USDA

United States Department of Agriculture

Chugach National Forest

Land Management Plan

Forest Service Chugach National Forest R10-MB-828f 2020

Chugach National Forest photo captions (clockwise from upper left):

Snowmachiner, Johnson Pass

Sockeye salmon, Placer River drainage

Portage Glacier, Kenai Peninsula

Whitewater rafting, Six Mile Creek

Brown bear, Kenai River

Alaska Railroad's Glacier Discovery Train, Spencer Glacier Whistle Stop

Chugach National Forest
Land Management Plan

Alaska

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Introduction

Purpose of the Land Management Plan

The Forest Service mission is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. Land management planning guides the Forest Service in fulfilling its stewardship responsibilities under the multiple-use management concept, which is to manage forest resources so they are used in a combination that best meets the needs of the American people. This plan provides management direction for the National Forest System lands within the boundary of the Chugach National Forest.

Every national forest is required to have a land management plan consistent with the National Forest Management Act of 1976 (16 United States Code (U.S.C.) 1604) and other laws. The National Forest Management Act directs these plans be amended as necessary and revised within 15 years. Land management plans are one of three levels of planning and decisionmaking that guide the management of National Forest System lands.

The first and broadest level of planning is the Forest Service's national strategic plan, which establishes goals, objectives, performance measures, and strategies for management of the National Forest System, as well as other Forest Service mission areas: Research and Development, State and Private Forestry, and International Programs. The Chief of the Forest Service is responsible for national planning, including preparation of the Forest Service strategic plan. At the second level of planning, land management plans are established for administrative units of the National Forest System (typically an individual national forest, grassland, or prairie). The third level of planning includes development of on-the-ground projects and activities, designed to achieve land management plan desired conditions and objectives. Projects and activities must be consistent with the land management plan (36 Code of Federal Regulations (CFR) 219.15).

A land management plan guides and constrains Forest Service personnel, not the public. Constraints on the public are imposed by law and regulation or through the issuance of an order by the responsible official under 36 Code of Federal Regulations part 261, subpart B. In addition to land management plans, management of National Forest System lands is guided and constrained by laws, regulations, and executive orders, as well as policies, practices, and procedures in the Forest Service Directive System (Forest Service Manual (FSM) and Forest Service Handbook (FSH)).

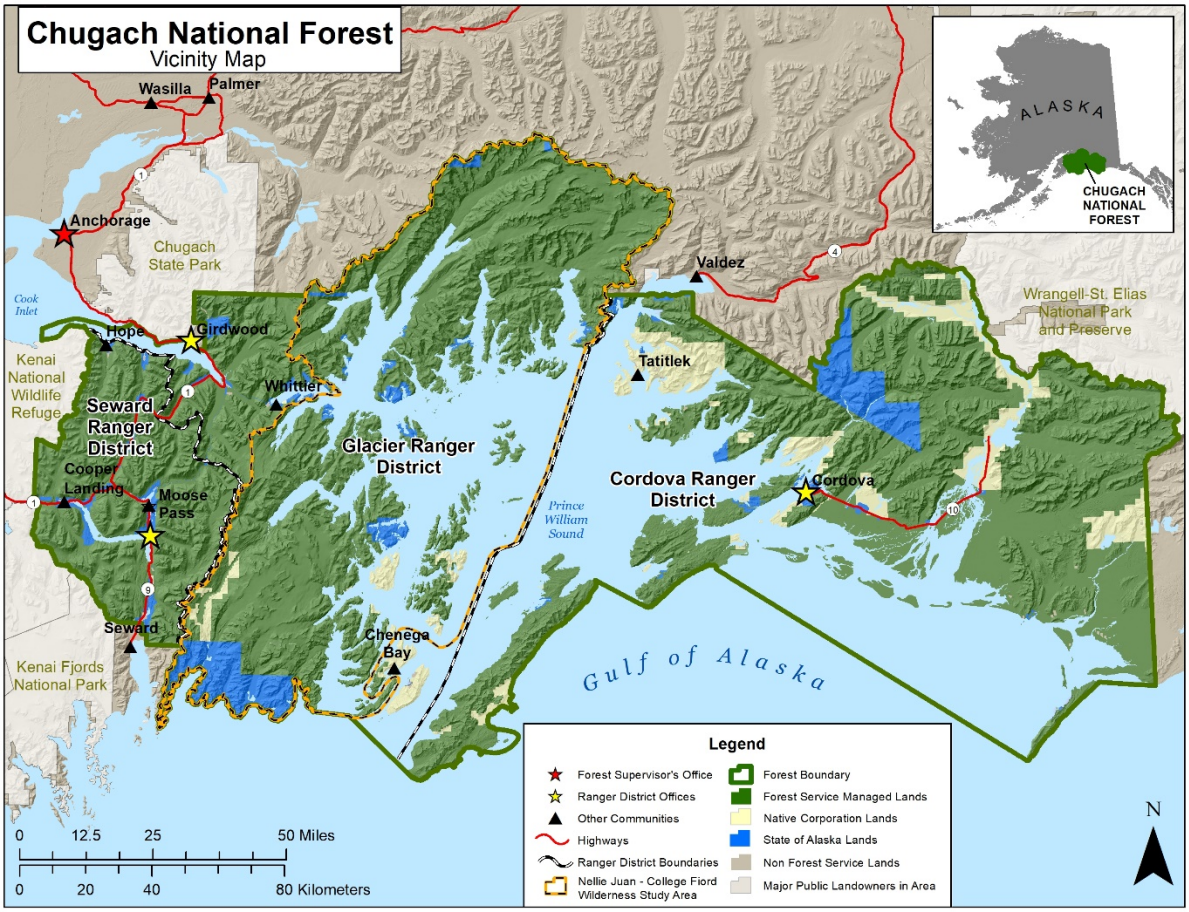
Forest planning is a continuous process that includes assessment, plan development, amendment, revision, and monitoring. An adaptive land management plan promotes resilience against uncertain future outcomes by providing management direction that supports adaptation to changing ecologic and social conditions.

