected by Refuge programs about Refuge management policies and activities. Refuge management will also consider the interests of its large non-local and non-visiting constituency when making decisions. The Refuge will seek input from these constituents when issues of local or national interest arise that may affect how the Refuge is managed. When appropriate, local residents and other stakeholders will be asked to participate in Refuge activities so their expertise and knowledge can be incorporated into Refuge management.

2.4.10 *Ecosystem and Landscape Management*

Species do not function alone; they function together in the environment as part of an ecosystem. Resources on Refuge lands will be managed by employing ecosystem management concepts. Individual species are viewed as integral to the diversity of those ecosystems and, as such, are indicators of the healthy functioning of the entire ecosystem. When the Service identifies species to use as indicators of the health of an ecosystem, it will do so through a

rigorous peer-reviewed scientific process involving experts from other Federal agencies and the ADFG.

Refuges should inventory, monitor, and maintain a comprehensive database of ecosystem components to help make effective management decisions and ensure proper long-term ecosystem stewardship. This includes regular and recurring monitoring of status and trends of ecosystem components such as fish, wildlife, plants, climatic conditions, soils, and water bodies. All monitoring will employ appropriate disciplines, new technologies, and scientific capabilities whenever practical.

2.4.10.1 Climate Change

Secretarial Orders 3226 (2001) and 3289 (2010), which apply to comprehensive conservation plans, require that climate change impacts be considered and analyzed when planning or making decisions within the DOI. Because the arctic region is particularly vulnerable to the effects of climate change, this mandate is especially relevant to Arctic Refuge.

While the Refuge's purposes and goals call for conservation of fish, wildlife, plants, and their habitats in their natural diversity, this may not be possible for some species and ecosystems in the future if the meaning of conservation and natural continues to be understood in the context of relatively fixed historic ecosystems and species assemblages. There are many unknowns regarding the potential effects of climate change. The Refuge will continue studies and will evaluate likely future scenarios for climate change effects on wildlife and ecosystems, with emphasis on species that are threatened, endangered, or important for subsistence.

Refuge management will investigate and consider a full range of responses to potential climate change impacts. For the near future, the Refuge will follow a policy of non-intervention throughout the Refuge, whereby natural systems are allowed to adapt and evolve, accepting that some species may be replaced by others more suited to the changing climate.

As the implications of climate change become better understood, the Service may need to re-assess some assumptions underlying the Refuge's purposes. The Service may need to re-examine the meaning of fundamental concepts such as *conserve*, *preserve*, and *natural*, and revise goals and objectives accordingly.

2.4.10.2 Air Quality

The Service's authorities for air quality management are included in several laws. The most direct mandates to manage air resources are found in the Clean Air Act and the Wilderness Act.

The Service is required by the Clean Air Act to preserve, protect, and enhance air quality and the values related to air quality on Service lands, including visibility, plants, animals, soil, water quality, cultural and historical resources, and virtually all resources that are dependent upon and affected by air quality. The Wilderness Act requires the Service to protect and preserve the wilderness character of designated areas, including pristine air quality.

Class I air quality sites receive the highest level of protection. Very little deterioration is allowed in these areas, and the Federal land manager has an affirmative responsibility to protect air quality-related values on those lands. With the exception of three Class I air quality sites in designated wilderness on the Alaska Maritime National Refuge, all other lands managed by the Service in Alaska are Class II and receive protection through the Clean Air

Act. Moderate deterioration, associated with well-managed population growth, is allowed in Class II areas.

If air quality or related resources are at risk, the Refuge manager will work with the Service's Air Quality Branch; the regional air quality coordinator; the Alaska Department of Environmental Conservation and other State, local, and Federal agencies; and the public, as appropriate, in developing an air quality management plan as outlined in the Service Manual (563 FW 2.8).

2.4.10.3 Water Resources Management

Every national wildlife refuge in Alaska shares the common ANILCA purpose and mandate to ensure, to the maximum extent practicable, water quality and quantity to conserve fish and wildlife populations and habitats in their natural diversity.

Although the Service has reserved water rights to accomplish the purposes of the Refuge, the Refuge Administration Act and the Service Manual (403 FW 1 through 3) direct the Service to obtain, to the extent practicable, water supplies of adequate quantity and quality for Service facilities and for Refuge purposes and trust resources, and to obtain the legal right to use that water through State laws, regulations, and procedures.

The Alaska Region of the Service conducted a water resources threats analysis (Harle 1994) for the purpose of guiding water resource investigations and protecting water resources by acquiring in-stream water rights. Based on the results of the threats analysis, the Service's regional office developed a strategic plan for systematically quantifying the surface water on refuges in Alaska (Bayha et al. 1997).

Using existing data, or through the collection of hydrologic and biologic data, the Service applies to the State for appropriative water rights, for in-stream water reservations, and for water withdrawals to meet the Service's needs. Establishing State water rights is only part of a management strategy to protect resources on Refuge lands and to understand ecosystem processes. Hydrologic data allows the Service to accomplish the following: plan floodplain and riparian zone management, estimate flow for ungauged streams, supplement historical or current fisheries and wildlife studies, detect and evaluate naturally occurring or human-induced changes in the hydrologic system, provide stream profile and velocity data for the design of fish weirs or other structures, analyze the impacts of proposed projects on stream flow and water supply, provide a basis for decisions, and provide baseline water quality information.

All facilities and activities on refuges must comply with pollution control standards set by Federal laws (e.g., the Clean Water Act 33 U.S.C. 1251 and the Safe Drinking Water Act 42 U.S.C. 300f); State laws where Federal law so provides; and the regulations, policies, and standards implementing these laws.



2.4.10.4 Visual Resource Management

Visual resource management has two primary purposes: (1) to manage the quality of the visual environment and (2) to reduce the visual impact of development activities. To accomplish these purposes, Arctic Refuge will identify and maintain scenic values and will, within the constraints imposed by this Plan, minimize the visual impacts of Refuge development, activities, and uses. All activities and facilities on the Refuge will be designed to blend into the landscape to the extent practical. The Service will cooperate with other Federal, State, local, tribal, and private agencies and organizations to minimize deterioration of visual resources from activities occurring off Refuge lands and on public and private lands within Refuge boundaries.

2.4.10.5 Cultural, Historical, and Paleontological Resources

The Service has long-term responsibilities for cultural resources on refuge lands. Cultural resources on refuge lands are managed under a number of laws, Executive orders, and regulations, including the Antiquities Act; the National Historic Preservation Act, as amended; the Archaeological Resources Protection Act; the American Indian Religious Freedom Act; the Native American Graves Protection and Repatriation Act; Executive Order 11593, “Protection and Enhancement of the Cultural Environment”; Executive Order 13007, “Indian Sacred Sites”; the Paleontological Resources Protection Act (Subtitle D); and 36 CFR 800.

The 1980 amendments to the National Historic Preservation Act direct the Service to inventory and evaluate cultural resources for their eligibility for inclusion on the National Register of Historic Places. Pending a complete evaluation, all cultural resources will be considered eligible for the National Register of Historic Places and be protected and managed in accordance with Federal and State laws. All paleontological resources on Arctic Refuge will be protected and managed in accordance with Federal law.

It is illegal to collect archaeological materials and/or paleontological remains on Arctic Refuge without a permit. Historic aircraft will be managed in accordance with the policy published December 20, 1985, in the Federal Register (FR 50:51952-51953). These materials may be collected on Refuge lands only as authorized by a permit issued to a qualified organization or individual. Cultural resource research permits will only be issued to qualified individuals operating under appropriate research designs and with access to appropriate curatorial facilities. Arctic Refuge will encourage archaeologists, historians, ethnologists, and

paleontologists from educational institutions and other government agencies to pursue research on Refuge lands as long as their research interests are compatible with Refuge purposes. The Refuge will encourage research that collects data from threatened sites or sites that are important to local communities; researchers will be required to minimize disturbance of intact sites.

The Service must initiate a consultation with the State Historic Preservation Officer, under Section 106 of the National Historic Preservation Act, before it plans to fund, authorize, or otherwise undertake any Federal action that has the potential to directly or indirectly affect any archaeological or historic site. If sites that may be affected are found in the project area, their significance will be evaluated to determine their eligibility for inclusion in the National Register of Historic Places. For eligible sites, consultation will result in a course of action causing the least possible impact. Impacts may be minimized in a variety of ways, including relocation or redesign of a project, site hardening, mitigation through information collection, or cancellation of the project if no alternatives are feasible. Other activities or uses may be precluded to protect archaeological and historic sites. Private interests proposing to conduct commercial activities or uses on Arctic Refuge will normally be required to fund studies necessary for consultation and for mitigation of impacts.

The Refuge will implement Executive Order 13007, “Indian Sacred Sites”, allowing access to identified sacred sites and avoiding adversely affecting the physical integrity of these sites. Where appropriate, the Service will maintain the confidentiality of sacred sites.

Further information on cultural resources management can be found in the Service Manual (614 FW 1 through 5) and the Cultural Resources Handbook (Service 1992).

2.4.11 Fish and Wildlife Habitat Management

2.4.11.1 Habitat Management

Habitats are managed in keeping with the purposes, goals, and objectives of a refuge. For Arctic Refuge, habitat management seeks to sustain the highest degree of natural biological diversity, integrity, and environmental health. The intent of management will be to leave habitats unaltered and unmanipulated. Natural habitats will not be modified or improved to favor one species over another. Except as necessary to protect threatened and endangered species or to meet other management emergencies, management will focus on perpetuating the distinctive qualities of natural condition and wild character.

2.4.11.2 Fire Management

Wildland fire will be managed on Arctic Refuge in a manner that as nearly as possible allows it to function in its ecological role. All fire management decisions will give consideration to the protection of human life and values identified by neighboring landowners, including Native Allotments. Management of fires occurring in the Wilderness Management category will comply with national and regional policies and will take wilderness values into consideration.

The Service will evaluate and may conduct the full range of activities necessary to protect human life, property, cultural resources, and other identified values, as well as any activities necessary to conserve and protect habitats for the benefit of fish and wildlife. Fire management activities include preparedness, emergency suppression operations, management

of wildland fires for resource benefits, fire prevention, education and outreach, monitoring, research, prescribed fire, hazardous fuels reduction, and mechanical treatments. All activities will be conducted in accordance with Refuge, Service, and DOI policies and approved interagency policy and plans.