This 2020 Chugach National Forest Land Management Plan (final land management plan) provides broad guidance and information for project and activity decisionmaking for the next 10 to 15 years. This final land management plan incorporates the following characteristics:

- It is strategic in nature. It does not authorize projects or activities and does not commit the Forest Service to take action.
- It is intended to be adaptive in that new knowledge and information can be reviewed and the land management plan changed, if appropriate, at any time. Changes to plan components may require an amendment.
- It honors the continuing validity of private, statutory, or pre-existing rights.

Roles and Contributions of the Chugach National Forest

The Chugach National Forest is located in southcentral Alaska and situated the farthest north and west of all national forests in the National Forest System. The Chugach is one of two national forests in Alaska and one of the largest in the National Forest System, at approximately 5.4 million acres. Over half the population of Alaska lives near the Chugach National Forest, with about 890,000 acres of the national forest within a day's drive of Anchorage. Two national parks, one wildlife refuge, and Bureau of Land Management lands comprise federal lands adjacent to the national forest. Within the national forest's boundary, lands of other ownership include Alaska Native Corporations, State of Alaska, and private landowners including those in small communities. The Chugach National Forest is divided into three administrative units, the Seward, Glacier, and Cordova ranger districts (map 1).



Map 1. Vicinity map and administrative units of the Chugach National Forest

The Chugach National Forest is composed of large, functional, intact ecosystems spread across coastal and inland landscapes. Nearly 99 percent (5,363,539 acres) of the national forest is managed to allow natural ecological processes to occur with limited human influence and consistent with the Roadless Area Conservation Rule of 2001. Thirty percent of the Chugach National Forest is covered in ice, including 20 tidewater glaciers. Stretching across 700,000 acres of the national forest, the Copper River Delta is the largest contiguous wetlands complex on North America's Pacific Coast. The Chugach National Forest includes more than 1,800 miles of anadromous fish streams and 48,100 acres of anadromous fish lakes. National Forest System lands in Prince William Sound include more than 3,500 miles of shoreline.

People derive multiple benefits from the Chugach National Forest. Benefits include fisheries, wildlife, and plant resources for consumption; water for municipal and public supplies, fish hatcheries, and hydroelectric operations; locatable minerals; rock, sand, and gravel for construction projects; household fuelwood for heating; educational opportunities; recreational experiences; tourism; aesthetics; and cultural and spiritual heritage.

The national forest provides a wide range of research possibilities and a unique opportunity to study the effects of climate change on glaciers, hydrological processes, aquatic ecosystems, and boreal and temperate forest ecosystems.

The land management plan follows higher level direction in the form of laws, executive orders, and regulations. While many federal laws influence the roles and contributions of the Chugach National Forest, the Alaska Native Claims Settlement Act of 1971 (ANCSA) and Alaska National Interest Lands Conservation Act of 1980 (ANILCA) continue to affect the day-to-day management of resources and will result in changed land ownership during the next plan period.

Alaska Native Peoples, Tribes, and Corporations

Thirteen federally recognized Alaska Native Tribes live within or adjacent to the Chugach National Forest, which they regard as their ancestral home. While there is diversity and distinction among tribes, they all have deep-rooted connections to the lands and waters of the national forest. Key values shared across tribes include honoring the lands and waters upon which life depends; respecting and sharing with others; respecting and learning from elders; living with humility and patience; honoring the interconnections among all things; being mindful in word and deed; and knowing one's place within one's history, traditions, and ancestors. The Chugach National Forest regularly consults with the governing bodies of these 13 federally recognized Alaska Native Tribes:

Chenega Bay IRA Council,
Chickaloon Village,
Native Village of Eklutna,
Native Village of Eyak,
Kenaitze Indian Tribe,
Knik Tribal Council,
Nanwalek IRA Council,
Ninilchik Traditional Council,
Port Graham Village Council,
Native Village of Salamatof,
Seldovia Village Tribe,
Native Village of Tatitlek, and
Native Village of Tyonek

Three Alaska Native Regional Corporations—Chugach Alaska Corporation; Cook Inlet Region, Incorporated; and Ahtna, Incorporated—have direct or indirect interests in the Chugach National Forest that may include portions of lands within the national forest boundary, as do the village corporations of:

Chenega Corporation,
English Bay Corporation,
Eyak Corporation,
Port Graham Corporation,
Tatitlek Corporation,
Chickaloon-Moose Creek Native Association,
Eklutna Incorporated,
Knikatnu Incorporated,
Ninilchik Native Association, Incorporated,
Salamatof Native Association, Incorporated,
Seldovia Native Association, and
Tyonek Native Corporation

Regional corporations were established under ANCSA to serve and promote Alaska Native shareholder interests, including economic, social, and heritage, through management of their lands, businesses, and assets. Regional and village corporations have rights to develop their surface and subsurface estates, which may include access and development on, across, or adjacent to the Chugach National Forest consistent with ANILCA and other laws. Development on these private lands includes

surface and subsurface activities that may differ from what is allowed by land management plan direction for adjacent National Forest System lands.