A refuge's Fire Management Plan (FMP) provides the basis for integrating fire as a critical process into other refuge plans and activities at a landscape scale, as well as specific information on the application and management of fire on a refuge. The Alaska Interagency Wildland Fire Management Plan (AIWFMP, revised March 2010) specifies direction for the response to a wildland fire. The AIWFMP established four management options—critical, full, modified, and limited—used to direct a range of responses to wildland fire. Refuge lands and facilities have been classified and mapped using these fire management options, which are reviewed annually and revised as needed. The strategies and tactics used by the Service to manage a wildland fire will be based on objectives identified in the AIWFMP, the Refuge FMP, and the Refuge Comprehensive Conservation Plan.

Response to wildland fire, suppression, and use of wildland fire are important prerogatives for the Service; each of these concepts and related terminology are described in the following text.

A wildland fire is any non-structure fire that occurs in refuge wildlands. Two distinct types of wildland fire have been defined: wildfire (unplanned ignition) and prescribed fire (planned ignition).

A wildfire is an unplanned ignition of a wildland fire or an escaped prescribed fire where the objective is to protect values at risk while meeting resource objectives specified in a refuge FMP.

An unplanned ignition is the start of a wildland fire by lightning, volcanoes, unauthorized human-caused fires, and escaped prescribed fires where the objective is to protect values at risk while meeting resource objectives specified in a refuge FMP.

A planned ignition is prepared in advance. In a planned ignition, a wildland fire is started by using a hand-held, mechanical, or aerial device. For planned ignitions, the distance and timing between ignition lines (or ignition points) and the sequence of igniting them is determined by environmental conditions, firing technique, and other factors influencing fire behavior and effects.

Prescribed fire is defined as any wildland fire ignited by management actions to meet specific objectives. Prior to each ignition, a written and approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met. Use of prescribed fires must comply with the Alaska Enhanced Smoke Management Plan for Prescribed Fire.

Response to wildland fire is defined as the mobilization of the necessary services and responders to a fire based on ecological, social, and legal consequences; the circumstances under which a fire occurs; and the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and other values identified to be protected.

Wildland fire suppression is the work of extinguishing or confining a fire, beginning with its discovery, or a portion of a fire to protect, prevent, or reduce the loss of identified values. During fire suppression, the Service will place the highest priority on the safety of firefighters and the public. The Bureau of Land Management Alaska Fire Service (BLM-AFS) provides emergency suppression services on refuge lands in Alaska, as directed by refuge managers. Arctic Refuge is located in the Upper Yukon Fire Management Zone.

Use of wildland fire describes the management of either wildfire or prescribed fire to accomplish resource benefits as outlined by the management objectives in a refuge FMP. Use of wildland fire may be directed to protect and maintain resources on refuge lands.

2.4.12 Fish and Wildlife Population Management

The State of Alaska and Service each have directives affecting fish, wildlife, and land management, and will work cooperatively to fulfill these responsibilities. On national wildlife refuges, fish and wildlife are managed to meet a refuge's purposes and to fulfill the mission of the Refuge System, and in accordance with the Biological Integrity, Diversity, and Environmental Health Policy.

For Arctic Refuge, two sets of complimentary purposes provide direction for wildlife management. The 1960 establishing order mandates preservation of unique wildlife and wilderness values in the area of the original Arctic Wildlife Range, which became Arctic Refuge Wilderness Area and the coastal plain "1002 Area" following passage of ANILCA. ANILCA specified that the Refuge's fish and wildlife populations and their habitats shall be conserved in their natural diversity Refuge-wide. To satisfy these purposes and subject to management emergencies (Section 2.4.2), the Refuge focuses on enabling the natural behavior, interactions, and cycles of all native species to continue, with little or no human intervention and manipulation. The Service's Biological Integrity, Diversity, and Environmental Health Policy (Service Manual 601 FW 3) supports this approach by mandating maintenance of the variety of life and its processes on Refuge lands. For the designated wilderness area, the purposes of the Wilderness Act must also be met, primarily to preserve the area's wilderness character.

Standing at the far end of the altered-unaltered natural diversity spectrum, Arctic Refuge serves a distinctive function in the Refuge System, exhibiting an extraordinary degree of biological integrity, diversity, and environmental health. Arctic Refuge will work with the State and other partners to maintain the natural diversity of all native species, and the free-functioning ecological systems and natural dynamic processes in which they are embedded.

2.4.12.1 Ecological Inventory and Monitoring Plan

Arctic Refuge has completed a draft Ecological Inventory and Monitoring Plan (I&M Plan) and plans to update the document within the next two years. The I&M Plan will serve as a guide to assess species presence, relative abundance, distribution, and trends in populations of fish, wildlife, and plants. The I&M Plan describes goals, objectives, methods, implications of management, geographic scales, schedules for reporting, and database management for inventory and monitoring studies. The I&M Plan recommends monitoring to address environmental parameters (e.g., weather) and hydrology, soils, and fire history to explain potential changes in the distribution, relative abundance, and populations of fish, wildlife, and plants. Arctic Refuge will review the I&M Plan every two years and update as needed, and the Service's regional office will review each refuge's I&M Plan every 5–8 years. In fiscal year (FY) 2010, the Refuge System received funding to initiate a national I&M program. As this program is developed, the Arctic I&M Plan may be modified to allow information integration and flow at multiple scales from the Refuge to the national level.

2.4.12.2 Scientific Peer Review

Anthropologists, biologists, botanists, ecologists, social scientists, and other Refuge personnel conducting scientific investigations will adhere to Refuge, regional, Service, and DOI policies on scientific conduct, including the publication entitled Management of Fish and Wildlife Service Scientific Publications Recommended Outlets, Procedures, and Policies. The overall goal of scientific peer review is to ensure that information collected, analyzed, interpreted, and reported to the public, and upon which policy and management decisions are based, meets established standards of the scientific community. To achieve this goal, all study plans and reports to be disseminated outside the originating office must be peer reviewed. The region's peer review procedure is available upon request. The type and level of review shall be commensurate with the potential significance of the scientific information and its likely influence on policy and management actions. The Service has two peer-reviewed outlets, North American Fauna and Journal of Fish and Wildlife Management, which accept manuscripts for publication (<http://www.fws.gov/science/publicationsys.html>). Service employees also publish reports and articles of scientific findings in non-Service peer review journals.

2.4.12.3 Compliance with the Animal Welfare Act

The Animal Welfare Act of 1996, as amended, requires research facilities and Federal agencies to establish an Institutional Animal Care and Use Committee (IACUC). The role of this committee is to prescribe methods and set standards for the design, performance, and conduct of animal care and use in research. Field studies conducted or authorized by Refuge employees within the purview of the Animal Welfare Act will require review and approval of an IACUC. Any Refuge study that involves an invasive procedure or that harms or materially alters the behavior of an animal under study will be reviewed and approved by an IACUC prior to implementation. A scientific collection permit is also required from the ADFG under 5 Alaska Administrative Code 92.033.

2.4.12.4 Marking and Banding

The Service will place a priority on cooperating with appropriate partners, including the ADFG, when it conducts fish and wildlife capture, marking, banding, radio-collaring, release, tracking, and other information gathering techniques involved with research on Refuge lands. The Service will follow approved protocols and published guidelines during all marking, banding, and related wildlife research and monitoring activities and will draw upon current insights from appropriate scientific disciplines and technologies. As with other management actions, an MRA must be conducted in advance of marking or banding wildlife in designated wilderness.

2.4.12.5 Threatened or Endangered Species

The Refuge will consult with the Service Ecological Services field office regarding actions that may affect listed, proposed, or candidate species or designated or proposed critical habitat. These actions include Refuge operations, public use programs, private lands and Federal assistance activities, promulgating regulations, and issuing permits (Service 1973; Service and National Marine Fisheries Service 1998).

2.4.12.6 Reintroductions

A species may be introduced on a refuge only if that species is native to the refuge but has been extirpated (i.e., a reintroduction). Non-native species may not be introduced. Definitions



of native and non-native species are found in the glossary (Appendix M). Currently there are no species identified for potential reintroduction to the Refuge.

Reintroductions can be useful tools for restoring species to natural ranges and reestablishing natural levels of fish, wildlife, and habitat diversity. Reintroductions would require appropriate NEPA compliance; a review to ensure consistency with the Service's policy on maintaining biological integrity, diversity, and environmental health of the Refuge System (Service Manual 601 FW 3); and an ANILCA Section 810 determination. If the Service was not a partner in the reintroduction, a refuge compatibility determination would be required. Reintroductions also require extensive coordination with adjacent landowners and with the State. In evaluating the project, the cause(s) of the extirpation should be evaluated and management actions taken to alleviate the cause(s) prior to reintroduction.

The environmental requirements of the species and the ecological dynamics of the area proposed for the reintroduction will be thoroughly reviewed prior to a reintroduction. Some factors to consider include behavior, diseases, general ecology of the species, habitat requirements, inter- and intra-species competition, life history, genetics, management practices, population dynamics, and predators. The Service should consider whether there have been noteworthy habitat changes since the species' extirpation (e.g., is the area still in the species' natural range).

2.4.12.7 Fish and Wildlife Control

On Arctic Refuge, all native species are integral and interdependent members of a natural community of life. Management will strive to enable the natural behavior, interactions, and population dynamics of all species to continue. Except in emergencies (see Section 2.4.2), the Refuge will not employ or allow any management technique intended to interfere with natural wildlife dynamics by reducing the abundance of some species to increase the abundance of others.

If determined necessary under subsection 2.4.2 (Human Safety and Management Emergencies), Service or State actions involving the killing, relocation, removal, or sterilization of wildlife for the benefit of another species would require appropriate NEPA compliance and an ANILCA Section 810 determination. If conducted by other than the Service or an agent of the Service, a Refuge compatibility determination would be required. Alternative management actions would need to be evaluated prior to pursuing Intensive Management activities.

Any proposal to allow or implement a fish and wildlife control activity as described in the previous section would also be subjected to public review and done in coordination with the ADFG, local communities, tribal governments, and adjacent landowners and/or land managers. If allowed, fish and wildlife control activities would be monitored and evaluated for effectiveness and resource impacts. This section applies only to native species; control or elimination of non-native species would be considered without being considered a management emergency.

2.4.12.8 Management of Non-native, Invasive, and Pest Species

In general, the presence of non-native species (including feral domestic animals) on Arctic Refuge is not consistent with Refuge purposes or with Refuge System policies. When a non-

native species (fish, wildlife, or plant) occurs on a refuge, the Service may control or eliminate that species. Where a population of a non-native species has already been established on a refuge and this population does not materially interfere with nor detract from the fulfillment of the mission of the Refuge System or the purposes of Arctic Refuge, the species may be managed as part of the Refuge environment. Species that occur naturally in areas adjacent to the Refuge and move into the Refuge as a result of climate change and its effects on habitat conditions represent a special case. If the presence of such species does not materially interfere with nor detract from the fulfillment of the mission of the Refuge System or the purposes of Arctic Refuge, they will be managed as part of the Refuge environment.

Invasive species are non-native species that, when introduced, have the potential to cause substantial amounts of harm to the environment, human health, or economic well-being. The Federal government is prohibited by Executive order, law, and policy from authorizing, funding, or carrying out actions that are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere (Service Manual 620 FW 1). Refuge managers may conduct habitat management activities to prevent, control, or eradicate invasive species using techniques described through an integrated pest management plan or other similar management plans. Integrated pest management planning for refuge lands will address the advantages and limitations of control techniques, including chemical, biological, mechanical, and cultural. Management of invasive species on refuges is guided by the National Strategy for Invasive Species Management and is conducted in the context of applicable policy (Service Manual 620 FW 1).

Invasive species can greatly affect land and water resources or plants and animals that use invaded habitats. Therefore, invasive species may interfere with the Refuge's ability to meet its purposes and management goals and may cause harm to threatened or endangered species, natural diversity, or subsistence resources. To manage invasive plants, the Refuge will include weed inventories as part of all habitat inventories. If invasive plants are detected, control measures will be considered. The Refuge will review proposed actions for their potential to introduce or spread invasive plants and will take measures to reduce the risk of spreading invasive plants (e.g., require weed-free feed for pack animals).

Invasive vertebrates may also adversely affect wildlife populations. If invasive vertebrates are detected, control measures will be considered. Climate change may enhance the vulnerability of the Refuge to invasive species, requiring heightened surveillance and potentially aggressive control measures in the future.

Pests are those organisms (vertebrates, invertebrates, plants, and microorganisms and their vectors) that are detrimental to fish, wildlife, human health, fish and wildlife habitat, or established management goals. Pests also include noxious weeds and other organisms, which are classified as pests by law (Administrative Manual 30 AM 12). Climate change may enhance the spread of pests or the vulnerability of their hosts. Pests on refuges may be controlled to prevent damage to private property. Routine protection against pests for refuge buildings, structures, and facilities is addressed in refuge policy (Refuge Manual 7 RM 14). Arctic Refuge will coordinate with other landowners and agencies and use integrated pest management practices to enhance the detection, prevention, and management of invasive species and other pests. Use of chemical control measures on refuge lands in Alaska requires NEPA compliance, regional office review, and approval of a pesticide-use proposal (Administrative Manual 30 AM 12 and Refuge Manual 7 RM 14).

2.4.12.9 Disease Prevention and Control

Certain disease organisms, viruses, or vectors of disease (e.g., rabies or parasites) may threaten human health or the health and survival of native wildlife or plant species. These threats may be managed or eliminated after consideration of all reasonable options and consultation with the State and other concerned parties. This will normally only occur when severe resource damage is likely (for example, when harm to threatened or endangered species, natural diversity, or subsistence resources is likely) or when public health or safety is jeopardized. Climate change may create conditions more conducive to introduction or spread of disease organisms and their vectors. Wherever possible, an integrated approach to pest management will be used in accordance with the Service's Administrative Manual (30 AM 12) and Refuge Manual (7 RM 14). Compliance with NEPA must be obtained, and a pesticide-use proposal must be approved prior to the use of chemicals to control pests on refuge lands.

2.4.12.10 Fishery Restoration and Enhancement

Fish populations and their habitats will be conserved in their natural diversity, with natural population cycles, interactions, and seasonal movements uncontrolled. Currently, fish populations and cycles are believed to be in their normal range of variability and continue to respond to natural processes and landscapes that are substantially free of direct human-caused changes. The Refuge will favor maintaining undisturbed habitat conditions and monitoring populations and harvest of fish. Actions that are needed to restore an aquatic ecosystem back to health will be considered. Unless the natural diversity of fish or their habitats are disrupted, fishery enhancement developments and actions will not be undertaken.

Fishery restoration or enhancement projects that may be proposed under the auspices of subsection 2.4.2 (Human Safety and Management Emergencies) would be subject to the provisions of NEPA, an ANILCA Section 810 determination, and a Refuge compatibility determination.

2.4.13 Subsistence Management

Providing the opportunity for continued subsistence activities or uses by local residents is one of the purposes of Arctic Refuge, as stated in Title III of ANILCA. Title VIII of ANILCA further provides that rural Alaska residents who are engaged in a subsistence way of life be allowed to continue using resources in refuges for traditional purposes. These resources include fish and wildlife, house logs and firewood, and other plant materials. Many aspects of subsistence management are addressed outside refuge comprehensive conservation plans. The Federal Subsistence Board, through its rule-making process, addresses seasons, harvest methods, harvest limits, and customary and traditional use determinations. The Federal Subsistence Board has established Subsistence Regional Advisory Councils to provide for meaningful public input to the rule-making process.

The Refuge will work with its partners to monitor subsistence harvest. The Refuge will supplement the State's ongoing harvest and resource monitoring programs to provide additional information on the status of fish and wildlife populations harvested for subsistence. This monitoring is intended to identify potential problems before populations of fish and wildlife become depleted and to ensure preference is given to subsistence users as required by law. All information the Refuge gathers through subsistence monitoring will be shared with

the Office of Subsistence Management; Subsistence Regional Advisory Councils and local State fish and game advisory committees; tribes; and other entities. Refuge staff will attend various subsistence-related meetings, including those of Subsistence Regional Advisory Councils and local State fish and game advisory committees and provide information on the status of subsistence resources and management.

The non-commercial gathering by local rural residents of fruits, berries, mushrooms, and other plant materials for subsistence and of dead standing or down timber for firewood is allowed without a special use permit. Harvest of live standing timber for house logs, firewood, or other activities or uses is allowed, although specific requirements vary by size and location. A special use permit is required to cut live trees greater than six inches diameter at breast height (4½ feet above ground level). No more than 20 live trees between three and six inches diameter at breast height (dbh) can be cut annually without a special use permit. No cutting may be done within 50 feet of a stream, lake, or river; no more than one tree in five may be cut in any specific stand. Cutting live trees less than three inches dbh does not require a special use permit. Timber stocks subject to subsistence activities or uses will be monitored to ensure they remain available over the long term.

Under Section 816 of ANILCA, refuge lands may be closed to the taking of fish and wildlife if closure is deemed necessary for reasons of public safety, administration, or to ensure the continued viability of particular populations of fish or wildlife. Emergency closure to subsistence taking would be accomplished by the Federal Subsistence Board or its designated officials and would generally occur only after other consumptive activities or uses competing for resources were restricted or eliminated.



2.4.13.1 Access for Subsistence Purposes

Access to Refuge lands and waters for by traditional means will be allowed for subsistence purposes in accordance with Section 811 of ANILCA, subject to reasonable regulation (50 CFR 36.12). Traditional means include snowmobiles, motorboats, dog teams, and other means of surface transportation traditionally used by local rural residents engaged in subsistence activities. Use of these traditional means of travel will be in compliance with State and Federal law in such a manner to prevent waste of harvested resources or damage to the Refuge and to prevent herding, harassment, hazing, or driving of wildlife.

2.4.13.2 Section 810 Evaluations

The Refuge will evaluate the effects of proposed activities on subsistence activities or uses to ensure compliance with Section 810 of ANILCA. The Refuge will work with the Federal Subsistence Board, Subsistence Regional Advisory Councils, local fish and game advisory committees, tribes, Native corporations, the ADFG, and other appropriate local sources to determine whether a proposed activity would “significantly restrict” subsistence activities or uses. If the Refuge determines that a proposal would probably result in adverse effects to subsistence activities or uses, the Refuge would follow the requirements identified in Section 810 before making a final decision on the proposal.

2.4.14 Public Access and Transportation Management

2.4.14.1 Snowmobiles, Motorboats, Airplanes, and Non-Motorized Surface Transportation

Section 1110(a) of ANILCA allows the use of snowmobiles (also referred to as snowmachines) during periods of adequate snow cover and frozen river conditions, motorboats, airplanes, and non-motorized surface transportation methods for traditional activities and for travel to and from villages and home sites. Such access shall be subject to reasonable regulations to protect the natural and other values of Arctic Refuge (43 CFR 36.11). Specific areas may be closed to such activities or uses in accordance with these regulations. The Refuge manager is responsible for determining when snow cover is adequate to protect the underlying vegetation and soil from damage by snowmobile use.

2.4.14.2 Off-Road Vehicles

The regulations at 43 CFR 36.11(g) prohibit the use of off-road vehicles in the Refuge except on routes or areas designated in accordance with Executive order 11644 or pursuant to a valid special use permit. The definition of off-road vehicles in 50 CFR 36.2 excludes snowmobiles but includes air boats and air-cushion vehicles, along with motorized wheeled vehicles. Off-road vehicles such as all-terrain vehicles (e.g., three- and four-wheeled vehicles) may be authorized only on designated routes or areas and only in Intensive and Moderate Management or by special use permit.

2.4.14.3 Helicopters

The use of a helicopter is prohibited in any area other than at designated landing areas pursuant to the terms and conditions of a permit issued by the Service, or pursuant to a

memorandum of understanding between the Service and another party, or involved in emergency or search and rescue operations (43 CFR 36.11(f)(4)). There are no designated landing areas on Arctic Refuge nor are any planned.

Helicopter landings for fisheries and wildlife management activities and scientific research may be authorized under special use permit or other authorization, subject to site-specific stipulations. Helicopter landings for fire operations must comply with the fire management plan for Arctic Refuge and operational guidance in the AIWFMP. Helicopter landings for routine law enforcement patrols are not be allowed in designated wilderness. The Refuge will work with State and Federal law enforcement officials to clarify the difference between use of helicopters for routine patrol and exigent circumstances (where there is probable cause of a violation having been committed) where the landing of helicopters is allowed.

Helicopter landings for recreational purposes are not allowed in Arctic Refuge.

2.4.14.4 Access to Inholdings

Section 1110(b) of ANILCA ensures adequate and feasible access, for economic or other purposes, across a refuge for any person or entity that has a valid inholding. An inholding is defined as State-owned or privately-owned land, including subsurface rights underlying public lands, valid mining claims, or other valid occupancy that is in or effectively surrounded by one or more conservation system units. The Service will review and process the application in accordance with regulations at 43 CFR 36 and 50 CFR 29, when a right-of-way permit is necessary under this provision (e.g., construction of a permanent facility). Such permits are subject to terms and conditions as specified in the regulations.