From "time immemorial," Alaska Native people have served as stewards of the forest. Alaska Native people see the entire Chugach National Forest as central to their being. Alaska Native people value and respect the national forest with their culture and traditions, in addition to receiving animals, fish, and plants for health and well-being. The Chugach National Forest will continue to contribute to Alaska Native people's way of life—through food and materials for daily use and artistic expression, spirituality, health care, family, and tribal history. Geographic features across the national forest retain original names in Native languages and dialects passed down through generations to teach and share culture and traditions. Native languages (some of which cannot be translated into English) communicate history, culture, and values through storytelling, song, and dance, connecting youth and elders.

The Chugach National Forest as a whole is central to the tribes, and significant cultural values are associated with areas inside the national forest boundary. These areas include sites such as the Sqilantnu Archaeological District, Palugvik Archaeological District, Nuuciq and other sites of cultural and historic significance, some of which may have been conveyed or selected under ANCSA 14(h)(1).

State of Alaska

The State of Alaska has a variety of land ownership and interests within and adjacent to the Chugach National Forest. These include, but are not limited to:

- Chugach State Park (links with Crow Pass and California Creek trails);
- *Exxon Valdez* Oil Spill Trustee Council Habitat Protection Program conservation easements in Prince William Sound (10 areas);
- Kenai River Special Management Area unit;
- Resurrection Bay State Marine Park;
- Copper River Basin Area;
- Prince William Sound State Marine Parks (15 units);
- Prince William Sound public use cabins (5 cabins);
- Seward Highway All American Road;
- Hope, Sterling, and Copper River highways; and
- Portions of the Exit Glacier Road.

There are State of Alaska general lands and waters adjacent to the national forest in Prince William Sound, on the Kenai Peninsula, Canyon Creek-Six Mile confluence, Ingram Creek, and around Cordova where land is governed by Alaska's Generally Allowed Uses. These uses, as provided in 11 AAC 96.020, allow a variety of uses and activities on state land. Some of these uses within the national forest would require a special use permit. Coordination between the Forest Service and the State of Alaska is critical, especially in the coastal areas of Prince William Sound (primarily the Copper River Delta) where the boundary is unresolved in the tidelands and submerged lands as a result of the 1964 Good Friday earthquake. This earthquake caused some tidelands to be avulsed to uplands and other tidelands submerged. Without a defined boundary, the Forest Service and State of Alaska have been operating under a 1992 memorandum of understanding.

Alaska Department of Fish and Game has primary management responsibility for fish and wildlife in Alaska. The Chugach National Forest manages subsistence resources in partnerships with other federal and state agencies and in consultation with Alaska Native Tribes and Alaska Native

Corporations to foster cooperative management, monitoring and stewardship of natural resources consistent with the goals of ANILCA Title VIII and the decisions of the Federal Subsistence Board. The Forest Service also coordinates with Alaska Department of Fish and Game on research, monitoring, and specific project activities. Management of the Copper River Delta Fish and Wildlife Management Area is guided by a 1986 memorandum of understanding under which multiple federal and state agencies "…cooperate in protecting, developing, maintaining and managing the diverse fish and wildlife and their habitat in the Copper River Delta Fish and Wildlife Management Area for the best interest of the public of Alaska."

The Chugach National Forest also works in partnership with the State of Alaska through the *Exxon Valdez* Oil Spill (EVOS) Trustee Council on recovery and enhancement of EVOS-affected resources through restoration and monitoring projects, acquisition of fee and conservation easements for habitat protection, and lingering oil monitoring tied to areas impacted by the *Exxon Valdez* oil spill. Throughout the land management plan, when EVOS-acquired lands are mentioned, it means these lands were acquired with funding from the EVOS Trustee Council. These lands are also identified as Management Area 6 EVOS-Acquired Lands.

Other areas of interest and coordination between the Forest Service and State of Alaska include fish hatcheries in Prince William Sound; the Iditarod National Historic Trail; wood bison management with the Alaska Wildlife Conservation Center; highway construction and reconstruction projects; and prehistoric and historic cultural resources.

Partnerships and Collaboration

In addition to formal and informal working relationships with federally recognized Alaska Native Tribes and Alaska Native Corporations and the State of Alaska, the Forest Service continues to strengthen and deliver its mission through partnerships and relationships that include, but are not limited to:

- Whistle Stop with the Alaska Railroad Corporation
- Copper River International Migratory Bird Initiative
- Kenai Peninsula Stream Watch with Kenai Watershed Forum
- Turnagain Area Avalanche Advisory with Friends of the Chugach National Forest Avalanche Information Center
- Chugach Children's Forest with Alaska Geographic
- Pacific Northwest Research Station with multiple universities
- Kenai Peninsula Fish Habitat Partnership
- Kenai Mountains-Turnagain Arm National Heritage Area with the Kenai Mountains-Turnagain Arm Corridor Communities Association
- Iditarod National Historic Trail with the Iditarod Historic Trail Alliance and the Bureau of Land Management
- *Exxon Valdez* Oil Spill Trustee Council with the U.S. Department of Agriculture, the U.S. Department of Interior, State of Alaska, and the National Oceanic and Atmospheric Administration

Other Social, Economic, and Ecological Contributions

Subsistence

Consistent with ANILCA, subsistence use is an important economic contributor to Alaska residents for the harvest of wild renewable resources across the national forest. In Alaska, subsistence use is defined as:

> …the customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade (ANILCA Section 803).