2.4.14.5 Temporary Access

Chapter 43 CFR 36.12(a)(2) defines temporary access as “limited, short-term (i.e., up to one year from issuance of the permit) access which does not require permanent facilities for access to State or private lands.” Temporary access is limited to survey, geophysical, exploratory, or other temporary activities or uses on non-Federal lands and where access is not otherwise provided in 43 CFR 36.10 or 43 CFR 36.11.

The Refuge will evaluate applications for temporary access across the Refuge and may issue permits with necessary stipulations and conditions to ensure that access granted is compatible with the purposes for which the Refuge was established, complies with the provisions of Section 810 of ANILCA, and ensures that no permanent harm will result to resources on Refuge lands.

2.4.14.6 Subsistence Access

See Access for Subsistence Purposes under Subsistence Management (Section 2.4.13.1).

2.4.14.7 Transportation and Utility Systems

The Congress, through Title XI of ANILCA, determined that “Alaska’s transportation and utility network is largely undeveloped and future needs would best be addressed through a continuous decision making process...” To minimize impacts to conservation system units

expanded or established by ANILCA, it was necessary to create a single and comprehensive authority for the approval or disapproval of applications for transportation or utility systems (TUS). Title XI provides a detailed definition for TUS and establishes the procedural requirements, evaluation standards, and actions for a TUS. Chapter 43 CFR 36 provides the specific regulations and procedures for application review, compliance with NEPA, decisions, and appeals.

A TUS, as defined in ANILCA, includes roads, highways, railroads, airports, pipelines, electrical transmission lines, communication systems, and related structures and facilities reasonably and minimally necessary for the construction, operation, and maintenance of such systems. Anyone seeking to acquire a right-of-way over national wildlife refuge lands for a TUS must file an application with the Division of Realty and Natural Resources in the Service's Alaska Regional Office.

The Service will make a determination to grant a right-of-way for that portion of a TUS that would cross refuge lands, except for those on designated wilderness. When the proposed transportation or utility system would cross a designated wilderness area, the Service tentatively approves or disapproves the application subject to the President's subsequent decision. If the President approves, a recommendation is submitted to Congress for final approval.

A right-of-way for a TUS across refuge lands will be granted if the system meets the criteria outlined in Section 1104(g)(2) of ANILCA and the regulations at 43 CFR 36.7(a)(2), which includes a determination of whether there is any economically feasible and prudent alternative to routing the system through or in a refuge. If approved, permits issued for a TUS will contain terms and conditions as required under regulations at 43 CFR 36.9(b) and 50 CFR 29.21 through 29.24. Rights-of-way that cross any area within the boundaries of a Wild and Scenic River unit will assure that the stream flow of, and transportation on, such river are not interfered with or impeded and that the facility is located and constructed in an environmentally sound manner (ANILCA, Section 1107(b); 43 CFR 36.9(c) and (d)). Additional special requirements apply to rights-of-way for pipelines issued under the Mineral Leasing Act of 1920 (30 U.S.C. 185), Section 1107(c) of ANILCA, and regulations at 43 CFR 36.9(d).

When considering an application for a TUS, the authorization process will incorporate a corresponding amendment to the refuge's comprehensive conservation plan to update the desired management category, or categories, of the affected area if the TUS were to be approved.

2.4.14.8 State Transportation Planning

Federal transportation planning regulations require each state to develop a long-range statewide transportation plan in consultation and coordination with other government agencies and the public. In Alaska, transportation projects nominated for funding are evaluated and ranked by the Alaska Department of Transportation and Public Facilities. When appropriate, the Refuge will participate in the State of Alaska transportation planning process and provide input regarding environmental considerations of proposed projects affecting Refuge lands and the resources therein.

2.4.14.9 RS 2477 Rights-of-Way

The State of Alaska identifies numerous claims to roads, trails, and paths across Federal lands under Revised Statute 2477 (RS 2477), a section in the Mining Act of 1866 that states, “The right-of-way for the construction of highways over public lands, not reserved for public uses, is hereby granted.” RS 2477 was repealed by the Federal Land Policy and Management Act of 1976, subject to valid existing claims.

Assertion and identification of potential rights-of-way does not establish the validity of these claims nor the public’s right to use them. The validity of all RS 2477 rights-of-way will be determined on a case-by-case basis, either through the courts or by other legally binding document. The State has identified in Alaska Statute 19.30.400 six routes on Arctic Refuge it claims may be asserted as rights-of-way under RS 2477 (Appendix E).

2.4.14.10 17(b) Easements

Section 17(b) of the Alaska Native Claims Settlement Act of 1971 authorizes the Secretary of the Interior to reserve easements on lands conveyed to Native corporations to guarantee access to public lands and waters. Easements across Native lands include linear easements (e.g., roads and trails) and site easements. Site easements are reserved for use as temporary campsites and to change modes of transportation.

The Service is responsible for administering those public easements inside and outside refuge boundaries that provide access to refuge lands. Service authority for administering 17(b) easements is restricted to the lands in the easement. The size, type, and route of 17(b) easements were initially identified on maps filed with conveyance documents. Current maps are available on the Internet from the BLM. Conveyance documents also specify the terms and conditions of use, including the acceptable periods and methods of public access. See Appendix E for additional information.

2.4.14.11 Navigation Aids and Other Facilities

Section 1310 of ANILCA authorizes reasonable access to and operation and maintenance of existing air and water navigation aids, communications sites, and related facilities. It authorizes existing facilities for weather, climate, and fisheries research and monitoring subject to applicable laws and regulations. Reasonable access to and operation and maintenance of facilities for national defense and related air and water navigation are provided, including in designated wilderness.

New facilities shall be authorized only after consultation with the head of the Federal department or agency undertaking the establishment, operation, or maintenance and in accordance with mutually agreed to terms and conditions.

2.4.15 Recreation and Other Public Use

Public recreation activities compatible with refuge purposes are allowed unless specifically prohibited (50 CFR 36.31). Compatible recreation activities or uses of Arctic Refuge will continue. Both consumptive (e.g., hunting, fishing, and trapping) and non-consumptive (e.g., wildlife observation and photography) recreation activities or uses are appropriate. The Refuge Administration Act identifies compatible hunting, fishing, wildlife observation and photography, and environmental education and interpretation as priority public uses. These activities or uses are encouraged and will receive emphasis in public use management. Other compatible uses include hiking, camping, river floating, and mountaineering.

Recreation will be managed to perpetuate experiences that are consistent with the Range's original purpose to "preserve unique recreational values," ANILCA Section 101 recreation provisions, and with public preferences. An Arctic Refuge visitor study and other sources indicate that opportunities to experience wilderness, adventure, freedom, independence, self-reliance, solitude, and discovery are highly important to visitors. The Service will strive to maximize these opportunities in designated wilderness and other management categories. Environmental qualities highly valued by visitors will be maintained, including natural conditions and processes.

Consistent with resource protection, the Service will employ the least intrusive means of public use management. Leave No Trace will be the standard for both public and agency activities. Off-site education will be a primary tool for recreation management, using the



Refuge's website, brochures, other kiosk materials, and personal contacts. Educational messages will emphasize the need for self-reliance, including adequate preparation. General information will be provided that enables visitors to access and enjoy the Refuge in a safe and environmentally sound manner that enhances their appreciation of the unique opportunities the Refuge affords. Air service providers and guides will continue to play an important role in informing visitors and reporting conditions and trends relative to public use. Informational materials recommending trip routes, river crossings, best fishing areas, or other features will generally be avoided.

However, if voluntary methods fail, other actions may be taken, including limiting commercial guiding and outfitting; regulating use and access subject to the provisions of Section 1110(a) of ANILCA; and recommending changes in State and/or Federal fishing, hunting, or trapping regulations. When necessary, some recreation opportunities may be seasonally or otherwise restricted to minimize user conflicts and protect the ecological or other values of the Refuge. Any restrictions on public use will follow the public participation and closure procedures at 50 CFR 36, 43 CFR 36, or other applicable regulations. State management will also be used where mutually desirable.

A Visitor Use Management Plan (VUMP), a Wilderness Stewardship Plan, and other plans will be prepared, with opportunities for public involvement, to describe strategies and provide the specific provisions necessary to fulfill recreation goals and objectives.

There often are subtle differences between subsistence and recreational activities or uses. Subsistence activities or uses are addressed under Subsistence Use Management (Section 2.4.13). When it is necessary to restrict the taking of fish and wildlife on a refuge to protect the continued viability of such populations, the taking of fish and wildlife for non-wasteful subsistence activities or uses shall be accorded priority over the taking of fish and wildlife for other purposes (i.e., recreational), in accordance with Title VIII of ANILCA.

2.4.16 Public Use Facilities

Facilities to support recreational and other public uses may be provided at gateway communities, at developed sites along the Dalton Highway and at administrative sites off Refuge lands. Arctic Village, Coldfoot, Fairbanks, and Kaktovik are considered gateway communities for Arctic Refuge. All new facilities will comply with current accessibility standards, and access for the disabled will be considered in all facility upgrades.

Roads, boat launch sites, campgrounds, interpretive sites, public use cabins, kiosks, and signs will not be placed on the Refuge. Undeveloped landing areas, gravel bars, lakes, and rivers, and areas of ice and snow will continue to be the primary areas for aircraft access. Trails and hardened campsites may be developed if necessary to prevent resource damage.

2.4.16.1 Cabins

Special use permits are required for subsistence and commercial cabins. Management of existing cabins and review of proposals for construction of new cabins for traditional uses will be in accordance with the Service's cabin regulations (50 CFR 36.33) and regional cabin policy. Private recreational use cabins will not be authorized.

2.4.16.2 Temporary Facilities for the Taking of Fish and Wildlife

Per Section 1316 of ANILCA, the Refuge will allow the use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly and necessarily related to the taking of fish and wildlife, provided these facilities are not detrimental to Refuge purposes. Special use permits will be issued for tent frames, caches, smokehouses, and other facilities in designated wilderness. Permits may be required for these facilities outside of designated wilderness. Appropriate stipulations will be included in the special use permits to ensure protection of resources on Refuge lands.

The following criteria will be considered in evaluating applications for temporary facilities:

- Where feasible, they will be located in a manner to not displace or compete with existing public uses.
- They will be located away from the vicinity of existing cabins.
- They will be located on sites that are not currently popular campsites.
- They will be located to minimize displacement of wildlife.
- The following conditions may be imposed on temporary facility special use permits:
 - The time of occupancy will coincide with the State and/or Federal hunting, fishing, and/or trapping season for the species for which the temporary facility is being used.
 - At the end of the specified occupancy, tents and other readily portable materials will be removed.
 - To the extent feasible, temporary structures will be built with materials that blend into and are compatible with the surrounding landscape.
 - To the extent feasible, temporary facilities will be screened from water and located so that they are as unobtrusive as possible.

2.4.17 Outreach and Education

Outreach is two-way communication between Arctic Refuge and the public to establish mutual understanding, promote public involvement, and influence public attitudes and actions. The Refuge will continue to take advantage of partnership opportunities in providing outreach, including working with the Alaska Geographic Association; Alaska Public Lands Information Centers; Friends of Alaska National Wildlife Refuges; local, State, and other Federal agencies; local schools; tribal governments; Alaska Native organizations; and others.

Use of outreach as a management tool is a key to the success of many of the management activities outlined in this Plan. Two outreach activities—environmental education and interpretation—are included in the six priority public uses identified in the Refuge Improvement Act. Many other activities are also available for use by the Refuge staff in its outreach program, which may be developed in more detail as a step-down management plan. All outreach activities must be continually evaluated to determine whether they fulfill Refuge management goals and objectives. Arctic Refuge will ensure that outreach services are available to all segments of the public, including those with disabilities and those who speak languages other than English.

Refuge staff will work with the media; attend public meetings and workshops; develop informational displays, brochures, websites, and teaching materials; invite the public to Arctic

Refuge headquarters (i.e., open houses); visit local schools and communities; and foster outreach partnerships and one-on-one communication.

2.4.18 Commercial Use Management

Commercial activities or uses involve use of a refuge or its resources for a profit. Subsistence activities or uses are not included in commercial activities or uses. Refer to Section 2.4.13 for policies related to subsistence.

Except for mining on valid claims under the 1872 Mining Law, of which there are none located within the boundaries of Arctic Refuge, other activities where specific property rights are held by entities other than the Federal government or where specifically exempted by law, the Refuge must comply with NEPA and the compatibility requirements of the Refuge Administration Act before authorizing commercial activities or uses. A written authorization (such as a special use permit) is required to conduct commercial activities on any refuge. Prior to authorizing any commercial or economic use of a natural resource, the refuge manager must determine that each activity or use, except for proposed activities authorized by ANILCA, contributes to the achievement of refuge purposes or the Refuge System mission (50 CFR 29.1). Except for commercial services described previously such as air charters and guided recreation, commercial enterprises are prohibited in designated wilderness areas.

2.4.18.1 Commercial Recreation Services

Most visitors use the services of air-taxi or water-taxi operators for access to Arctic Refuge. Wildlife-viewing guides, tour operators, wilderness guides, recreational fishing guides, big-game hunting guides, and others support many visitors. All businesses providing recreation services are required, under 50 CFR 27.97, to obtain special use permits to operate on Refuge lands. Where the number of special use permits is limited, Refuge managers will award permits competitively (50 CFR 36.41). Special use permits require compliance with all applicable laws and regulations (e.g., United States Coast Guard licensing regulations). Permit stipulations ensure that camps; travel methods; storage of food, fish, and game meat; and other activities are compatible with Refuge purposes and reduce the potential for impacts to resources and to other people using the Refuge. If problems or conflicts arise relating to commercial recreation activities or uses—such as disturbance of active nests, conflicts with subsistence activities or uses, chronic incidence of bears getting into food, or violations of State or Federal regulations—the Refuge may modify or terminate a specific activity or use under the special use permit stipulations. The Refuge will monitor the number and type of guides and outfitters operating on the Refuge and the number of clients and will, if necessary, further regulate these commercial recreation activities or uses.

Under Section 1307 of ANILCA, local preference is provided for all new commercial visitor services except guiding for hunting and fishing. Regulations defining local preference are at 50 CFR 36.37.

2.4.18.2 Mineral Exploration and Development

Oil and Gas Studies: Oil and gas studies include surficial geology studies, subsurface core sampling, seismic surveys, and other geophysical activities. In the “1002” coastal plain area,

Service regulations (Title 50, CFR, Part 37) presently do not provide for further oil and gas exploration in this area—none of these studies would be permitted. In Arctic Refuge designated wilderness, seismic surveys, core sampling, and other studies that require mechanized surface transportation or motorized equipment will not be allowed except as provided for by Section 1010 of ANILCA (i.e., only if conducted by or for a DOI agency). In the wild river corridors, core drilling would not be permitted, except again as provided for under Section 1010. In the rest of the Refuge south of 68° North latitude, all of the oil and gas studies listed may be permitted pursuant to Section 1008(b) of ANILCA. In minimal management areas and proposed wilderness areas south of 68° North latitude, oil and gas studies may be permitted where site-specific stipulations can be designed to ensure compatibility with Refuge purposes and consistency with the management objectives set forth in the Plan.

Oil and Gas Leasing: Section 1003 of ANILCA prohibits production of oil and gas anywhere on Arctic Refuge. No leasing or other development leading to production of oil and gas from the original Arctic Wildlife Range shall be undertaken until authorized by an act of Congress. Thus, unless Congress takes action to change this provision, the Service will not permit oil and gas leasing under any of the alternatives in the Refuge Plan.

Oil and Gas Support Facilities: The service manages the “1002” coastal plain area as a minimal management area, pending congressional action. Oil and gas support facilities would not be permitted under this management category. Thus, until Congress takes action, the Service will not permit oil and gas support facilities in the Refuge in any of the alternatives in the Plan.

Sand, Gravel, and Other Common Variety (Saleable) Minerals: Common variety minerals—such as sand, gravel, and stone—may be sold pursuant to the Materials Act of July 31, 1947 (30 U.S.C. 601 and 602), as amended. Regulations are found at 43 CFR 3600. Disposal is also authorized under the Refuge Revenue Sharing Act (16 U.S.C. 715s). Also see 612 FW 1 of the Service Manual. Extraction may be authorized, where compatible, in Intensive and Moderate Management areas to support construction and maintenance projects on or near Refuge lands if no reasonable material sites exist off Refuge lands.

Other Mineral Leasing: In general, mineral leasing is not allowed on refuge land. Geothermal leasing is not allowed on refuges under Section 1014(c) of the Geothermal Steam Act (30 U.S.C. 1014). Coal mining is also prohibited, subject to valid existing rights, under Section 16 of the Federal Coal Leasing Amendment Act of 1975 (30 U.S.C. 201 Notes) and the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1272; 43 CFR 3400.2). In specific cases of national need, however, mineral exploration, development, or extraction may be permitted under Section 1502 of ANILCA. The President must determine that the national need for the mineral activity outweighs the other public values of the land. Any recommendation by the President would take effect only after enactment of a joint resolution by Congress.

2.4.18.3 Commercial Fishing and Related Facilities

Section 304(d) of ANILCA, addresses commercial fishing and related campsites, cabins, motor vehicles, and aircraft on the Refuge. These facilities and uses in support of commercial fishing is subject to reasonable regulation. Section 304(d) provides for restricting commercial fishing rights if the use is determined to be inconsistent with Refuge purposes and to be a “significant expansion of commercial fishing activities...beyond the level of such activities during 1979.” As there were no commercial fishing activities or facilities on Arctic Refuge in 1979, any proposed



facilities would be considered new, and any fishery and related facilities and equipment will be required to be compatible with Refuge purposes.

Aquaculture and mariculture (i.e., the cultivation of marine organisms in their native environment) support facilities may be allowed in Intensive Management areas, subject to provisions of State and Federal laws. No Intensive Management areas currently exist or are proposed on the Refuge. Seafood processing plants will not be allowed.

2.4.18.4 Commercial Harvest of Timber and Firewood

Commercial harvest of timber and firewood will only be authorized under a special use permit and when necessary to fulfill overall Refuge management objectives. In Moderate, Minimal, and Wild River Management categories, commercial harvest of timber and firewood to accomplish management objectives will only occur when an approved Refuge fire management plan identifies the need to reduce fuel loads in an area. Applicable Federal and State guidelines for timber management will be followed. Commercial harvest of timber and firewood is not allowed in designated wilderness.

2.4.18.5 Commercial Gathering of Other Resources

Commercial gathering of other resources (e.g., antlers or mushrooms) requires a special use permit under 50 CFR 27.51 and may be authorized in Intensive and Moderate Management areas.

2.4.18.6 Commercial Filming and Recording Activities

Outside of designated wilderness, it is Service policy to provide refuge access and/or assistance to firms and individuals in the pursuit of commercial visual and audio recordings when they are compatible with refuge purposes or the mission of the Refuge System. Commercial films, television production, or sound tracks made in refuges for other than news purposes require a special use permit or authorization (43 CFR 5.1). Commercial filming or recording activities such as videotaping, audio taping, and photography for the purpose of advertising products and services are subject to an A/V Production Permit (Refuge Manual 8 RM 16).

In designated wilderness, we generally prohibit commercial filming unless we determine it is necessary to provide educational information about wilderness uses and values and does not degrade the wilderness character of the area (610 FW 2.12). In cases where we allow such filming in wilderness as a commercial service, permittees will be limited to access methods and equipment that are allowed for the general public including those uses allowed under Section 1110(a) of ANILCA, such as snowmachines, motorboats, airplanes, and nonmotorized surface transportation.

Permits are not required for still photography on refuge lands open to the public, including commercial still photography, so long as no models or props which are not a part of the site's natural or cultural resources or administrative facilities are used (16 U.S.C. 4601-6d(c)).

2.4.18.7 Other Commercial Uses

Generally, other commercial activities or uses such as grazing, agriculture, and hydroelectric power development will not be allowed. An exception may be made for low-head or small run-of-the-river hydropower facilities. These may be authorized in Intensive and Moderate Management areas on a case-by-case basis. See Section 2.4.14.9 for transmission lines, pipelines, and other rights-of-way mentioned in Title XI of ANILCA.

2.4.19 Environmental Contaminants Identification and Cleanup

One goal of the Refuge Administration Act, as amended, is to maintain the biological integrity, diversity, and environmental health of the Refuge System. In support of this goal, the Service studies environmental contaminants that may threaten trust species (i.e., those species for which the Service has primary jurisdiction) and other resources of Arctic Refuge. This work will continue as new concerns are identified and as funding allows.