The Chugach National Forest is integral to providing the opportunity and resources necessary to pursue subsistence uses under federal and state regulations. Wild renewable resources including fish and wildlife, berries, wood, and medicinal plants support Alaskan residents. Qualified rural residents of Alaska eligible to participate in the subsistence harvest of fish and wildlife species through federal regulations include residents of Cordova, Tatitlek, Ninilchik, Chenega Bay, Cooper Landing, Hope, and Whittier. The national forest provides an average of 203 pounds of fish and wildlife, valued at $812.00 to $1,624.00 per person per year, for qualified rural residents. The average for all Alaska residents is 256 pounds of wild food harvested per person per year. The value of subsistence harvest in Alaska is estimated between $137 and $275 million in U.S. dollars annually.

Recreation

People from around the world visit the Chugach National Forest to see glaciers, salmon, and wildlife; to participate in hiking, boating, fishing, hunting, skiing, and riding snowmachines; and to enjoy stunning scenery. The national forest provides a wide variety of recreation activities suitable for visitors of varying abilities. Campgrounds, day-use areas, and trails are located adjacent to roads. Forty-one public use cabins primarily provide backcountry shelter and access across the Chugach National Forest. Opportunities to experience isolation and quiet are accessible by longer hikes or via boat or plane. Many visitors experience the national forest through guided activities offered to the public by one or more of the 140 permitted outfitters and guides.

National Trails

Three trails on the Chugach National Forest are part of the National Trails System—Iditarod National Historic Trail, Resurrection Pass National Recreation Trail, and Williwaw National Recreation Trail. The Southern Trek of the Iditarod National Historic Trail traverses the national forest from Seward to Girdwood, where it departs onto state lands near Crow Pass. This trail originally connected people and communities on the Kenai Peninsula and Turnagain Arm area along the current highway and railroad alignments. The trail was also widely used by the influx of gold miners around 1910. The trail was primarily a winter-use trail system traversed with the aid of dogs and sleds. Numerous mines, cabins, and camps associated with the Iditarod National Historic Trail and located along its route have been recorded as archaeological sites.

The two national recreation trails exist entirely within the Chugach National Forest. The 39-mile Resurrection Pass National Recreation Trail on the Kenai Peninsula traverses spectacular backcountry valleys between the communities of Cooper Landing and Hope. Nine public use cabins are located along the trail. The Williwaw National Recreation Trail is 0.5 mile in length and is part of the longer 1.3-mile Williwaw Nature Trail that offers scenic views of hanging glaciers within Portage Valley and is near the popular Williwaw Campground.

Salmon and Other Native Fishes

All five North American species of Pacific salmon (Chinook, sockeye, coho, chum, and pink salmon) occur within the national forest. A recent study found the commercial value of salmon (in U.S. dollars) from the Chugach National Forest for sockeye salmon surpassed $10 million annually and the combined commercial value for pink, chum, coho, and Chinook averaged $9.3 million per year. Adjacent to the Chugach National Forest, the hatchery contribution represented 83 percent ($7.6 million) of the commercial salmon harvest in the Prince William Sound Region. In 2016, there were over 3,000 jobs in the commercial fishing sector associated with the Kenai Peninsula and Prince William Sound, not including jobs specific to fish processing or hatcheries.

Sport fishing is especially popular in Alaska and across the national forest. The economic effect of recreational fisheries supported by the national forest is more difficult to assess than commercial fishing. A report estimated that in 2007 there were 1.8 million sport fishing days in southcentral Alaska, a large proportion of which occurs on the Chugach National Forest. Native fish resources from the Kenai Peninsula, Prince William Sound, and the Copper River Delta play a substantial role in the economic, social, and cultural well-being of Alaska residents.

Watersheds and Wetlands

Watersheds and wetlands within the Chugach National Forest support many ecosystem services and provide substantial contributions to social and economic sustainability in southcentral Alaska. Watersheds within the national forest are in generally good condition and functioning properly, sustaining resilient terrestrial, riparian, aquatic and wetland habitats that support diverse populations of plants and animals. Surface and subsurface water quality is good and provides drinking water for communities, private residences, businesses and lodges, and visitors at campgrounds. Hydroelectric facilities within the national forest provide electricity to communities throughout southcentral Alaska. Many recreational opportunities within the Chugach National Forest revolve around waterbodies and glaciers, including sightseeing, camping, fishing, and boating. The Forest Service issues many outfitter and guide permits each year to companies that use national forest watersheds and wetland resources. Nine rivers are determined suitable and recommended, and one river is eligible, for inclusion in the National Wild and Scenic Rivers System.

Watersheds and wetland resources also provide substantial local economic offset for food through fishing and hunting and are culturally important for subsistence. Wetlands comprise nearly 25 percent of the Chugach National Forest. Intact wetlands and riparian areas store water and release it slowly over time, reducing the magnitude of floods. Wetlands and riparian areas play a crucial role in the habitat and nutrient structure of the Copper River Delta, which is the largest unit in the Western Hemisphere Shorebird Reserve Network. The Copper River Delta is the largest wetland on the Pacific Coast and is one of three “key coastal wetlands” designated by the Alaska Region of the Forest Service, providing important social-economic connectivity to commercial, recreational, and subsistence fishing.

Wilderness Study Area

Established in 1980 under ANILCA, the Nellie Juan-College Fiord Wilderness Study Area encompasses much of western Prince William Sound. The wilderness study area is managed to maintain the area’s presently existing character and potential for inclusion in the National Wilderness Preservation System. The wilderness study area provides a suite of ecosystem and social benefits, including natural resources, subsistence uses, recreation, tourism, hunting, fishing, clean air, carbon sequestration, habitat protection, and sites of historic and cultural significance to Alaska Native

people. The wilderness study area includes only National Forest System lands within its boundary. Marine and other privately owned surface and subsurface lands are not part of the designated area.

Laws Affecting National Forest Management in Alaska

The Alaska Statehood Act of 1958, the Alaska Native Claims Settlement Act of 1971 (ANCSA), and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), among other laws, provide specific and unique direction for the management of public lands in Alaska. These laws are incorporated into the final land management plan as appropriate.

The Alaska Statehood Act provides federal lands selection rights to the State of Alaska. ANCSA is a settlement of Alaska Native claims and allows Alaska Native peoples to select lands from public lands, including the Chugach National Forest. These land selection conveyances are ongoing and affect access to and management of the national forest.

ANILCA provides specific direction for management of wildlife, fisheries, subsistence use, access, wilderness areas, and wilderness study areas on public lands. Section 501(b) of ANILCA directs that the Forest Service administer lands in the Copper River-Bering River area for the conservation of fish and wildlife species and their habitat. Lands in this part of the national forest are assigned to a special 501(b) management area. Section 704 of ANILCA created the Nellie Juan-College Fiord Wilderness Study Area in Prince William Sound.

Other sections of ANILCA that apply to management of the Chugach National Forest include:

- Section 803: defines subsistence uses.
- Section 804: identifies that the taking of fish and wildlife for non-wasteful subsistence uses shall be given priority over the taking on such lands of fish and wildlife for other purposes.
- Section 810: directs that land use decisions be evaluated for effects on subsistence uses and needs; and requires public notice and hearings to be held prior to a final decision.
- Section 811: allows access on public lands for subsistence purposes, the use of snowmachines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents, subject to reasonable regulation.
- Section 1110(a): allows on public lands designated as a conservation system unit or wilderness study area, the use of snowmachines, (during adequate snow cover, or frozen river conditions in the case of wild and scenic rivers) motor boats, airplanes, and non-motorized surface transportation methods for traditional activities (where such activities are permitted by ANILCA or other law) and for travel to and from villages and homesites.
- Section 1110(b): affords rights to the State of Alaska or private owner or occupier as necessary to assure adequate and feasible access for economic and other purposes where their lands are within or adjacent to a conservation system unit or wilderness study area…subject to reasonable regulation.
- Section 1111: directs that permits be issued to the State of Alaska or private landowner for temporary access to or across any conservation system unit or wilderness study area for the purposes of survey, geophysical, exploratory, or other temporary uses when such access will not result in harm to the resources of the conservation system unit or wilderness study area.
- Section 1303(b): specifies conditions regarding the construction, use and occupancy of cabins and related structures.

- Section 1314: provides direction about not diminishing or enlarging the authority and responsibility of the State of Alaska or the Secretary of Agriculture except as provided otherwise by the Act.
- Section 1315: provides direction regarding allowed aquaculture activities and uses within national forest wilderness study areas.
- Section 1316: allows for the continuance of existing uses, and the future establishment and use of temporary campsites, tent platforms, shelters and other temporary facilities and equipment directly and necessarily related to such activities through the use of permits and reasonable regulation for the taking of fish and wildlife on all public lands.
- Section 1323 (a): allows access to non-federally owned land within the boundaries of the National Forest System that is deemed adequate to secure to the owner the reasonable use and enjoyment thereof.

Using the Land Management Plan

Plan Organization

This land management plan is organized based on the 2012 Planning Rule (36 CFR 219.15), which includes six plan components.

- Goals (GL)
- Desired conditions (DC)
- Objectives (OBJ)
- Standards (S)
- Guidelines (G)
- Suitability of lands

The content of each section starts with management that affects people—with headings such as Tribal Relations, External Relationships, and Subsistence—followed by ecosystem plan content. The rest of the plan content in each section is in alphabetical order for ease of use. Not every plan component occurs in every section.

Goals

Desired conditions and goals are used in the development of purpose and need statements for projects. Goals serve a slightly different purpose than desired conditions. Goals are broad statements of intent, usually related to process or interaction with the public. Goals may describe overall desired conditions of the plan area that are also dependent on conditions beyond the plan area or Forest Service authority. The 2020 Chugach National Forest Land Management Plan has three goals that describe aspirations or visions of what the plan area (or portions thereof) should resemble in the future.