An assessment of known or suspected contaminants threats is normally completed for each refuge as part of the national Contaminants Assessment Process. During comprehensive conservation plan revisions, existing information will be reviewed, and an assessment of potential contaminants threats will be entered into an electronic database. A contaminant assessment report will also be prepared.

When contaminants are identified on refuge lands, the Service will initiate discussions with the responsible party or parties to remedy the situation. If the Service caused the contamination, funds will be sought to define the extent and type of the contamination and to remedy it. Appropriate environmental regulations—including the Resource Conservation Recovery Act, Comprehensive Environmental Response and Compensation Liability Act, Oil Pollution Act of 1990, and State of Alaska regulations (e.g., 18 AAC 75)—will be followed during any remediation work that is conducted.

All spills of petroleum products and hazardous materials must be reported to the Alaska Department of Environmental Conservation and to the National Response Center. Incidents also need to be reported to the Service's Regional Spill Response Coordinator. The Refuge will refer to the Service's Region 7 Spill Response Contingency Plan and other relevant plans when responding to spills.

2.4.20 Management of Designated Wilderness

Under the Wilderness Management category, designated wilderness lands are primarily managed to preserve their wilderness character. Management of designated wilderness areas is directed by the specific purposes of a refuge, the mission of the Refuge System, the purposes and provisions of the Wilderness Act of 1964, the provisions of ANILCA, the Service's Wilderness Stewardship Policy (Service Manual 610 FW 1-5), and regional policy (Region 7 Policy Manual RW-29).

In accordance with national and regional policies (Region 7 Policy Manual RW-29), an MRA will be conducted for administrative activities proposed in designated wilderness. This two-step decision process involves determining if a proposed administrative activity is necessary to administer the area as wilderness and, if so, determining the minimum requirement, which is the tool, equipment, device, force, regulation, or practice deemed the minimum necessary to achieve the management objective.

Certain activities are legislatively prohibited in designated wilderness, including oil, gas, and other mineral leasing and most surface-disturbing activities. Section 4(c) of the Wilderness Act generally prohibits roads, commercial enterprises, motor vehicles, motorboats, other forms of mechanical transport, motorized equipment, the landing of aircraft, and structures and installations in designated wilderness areas. Provisions of ANILCA, however, provide exceptions to some of these prohibitions for specific purposes, such as allowing motorized public access for traditional activities and for the continuation of pre-existing commercial and private use cabins. Some of the ANILCA provisions affecting public use of designated wilderness areas in Alaska include:

- Use of Federal lands for campsites, cabins, motorized vehicles, and aircraft landings directly incident to the exercise of valid commercial fishing rights (Section 304(d)).
- The use for subsistence purposes of snowmachines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents (Section 811).
- The use of snowmachines, motorboats, airplanes, and nonmotorized surface transportation methods for traditional activities and for travel to and from villages and home sites (Section 1110(a)).
- Such rights as necessary for access to State- or privately-owned lands (including subsurface rights), valid mining claims, or other valid occupancy (Section 1110(b)).
- Use of cabins for traditional and customary uses (Section 1303).
- Use of temporary campsites, tent platforms, shelters, and other temporary facilities, and equipment directly and necessarily related to the taking of fish and wildlife (Section 1316).
- Other provisions of ANILCA affect the administrative uses of designated wilderness areas, including the following:
 - Access for mineral assessment purposes, as part of the Alaska Mineral Resources Assessment Program (Section 1010).
 - Construction and maintenance of navigation aids and other facilities (Section 1310).
 - Continuation of existing, and construction of new, public use cabins (Sections 1315(c) and (d)).

Under regional policy, the use of chainsaws by rural residents engaged in subsistence activities is allowed. However, motorized generators and water pumps are not allowed (Region 7 Policy Manual RW-4).

Granting rights-of-way for transportation or utility systems through designated wilderness areas requires Presidential and congressional approval (Section 1106(b) of ANILCA; Sections 2.4.14.7 and 2.4.14.9 of this chapter).

The Refuge intends to develop a step-down, Wilderness Stewardship Plan for the designated wilderness to address in greater detail its resources, public uses, and management (Objective 2.3). Specific details would be included on how the broad management direction provided in this Revised Comprehensive Conservation Plan would be applied to preserve its wilderness character and values. This step-down plan would be prepared in cooperation with the State of Alaska and other partners. Public involvement would be an essential part of the preparation of this step-down plan.

2.4.21 Administration of the Arctic National Wildlife Refuge

2.4.21.1 Administrative Sites and Visitor Facilities

Administrative sites include temporary and permanent field camps, residences, offices, administrative cabins, and associated storage, communication, and transportation facilities. The type of administrative site and level of development will be consistent with the management intent of the management category in which it is constructed. Administrative field camps or other administrative facilities in Minimal, Wild River, and Wilderness Management categories will only be allowed when required to meet management objectives, when no reasonable alternative sites exist and when the facilities are essential to protect the health and safety of employees. New facilities would only be the minimum required to meet long-term needs.

Fuel storage or other hazardous-material storage in conjunction with administrative sites will meet all Federal and State requirements for spill containment and storage. Hazardous materials stored in the Wild River and Wilderness Management categories will be in small (55-gallon or less) containers.

Under Section 1306 of ANILCA, the Secretary of the Interior may establish administrative sites and visitor facilities, either inside or outside the boundaries of a conservation system unit, in accordance with the unit's management plan and for the purposes of ensuring the preservation, protection, and proper management of the unit. Section 1306 (a) (2) further states, "to the extent practicable and desirable, the Secretary shall attempt to locate such sites and facilities on Native lands in the vicinity of the unit."

DOI guidelines, developed in 1995 and implementing Section 1306, require that prior to initiating a search for an administrative site or visitor facility, site-selection criteria be developed, with public input, and all proposals be evaluated according to the site-selection criteria. If it is determined that Native lands satisfy the site-selection criteria and are desirable and practicable for the intended administrative site or visitor facility, the highest-ranked Native lands shall be selected as the preferred site, subject to a specific site evaluation. If no Native lands satisfy the site-selection criteria, the highest-ranked parcel will become the preferred site. Public comments will be considered prior to making a final decision.

2.4.21.2 Applicability of Refuge Regulations to Off-Refuge Administrative and Visitor Facility Sites

Under 50 CFR 36.1(c), the Service is authorized to enforce regulations concerning public safety and protection of government property, and State fish and wildlife regulations, on administrative and visitor facility sites that may be held in fee or less-than-fee title and are either inside or outside the approved boundaries of Arctic Refuge.

Off-Refuge facilities include a Refuge office and maintenance shop at the Federal Courthouse in Fairbanks, a Service aircraft hangar at the Fairbanks International Airport, a cooperatively managed Alaska Public Lands function at the Morris Thompson Visitor Center in Fairbanks, a jointly operated Arctic Interagency Visitor Center in Coldfoot on the Dalton Highway, a Refuge/community managed Visitor Center in Arctic Village, an administrative building and related facilities at Galbraith Lake, and information kiosks located in Kaktovik and Happy Valley on the north slope.

Administrative facilities on the Refuge include three administrative cabins and an outhouse on the north slope of the Brooks Range at Peters Lake, and two administrative cabins and an outhouse on the south slope of the Brooks Range at Big Ram Lake.

The Refuge owns a 16-bed bunkhouse/garage and equipment storage shed located on private lands leased from the City of Kaktovik.

2.4.21.3 Refuge Management Plans

Some management programs are addressed in sufficient detail in the Comprehensive Conservation Plan to be integrated directly into the budgetary process. For other programs, it may be necessary to prepare step-down management plans to implement general strategies identified in this Plan. Information on the step-down planning process can be found in 602 FW 3 of the Service Manual.

A list of Refuge step-down management plans is found in Chapter 5 of this Plan.

2.4.22 Alaska Mineral Resource Assessment Program

Section 1010 of ANILCA requires that all Federal lands be assessed for their oil, gas, and other mineral potential, although Section 304(c) prohibits new hardrock mining on refuges. Mineral assessment techniques that do not have lasting impacts—such as side-scanning radar, trenching, and core drilling—may be allowed throughout the Refuge. Special use permits issued to other government agencies or their contractors for assessment work would include stipulations to ensure that the assessment program is compatible with Refuge purposes. For example, stipulations may limit access during nesting, calving, spawning, or other times when fish and wildlife may be especially vulnerable to disturbance.

2.5 Management Categories Table

2.5.1 Introduction

Table 2-1 summarizes activities, public uses, commercial activities or uses, and facilities by management category. In some cases, it provides very specific guidance, such as for highway vehicles. In other cases, such as for research and management facilities, the direction is general. While facilities may be allowed in all management categories, the types of facilities and how they would be constructed and operated vary by management category. The descriptions of the management categories reflect a clear distinction in the level of action and constraints that may be placed on activities or development in the management categories. The descriptions of the management categories should be used to reflect the desired future condition of the area when site-specific proposals are being evaluated. Activities allowed or authorized in the different categories will be managed differently, depending on the management category in which they occur.

Management categories, activities, public uses, commercial activities or uses, and facilities that generally do not apply to Arctic Refuge are shaded in gray.

2.5.2 Definitions for Management Categories Table

The following are definitions for terms used in Table 2-1

Allowed: Activity, use, or facility is allowed under existing NEPA analysis, appropriate use findings, Refuge compatibility determinations, and applicable laws and regulations of the Service, other Federal agencies, and the State.

May be allowed: Activity, use, or facility may be allowed subject to site-specific NEPA analysis, an appropriate use finding (when required), a specific Refuge compatibility determination (when required), and compliance with all applicable laws and regulations of the Service, other Federal agencies, and the State.

May be authorized: Activity, use, or facility may only be allowed with a required special use permit or other authorization.

Not allowed: Activity, use, or facility is not allowed.

The following terms are used in the table and throughout this chapter.

NEPA analysis: All activities, uses, and facilities proposed for a refuge that have the potential to affect the environment require an analysis of potential environmental impacts under the National Environmental Policy Act. This analysis may be documented as a categorical exclusion (CE), an environmental assessment (EA), or an environmental impact statement (EIS), depending on the nature of the proposed project.

Appropriate Use: All activities, uses, and facilities over which the Service has jurisdiction must be determined to be appropriate following direction in Service Manual 630 FW 1. Hunting, fishing, wildlife observation and photography, and environmental education and interpretation are considered appropriate by national policy with no further analysis required. See Section 2.4.1 for a description of the criteria used to determine if other activities, uses, or facilities are appropriate.

Compatibility: All activities, uses, and facilities allowed on the Refuge, except management actions undertaken by the Service, must be found to be compatible with the purposes of the Refuge and the mission of the Refuge System. Management activities undertaken by volunteers, cooperators, or contractors working for the Service, with limited exception, are exempt from compatibility review (part 603 of the Service Manual).

Regulations: All activities, uses, and facilities allowed on a refuge must comply with any applicable regulations, as published in the CRF. Regulations are developed by the Service through a public process to implement the legal authorities under which the Service manages the Refuge System. For more information on these regulations, see the Management Policies and Guidelines section of this chapter. For some activities, other Federal agency and/or State regulations may also apply.

Temporary: The term “temporary” means a continuous period of time not to exceed 12 months, except as specifically provided otherwise. Special use permits or other authorizations may prescribe a longer period of time, but the structures or other human-made improvements need to be readily and completely dismantled and removed from the site when the period of authorized use terminates.

The following guidelines apply to all activities, uses, and facilities on a refuge.

Area or time restrictions: All activities, uses, and facilities allowed on a refuge may be restricted in certain areas or at certain times, at the discretion of the refuge manager and with the appropriate level of public involvement, by emergency (short-term) or permanent regulation, if necessary to protect resources on refuge lands or human health and safety.

Human safety and management emergencies: Actions not allowed on a refuge or in specific management categories may be allowed in situations or events that threaten human health or safety, or that make the action necessary to meet legal mandates.

Table 2-1. Activities, public uses, commercial activities or uses, and facilities by management category.

Note: Those management categories and activities that do not apply to Arctic Refuge are shaded gray.

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
ECOSYSTEM, HABITAT, FISH, AND WILDLIFE MANAGEMENT (See Sections 2.4.10, 2.4.11, and 2.4.12)					
Ecosystem and Landscape Management					
Collecting Information on and Monitoring Ecosystem Components Data gathering, monitoring, and maintaining a comprehensive database of selected ecosystem components (e.g., plants, animals, fish, water, air). (See Sections 2.4.12 and 2.4.12.1)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Research and Management Access and collection of data necessary for management decisions or to further science by the Service. (See Section 2.4.12)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Access and collection of data necessary for management decisions or to further science by ADFG.	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Access and collection of data necessary for management decisions or to further science by other researchers.	May be authorized*; see Section 2.4.20	May be authorized	May be authorized	May be authorized	May be authorized
Research and Management Facilities May be permanent or temporary structures or camps, including weirs, counting towers, and sonar counters. (See Section 2.4.21.1)	May be allowed*; consistent with Section 2.3.4 and 2.4.21.1	May be allowed	May be allowed	May be allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fish and Wildlife Habitat Management					
Describing, Locating, and Mapping Habitats Development of quantitative, written, and graphic descriptions of fish and wildlife habitat, including water, food, and shelter components. (See Section 2.4.11.1)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Habitat Management (See Section 2.4.11.1) <i>Mechanical Treatment:</i> Activities such as cutting, crushing, or mowing of vegetation; water control structures; fencing; artificial nest structures.	Not allowed; with exceptions consistent with Sections 2.3.4.* See also Section 2.4.20	Not allowed; with exceptions consistent with Section 2.3.5	Not allowed; with exceptions consistent with Section 2.3.3	May be allowed	May be allowed
<i>Chemical Treatment:</i> Use of chemicals to remove or control non-native species. (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
<i>Manual Treatment:</i> Use of hand tools to remove, reduce, or modify hazardous plant fuels or exotic plant species, or to modify habitats (e.g., remove beaver dams).	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Aquatic Habitat Modifications Activities such as stream bank restoration, passage structures, fish barriers, or removal of obstacles that result in physical modification of aquatic habitats to maintain or restore native fish species. (See Section 2.4.11.1)	May be allowed*; consistent with Section 2.3.4. See also Section 2.4.20	May be allowed; consistent with Section 2.3.5	May be allowed	May be allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fire Management—Prescribed Fires Fire ignited by management actions to meet specific management objectives. (See Section 2.4.11.2)	May be allowed*; see Section 2.3.4	May be allowed	May be allowed	May be allowed	May be allowed
Fire Management—Wildland Fire Use The planned use of any wildland fire to meet management objectives. (See Section 2.4.11.2)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Fire Management—Fire Suppression Management actions intended to protect identified values from a fire, extinguish a fire, or confine a fire. (See Section 2.4.11.2)	Allowed	Allowed	Allowed	Allowed	Allowed
Non-native and Pest Plant Control Monitoring, extirpation, control, removal and/or relocation, and other management practices for pest and non-native plant species. (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Water Quality and Quantity Management Monitoring of water quality and quantity to identify baseline data and for management purposes; includes installation of gauging stations. (See Section 2.4.10.3)	Allowed*; see Section 2.4.20	Allowed	Allowed	Allowed	Allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Fish and Wildlife Population Management					
Reintroduction of Species The reintroduction of native species to restore diversity of native fish, wildlife, and habitats. (See Section 2.4.12.6)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Fish and Wildlife Control The control, relocation, sterilization, removal, or other management of native species, including predators, to maintain diversity of native fish, wildlife, and habitats; favor other fish or wildlife populations; protect reintroduced, threatened, or endangered species or to restore depleted native populations. (See Section 2.4.12.7)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Non-native Species Management The removal or control of non-native species (including predators). (See Section 2.4.12.8)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Pest Management and Disease Prevention and Control Relocation or removal of organisms that threaten human health or survival of native fish, wildlife, or plant species. Management practices directed at controlling pathogens that threaten fish, wildlife, and people, such as rabies and parasite control. (See Section 2.4.12.9)	May be allowed*; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
<p>Fishery Restoration Actions taken to restore fish access to spawning and rearing habitat, or actions taken to restore populations to historic levels. Includes harvest management, escapement goals, habitat restoration, stocking, egg incubation boxes, and lake fertilization. (See Section 2.4.12.10)</p>	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
<p>Fishery Restoration Facilities Fisheries facilities may be permanent or temporary and may include hatcheries, fish ladders, fish passages, fish barriers, and associated structures. (See Sections 2.4.12.1 and 2.4.21.1)</p>	May be authorized*	May be authorized	May be authorized	May be authorized	May be authorized
<p>Fishery Enhancement Activities applied to a fish stock to supplement numbers of harvestable fish to a level beyond what could be naturally produced based upon a determination or reasonable estimate of historic levels. (See Section 2.4.12.10)</p>	May be authorized* consistent with Sections 2.4.12.10 and 2.4.20	May be authorized	May be authorized	May be authorized	May be authorized
<p>Fishery Enhancement Facilities May be permanent or temporary and may include hatcheries, egg incubation boxes, fish ladders, fish passages, fish barriers, and associated structures. (See Sections 2.4.12.10 and 2.4.21.1)</p>	May be authorized consistent with Section 2.4.12.10*	May be authorized	May be authorized	May be authorized	May be authorized

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Native Fish Introductions Movement of native fish species in a drainage on the Refuge to areas where they have not historically existed. (See Section 2.4.12.6)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Non-native Species Introductions Introduction of species not naturally occurring in the Refuge. (See Section 2.4.12.6)	Not allowed				
SUBSISTENCE (See Section 2.4.13)					
Subsistence Activities					
Fishing, Hunting, Trapping, and Berry Picking The taking of fish and wildlife and other natural resources for personal consumption, as provided by law.	Allowed	Allowed	Allowed	Allowed	Allowed
Collection of House Logs and Firewood Harvesting live standing timber greater than 6 inches diameter at breast height for personal or extended family use.	May be authorized				
Collection of House Logs and Firewood Harvesting live standing timber between 3 and 6 inches diameter at breast height for personal or extended family use.	20 trees or less per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or less per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or less per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or less per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13	20 trees or less per year allowed; more than 20 trees per year may be authorized; consistent with Section 2.4.13

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Collection of Plant Materials Harvesting trees less than 3 inches diameter at breast height, dead standing or downed timber, grass, bark, and other plant materials used for subsistence purposes.	Allowed	Allowed	Allowed	Allowed	Allowed
Temporary Facilities Establishment and use of tent platforms, shelters, and other temporary facilities and equipment directly related to the taking of fish and wildlife. (See Section 2.4.16.2)	May be authorized	May be allowed	May be allowed	May be allowed	May be allowed
Subsistence Cabins – See Cabins (See also Section 2.4.16.1)					
Subsistence Access – subject to reasonable regulations under provisions of Section 811 of ANILCA (See Section 2.4.13.1)					
Use of snowmobiles, motorboats, and other means of surface transportation traditionally employed for subsistence purposes.	Allowed	Allowed	Allowed	Allowed	Allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
PUBLIC ACCESS (See Sections 2.4.13.1 and 2.4.14) Restrictions subject to provisions of Section 1110 of ANILCA as applicable; see also Subsistence Access section in this table.					
Foot	Allowed	Allowed	Allowed	Allowed	Allowed
Dogs and Dog Teams	Allowed	Allowed	Allowed	Allowed	Allowed
Other Domestic Animals Includes horses, mules, llamas, etc. (certified weed-free feed required).	Allowed	Allowed	Allowed	Allowed	Allowed
Non-Motorized Boats Includes canoes, kayaks, rafts, etc.	Allowed	Allowed	Allowed	Allowed	Allowed
Motorized					
Use of snowmobiles, motorboats, airplanes, and non-motorized surface transportation methods for traditional activities and for travel to and from villages and home sites.	Allowed	Allowed	Allowed	Allowed	Allowed
Highway Vehicles	Not allowed	Not allowed	Not allowed	May be allowed on designated roads	Allowed on all-weather roads
Off-Road Vehicles (All-Terrain Vehicles) Includes air boats and air-cushion vehicles. (See Sections 2.4.13.1 and 2.4.14.2)	Not allowed; with exceptions consistent with Section 2.4.13.1	Not allowed; with exceptions consistent with Section 2.4.13.1	Not allowed; with exceptions consistent with Section 2.4.13.1	May be authorized	May be authorized
Helicopters Includes all rotary-wing aircraft. (See Section 2.4.14.3)	Not allowed; with exceptions consistent with Section 2.4.14.3	Not allowed; with exceptions consistent with Section 2.4.14.3	Not allowed; with exceptions consistent with Section 2.4.14.3	May be authorized	May be authorized