Desired Conditions

Desired conditions are descriptions of specific social, economic, and ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed.

Objectives and Suitability of Lands

Objectives and suitability of lands provide direction on how to attain or maintain the desired conditions and goals. Objectives describe what, when, and how much the Forest Service intends to accomplish to make progress toward attaining desired conditions and may be used in project purpose and need statements, where applicable. Suitability of lands describes kinds of activities and uses allowed or not allowed in different areas of the Chugach National Forest.

Standards and Guidelines

Standards and guidelines are mandatory constraints on project and activity decisionmaking.

Consistency with the 2020 Land Management Plan

The six plan components are the heart of the land management plan. All projects and activities must be consistent with the 2020 land management plan, which means consistent with the plan components. Consistency is defined very specifically for the various plan components in the 2012 Planning Rule (36 CFR 219.15):

(d) *Determining consistency*. Every project and activity must be consistent with the applicable plan components. A project or activity approval document must describe how the project or activity is consistent with applicable plan components developed or revised in conformance with this part by meeting the following criteria:

(1) *Goals, desired conditions, and objectives*. The project or activity contributes to the maintenance or attainment of one or more goals, desired conditions, or objectives, or does not foreclose the opportunity to maintain or achieve any goals, desired conditions, or objectives, over the long term.

(2) *Standards*. The project or activity complies with applicable standards.

(3) *Guidelines*. The project or activity:

(i) Complies with applicable guidelines as set out in the plan; or

(ii) Is designed in a way that is as effective in achieving the purpose of the applicable guidelines (section 219.7(e)(1)(iv)).

(4) *Suitability.* A project or activity would occur in an area:

(i) That the plan identifies as suitable for that type of project or activity; or

(ii) For which the plan is silent with respect to its suitability for that type of project or activity.

(e) *Consistency of resource plans within the planning area with the land management plan.* Any resource plans (for example, travel management plans) developed by the Forest Service that apply to the resources or land areas within the planning area must be consistent with the plan components. Resource plans developed prior to plan decision must be evaluated for consistency with the plan and amended, if necessary.

If a project or activity would not be consistent with the plan as described above, the responsible official has the following options (36 CFR 219.15):

(c) *Resolving inconsistency*. When a proposed project or activity would not be consistent with the applicable plan components, the responsible official shall take one of the following steps, subject to valid existing rights:

(1) Modify the proposed project or activity to make it consistent with the applicable plan components.

(2) Reject the proposal or terminate the project or activity.

(3) Amend the plan so that the project or activity will be consistent with the plan as amended.

(4) Amend the plan contemporaneously with the approval of the project or activity so that the project or activity will be consistent with the plan as amended. This amendment may be limited to apply only to the project or activity.

Management Approaches

The land management plan also includes management approaches, which describe principal strategies and program priorities the responsible official intends to execute to carry out projects and activities. Management approaches are not plan components; therefore, consistency with them is not required but is desirable.

Plan Component Identification

In order to make it easier to show a proposed project or activity is consistent with the applicable plan components, an alphanumeric system is used to identify all plan components. During implementation of the land management plan, projects would show consistency with the plan components by listing them with an identifier as shown in each section. For example, FW-GL1-DC would represent Forestwide–Goal 1–Desired Condition. If the proposed project or activity were near sacred sites, the project would have to be consistent with:

FW-GL1-TR-DC-2c, which is Forestwide–Goal 1) Foster Collaborative Relationships–Tribal Relations–Desired Condition–number 2c.

"In alignment with the intent of both the American Indian Religious Freedom Act and Forest Service policy, as well as directives found within Executive Order 13007, access to areas of national forest identified as important for religious and traditional use will be taken into account as sacred sites and managed through continued coordination and consultation with federally recognized Alaska Native Tribes and Alaska Native Corporations."

Standards and guidelines are listed within the sections where there are "mandatory constraints" within the forestwide plan components and each management area. If a project relates to radio repeaters in the wilderness study area, use this identifier:

MA1-ADM-G-4, which is Management Area 1–subheading Administration of Forest Service Activities and Facilities–Guideline–number 4.

"Radio repeaters should be installed only when necessary for providing essential communications for the health and safety of employees involved in the administration of the area. [Guideline]"

NOTE: Standards and guidelines do not include goal numbers as they may apply to more than one goal.

There are also subheadings within the plan components. If a project relates to marine mammals use this identifier:

FW-WLMM-G-1, which is Forestwide–Wildlife–subheading Marine Mammals–Guideline–number 1.

"Forest Service employees and all personnel conducting activities authorized by the Forest Service should adhere to the National Marine Fisheries Service Alaska Marine Mammal Viewing Guidelines and Regulations. More restrictive land management plan guidelines apply for Cook Inlet beluga whales (see At-Risk Species section) and hauled out seals or sea lions. [Guideline]"

Management approaches are not plan components; therefore, projects do not have to be consistent with management approaches. However, management approaches include strategies and priorities the responsible official may use to carry out projects and activities. Management approaches are assigned an identifier but are not numbered; they instead appear as a bullet list. A project with the Alaska Railroad may use the management approach under the subheading Partnership Opportunities in the Social and Economic Sustainability section:

FW-SOCIALPO-MAP, which is Forestwide–Social and Economic Sustainability–subheading Partnership Opportunities–Management Approaches.