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
PUBLIC USE, RECREATION, and OUTREACH ACTIVITIES Also see ACCESS and Commercial Recreation sections.					
Hunting, Fishing, Wildlife Observation, Wildlife Photography, Interpretation, and Environmental Education Note: All activities listed are priority public uses. (See Sections 2.4 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
Trapping, Walking, Hiking, Camping at Undeveloped Sites, and Dog Sledding (See Sections 2.4 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
General Photography See also COMMERCIAL USES. (See Sections 2.3 and 2.4.15)	Allowed	Allowed	Allowed	Allowed	Allowed
Outreach Activities (See Sections 2.3 and 2.4.17)	Allowed	Allowed	Allowed	Allowed	Allowed
Public Use and Recreation Facilities – level of development is consistent with management intent of the category (See Section 2.4.16)					
All Weather Roads And associated developments, including bridges.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Unimproved Roads Note: While unimproved roads are not allowed in Minimal, Wilderness, and Wild River Management categories, roads may exist. In these management categories, the roads would not be designated for use or maintained.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Designated Off-Road Vehicle (All-Terrain Vehicle) Routes and Areas	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Roadside Exhibits and Waysides	Not applicable	Not applicable	Not applicable	May be allowed	May be allowed
Constructed and Maintained Airstrips	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Cleared Landing Areas Includes unimproved areas where airplanes land. Minor brush cutting or rock removal by hand is allowed for maintenance.	Existing areas allowed to remain*; new areas not allowed; see Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed
Constructed Hiking Trails Includes bridges, boardwalks, trailheads, and related facilities. (See Section 2.4.16)	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Designated Hiking Routes Unimproved and unmaintained trails; may be designated by signs, cairns, and/or on maps.	Allowed	Allowed	Allowed	Allowed	Allowed
Boat Launches and Docks Designated sites for launching and storing watercraft or tying up a float plane. (See Section 2.4.16)	Generally not allowed*	Generally not allowed	Generally not allowed	May be allowed	May be allowed
Visitor Contact Facilities A variety of staffed and unstaffed facilities providing information on the Refuge and its resources to the public; facilities range from visitor centers to kiosks and signs. (See Section 2.4.16)	Not allowed*; see Sections 2.3.4 and 2.4.20	Not allowed	Not allowed	May be allowed	May be allowed
Campgrounds Developed sites accessible by highway vehicles.	Not applicable	Not applicable	Not applicable	May be allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Hardened Campsites Areas where people can camp that are accessible by vehicle or on foot but where the only facilities provided are for public health and safety and/or resource protection; may include gravel pads for tents, hardened trails, and/or primitive toilets. (See Section 2.4.16)	Allowed*; consistent with Section 2.4.20	Allowed	Allowed	Allowed	Allowed
Temporary Facilities Includes tent frames and platforms, caches, and other similar or related facilities; does not include cabins. See also SUBSISTENCE, COMMERCIAL USES, and Administrative Facilities. (See Section 2.4.16.2)	May be authorized	May be allowed	May be allowed	May be allowed	May be allowed
Cabins – also other related structures such as outdoor toilets, food caches, storage sheds, and fish drying racks (See Section 2.4.16.1)					
Public Use Cabin A cabin administered by the Service and available for use by the public; intended only for short-term public recreational use and occupancy.	Not allowed	Not allowed	Not allowed	May be allowed	May be allowed
Administrative Cabin Any cabin primarily used by Refuge staff or other authorized personnel for the administration of the Refuge. (See Section 2.4.21.1)	May be allowed*; consistent with Section 2.4.20	May be allowed	May be allowed	May be allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
<p>Subsistence Cabin Any cabin necessary for health and safety and to provide for the continuation of ongoing subsistence activities; not for recreational use.</p>	Existing cabins allowed to remain; new cabins may be authorized; consistent with Section 2.4.20	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized
<p>Commercial Cabin Any cabin that is used in association with a commercial operation, including but not limited to commercial fishing activities and recreational guiding services.</p>	Existing cabins allowed to remain; new cabins not allowed consistent with Section 2.4.20	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized	Existing cabins allowed to remain; new cabins may be authorized
<p>Other Cabins Cabins associated with authorized activities or uses by other government agencies.</p>	May be authorized; consistent with Section 2.4.20	May be authorized	May be authorized	May be authorized	May be authorized
Administrative Facilities (See Section 2.4.21.1)					
<p>Administrative Field Camps Temporary facilities used by Refuge staff and other authorized personnel to support individual (generally) field projects; may include, but not limited to, tent frames and temporary/portable outhouses, shower facilities, storage/maintenance facilities, and caches.</p>	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
<p>Administrative Field Sites Permanent facilities used by Refuge staff or other authorized personnel for the administration of the Refuge. Includes administrative cabins and related structures (see Cabins) and larger multi-facility administrative sites necessary to support ongoing field projects, research, and other management activities. Temporary facilities, to meet short-term needs, may supplement the permanent facilities at these sites.</p>	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed*; consistent with Sections 2.3.4 and 2.4.20	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed	Use of existing sites allowed, including replacement of existing facilities as necessary; new sites may be allowed
<p>Refuge Administrative Office Complex Facilities necessary to house Refuge operations, outreach, and maintenance activities, and associated infrastructure; includes staff offices, storage, maintenance, parking lots, and other similar facilities.</p>	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
<p>Hazardous Materials Storage Sites, including appropriate structures and equipment, necessary for the storage and transfer of fuels and other hazardous materials necessary for administrative purposes; must be in compliance with all Federal and State requirements.</p>	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
<p>Residences Residential housing for Refuge staff and their families; includes single and multi-family dwellings.</p>	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Bunkhouses Quarters to house temporary and similar employees, volunteers, visitors, and other agency personnel.	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
Aircraft Hangars and Facilities for Storage of Aircraft	Not allowed	Not allowed	Not allowed	Not allowed	May be allowed
Boat Launches and Docks Designated sites for launching and storing watercraft or tying up a float plane.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
Radio Repeater Sites Sites used to maintain radio communications equipment; may include a location for helicopter access.	May be allowed*	May be allowed	May be allowed	May be allowed	May be allowed
COMMERCIAL ACTIVITIES OR USES					
Except as noted, a special use permit or other authorization is required for economic use of a refuge.					
Commercial Recreation – includes all forms of guiding, including those operated by nonprofit, educational, and other non-commercial groups (See Section 2.4.18.1)					
Guiding and Outfitting	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Transporting	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Fixed-Wing Air-Taxis	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Helicopter Air-Taxis	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Bus and Auto Tours	Not applicable	Not applicable	Not applicable	May be authorized	May be authorized

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Mineral Exploration (See Section 2.4.18.2) See Section 2.4.22 for information on the Alaska Mineral Resource Assessment Program.					
Surface Geological Studies Includes surface rock collecting and geological mapping activities (includes helicopter or fixed-wing access).	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Geophysical Exploration and Seismic Studies Examination of subsurface rock formations through devices that set off and record vibrations in the earth. Usually involves mechanized surface transportation but may be helicopter supported; includes studies conducted for DOI.	Not allowed	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Core Sampling Using helicopter transported motorized drill rig to extract subsurface rock samples; does not include exploratory wells; includes sampling conducted for DOI.	Not allowed with exceptions consistent with Sec. 2.4.22	Not allowed with exceptions consistent with Sec. 2.4.22	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2
Other Geophysical Studies Helicopter-supported gravity and magnetic surveys and other minimal impact activities that do not require mechanized surface transportation.	Not allowed	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2	May be authorized consistent with Section 2.4.18.2

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Mineral Development (see Section 2.4.18.2)					
Oil and Gas Leasing Leasing, drilling, and extraction of oil and gas for commercial purposes. Includes all associated above and below ground facilities.	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003	Not allowed unless authorized by Congress under ANILCA 1003
Sale of Sand, Gravel, and Other Common Variety Minerals Extraction of sand, gravel, and other saleable minerals for commercial purposes; includes commercial use by Federal, State, and local agencies.	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized
Other Mineral Leasing Includes the extraction of coal, geothermal resources, potassium, sodium, phosphate, sulfur, or other leasable minerals for commercial purposes. For cases of national need, see Section 2.4.18.2.	Not allowed				
Mining of Hardrock Minerals Development of valid (pre-ANILCA) mining claims (lode, placer, and mill sites) on Refuge lands for the purpose of extracting hardrock minerals. There are no valid claims on the Refuge.	Not allowed				

* Subject to minimum requirements analysis

ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Other Commercial Activities					
Commercial Filming, Videotaping, and Audio Taping (See Section 2.4.18.6)	May be authorized	May be authorized	May be authorized	May be authorized	May be authorized
Grazing (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Agriculture (Commercial) (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Commercial Fishery Support Facilities At or below 1979 levels. (See Section 2.4.18.3)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Commercial Fishery Support Facilities Above 1979 levels. (See Section 2.4.18.3)	Not allowed	May be authorized	May be authorized	May be authorized	May be authorized
Seafood Processing (See Section 2.4.18.3)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Aquaculture and Mariculture Support Facilities (See Section 2.4.18.3)	Not allowed	Not allowed	Not allowed	Not allowed	May be authorized
Commercial Timber and Firewood Harvest (See Section 2.4.18.4)	Not allowed	May be authorized	May be authorized	May be authorized	May be authorized
Commercial Gathering of Other Resources (See Section 2.4.18.5)	Not allowed	Not allowed	Not allowed	May be authorized	May be authorized

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ACTIVITY or USE	MANAGEMENT of WILDERNESS	MANAGEMENT of WILD RIVERS	MINIMAL MANAGEMENT	MODERATE MANAGEMENT	INTENSIVE MANAGEMENT
Transportation and Utility Systems Includes transmission lines, pipelines, telephone and electrical power lines, oil and gas pipelines, communication systems, roads, airstrips, and other necessary related facilities. Does not include facilities associated with on-refuge oil and gas development. (See Section 2.4.14.7)	May be authorized by Congress	May be authorized	May be authorized	May be authorized	May be authorized
Navigation Aids and Other Facilities Includes air and water navigation aids and related facilities, communication sites and related facilities, facilities for national defense purposes and related air/water navigation aids, and facilities for weather, climate, and fisheries research and monitoring; includes both private and government facilities. (See Section 2.4.14.11)	May be authorized*	May be authorized	May be authorized	May be authorized	May be authorized
Major Hydroelectric Power Development Hydroelectric dams creating a change in stream flow with an elevation change and reservoir behind the dam. (See Section 2.4.18.7)	Not allowed	Not allowed	Not allowed	Not allowed	Not allowed
Small Hydroelectric Power Development Hydroelectric generation by low-head or in-stream structures that do not change the flow of the river. (See Section 2.4.18.7)	Not allowed	Not allowed	Not Allowed	May be authorized	May be authorized

* Subject to minimum requirements analysis

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