- "Work with the Alaska Railroad to develop funding opportunities related to recreation facilities (for example, Whistle Stop and huts). Ensure that long-term agreements with partners are maintained to provide continued funding related to recreational facilities (for example, Alaska Railroad and Whistle Stop)."

Plan Content

This land management plan begins with forestwide direction, followed by area-specific management direction. Suitability of lands relates to forestwide and management area direction.

Forestwide Direction

- Forestwide Goals
- Forestwide Desired Conditions
- Forestwide Objectives
- Forestwide Management Approaches
- Forestwide Standards
- Forestwide Guidelines

Special Areas Direction

- Iditarod National Historic Trail
- Inventoried Roadless Areas
- Kenai Mountain-Turnagain Arm National Heritage Area
- Key Coastal Wetlands
- National Recreation Trails
- Scenic Byways

Geographic Areas Direction

- Copper River Delta
- Kenai Peninsula
- Prince William Sound

Suitability of Lands

The determinations of uses or activities that are suitable, conditionally suitable, or unsuitable in each of the management areas and descriptions of potential uses and activities for management areas, by use or activity.

Management Areas Direction

Desired conditions, objectives, management approaches, standards, and guidelines for the eight management areas:

- Management Area 1 Wilderness Study Area
- Management Area 2 Wild, Scenic, and Recreational Rivers
- Management Area 3 Research Natural Areas
- Management Area 4 Backcountry Areas
- Management Area 5 ANILCA 501(b) Areas
- Management Area 6 EVOS-Acquired Lands
- Management Area 7 Municipal Watershed
- Management Area 8 Front Country

Other Content

The plan includes a set of maps and a glossary of commonly used terms. The following appendices are also included: Monitoring Program; Timber and Wood Products Suitability; Proposed and Possible Actions; Priority Watersheds; Wild and Scenic Rivers Evaluation, Suitability; and Other Sources of Information.

Forestwide Direction

Forestwide Goals (FW-GL)

1) Foster Collaborative Relationships

(FW-GL1)

The Forest Service builds strong relationships; improves communication; expands volunteer capacity; increases youth engagement; develops shared land stewardship options and strategies; and collaborates with Alaska Native Tribes and Alaska Native Corporations, State of Alaska, other federal agencies, adjacent landowners, communities, and nongovernmental organizations.

2) Contribute to Social and Economic Sustainability

(FW-GL2)

The Chugach National Forest contributes to the social and economic sustainability of communities within the plan area by maintaining intact, resilient ecosystems and their associated services, benefits, and multiple uses and sustained yields. These ecosystem services, benefits, and multiple uses and sustained yields contribute to rural Alaskan lifestyles; support rural economies both locally and regionally; and enhance the quality of life and sense of place for present and future generations.

3) Provide for Ecological Sustainability

(FW-GL3)

The abiotic and biotic conditions within watersheds of the Chugach National Forest provide for ecological integrity of aquatic, riparian, and terrestrial ecosystems necessary to sustain a diversity of vegetation, fish, and wildlife communities, including the persistence of native species.

Forestwide Desired Conditions, Objectives, and Management Approaches

Tribal Relations (TR)

Desired Conditions (DC)

(FW-GL1-TR-DC)

1. The Forest Service cultivates legal and trust relationships with federally recognized Alaska Native Tribes and Alaska Native Corporations such that:
    a. Through consultation, Forest Service decisions having tribal implications are clearly communicated and understood by all parties.
    b. Communication between Forest Service personnel (heritage staff, tribal liaisons, and resource specialists) and representatives from Alaska Native Tribes and Alaska Native Corporations occurs at each other's request and results in a spirit of shared stewardship.

2. Recognizing the importance of the Chugach National Forest as ancestral lands, the Forest Service and federally recognized Alaska Native Tribes and Alaska Native Corporations seek to identify and achieve common desired conditions across shared boundaries:

    a. The Forest Service and Alaska Native Tribes and Alaska Native Corporations support collaborative efforts that include increased cultural awareness; shared traditional knowledge, including Native languages; and youth engagement in national forest management.

    b. Sustainable quantities of renewable forest resources (including culturally significant food resources) on National Forest System lands are available and accessible for traditional use.

    c. In alignment with the intent of both the American Indian Religious Freedom Act and Forest Service policy, as well as directives found within Executive Order 13007, access to areas of national forest identified as important for religious and traditional use will be taken into account as sacred sites and managed through continued coordination and consultation with Alaska Native Tribes and Alaska Native Corporations.

3. The statutory rights and interests of Alaska Native Corporations are acknowledged and supported, including access rights to their private lands, while adhering to legislative guidelines and prior agreements. Consultation and collaboration efforts are continued with a focus on access to private lands, subsurface holdings, and split estate rights; ANCSA 14(h)(1) site protection responsibilities; and public access and restrictions along ANCSA 17(b) easements.

4. The Forest Service is a partner as requested in Alaska Native youth education. Active engagement in the Chugach Children's Forest, Nuuciq Youth Camp, Susten Youth Camp, and Eyak Culture Camp fosters learning about land stewardship, Native culture and languages, and history.

(FW-GL2-TR-DC)

5. Forest Service line officers and Alaska Native Tribes and Alaska Native Corporations work collaboratively to consider projects that provide mutually beneficial outcomes that contribute to socio-economic sustainability of tribal communities and resiliency of the national forest's natural resources.

Objectives (OBJ)

(FW-GL1-TR-OBJ)

1. Although consultation may occur upon request, the Chugach National Forest will minimally, on an annual basis offer an opportunity to Alaska Native Tribes and Alaska Native Corporations for government-to-government or government-to-corporation consultation on projects, programs, and activities on the national forest that have the potential to affect Alaska Native interests or sites of cultural importance.

Management Approaches (MAP)

(FW-TR-MAP)

- Throughout the life of the land management plan, consultation with Alaska Native Tribes and Alaska Native Corporations is documented and acknowledges access needs across National Forest System lands to projects on private lands and within privately owned subsurface estates.
- When requested, the Forest Service collaborates with the Kenaitze Indian Tribe, Cook Inlet Region, Inc., and the U.S. Fish and Wildlife Service to list the Sqilantnu Archaeological District with the National Register of Historic Places.

- At the request of Alaska Native Tribes and Alaska Native Corporations and within the confines of capabilities, the Forest Service provides timely responses to requests for technical support.
- During consultation, Forest Service line officers and Alaska Native Tribes and Alaska Native Corporations representatives consider mutually beneficial outcomes that contribute to the socio-economic sustainability of tribal communities.
- For actions on National Forest System lands that may affect sites of cultural importance, develop cooperative management strategies that address sites, including ANCSA 14(h)(1) historic sites.

External Relationships (ER)

Desired Conditions (DC)

(FW-GL1-ER-DC)

1. Effective collaborative relationships between the State of Alaska (for example, Department of Natural Resources, Department of Fish and Game, Department of Environmental Conservation, and Department of Transportation) and other federal agencies (for example, U.S. Fish and Wildlife Service, National Park Service, Bureau of Indian Affairs, and Bureau of Land Management) are maintained, and used to identify and resolve interagency land and resource management challenges. State and federal land and resource agencies understand and acknowledge their counterparts respective management responsibilities and authorities in order to achieve sustainable resource stewardship.
2. Community participation and citizen engagement is a common occurrence resulting in long-lasting partnerships and is strategic in helping the Forest Service with the mission of multiple use. Relationships with new entities are established in a manner that attracts nontraditional visitors and strengthens the connections between surrounding communities and the national forest.
    a. Ample opportunities and events to connect people with nature exist across the national forest.
    b. Activities associated with the Chugach Children's Forest are designed to promote learning in varied environments during all seasons and among groups representing the diversity of national forest visitors.
    c. Activities associated with Naturewatch, in partnership with U.S. Fish and Wildlife Service and Alaska Department of Fish and Game, provide opportunities for children aged 13 years and younger to experience outdoor activities under the supervision of experienced Forest Service staff.
3. The Forest Service maintains international partnerships for migratory birds through the Copper River International Migratory Bird Initiative and other organizations that support education, outreach, research, monitoring, and on-the-ground conservation actions.
4. The Chugach National Forest manages subsistence fish and wildlife resources in partnerships with other federal and state agencies and in consultation with federally recognized Alaska Native Tribes and Alaska Native Corporations to foster cooperative management, monitoring and stewardship of natural resources consistent with the goals of ANILCA Title VIII and the decisions of the Federal Subsistence Board.
5. Restoration of EVOS-affected resources, and management of lands acquired with EVOS Trustee Council funds (Management Area 6 EVOS-Acquired Lands) continues through partnership with the EVOS Trustee Council.

Objectives

There are no forestwide objectives for external relationships.

External Relationships (ER) Interagency Relations (IR)

Management Approaches (MAP)

(FW-ERIR-MAP)

- Consistent with statutory and regulatory requirements, continue to coordinate with State of Alaska Department of Transportation and Public Facilities and the Federal Highway Administration to support highway right-of-way adjustments that provide for public safety, maintain public access to the national forest, and protect natural and cultural resources.
- Work collaboratively with Alaska Department of Transportation and Public Facilities to address operations and maintenance of state transportation facilities to ensure public access to National Forest System lands is maintained and necessary public services are provided.
- Upon notification from Alaska Department of Transportation and Public Facilities about upcoming project proposals, and as soon as is practicable, inventory and map any potential 4(f) sites that could be affected by the project and provide maps of the potentially affected 4(f) projects to Alaska Department of Transportation and Public Facilities.
- Consistent with statutory and regulatory responsibilities, continue to cooperate with other federal agencies (for example, U.S. Fish and Wildlife Service, National Park Service, Bureau of Indian Affairs, and Bureau of Land Management) and the State of Alaska in the management of fish and wildlife populations to foster a united approach to fish and wildlife management, land use management, and other mutual issues that support the management goals and objectives of all agencies.
- Continue to work with the State of Alaska to define cooperative management of coastal lands.
- Continue to work collaboratively with the Federal Subsistence Board and the State of Alaska and in consultation with Alaska Native Tribes and Alaska Native Corporations to manage, monitor, and steward the Chugach National Forest's subsistence fish and wildlife resources consistent with ANILCA Title VIII and Federal Subsistence Board decisions.

Social and Economic Sustainability (SOCIAL)

Desired Conditions (DC)

(FW-GL2-SOCIAL-DC)

1. The public is provided opportunities to learn about Alaska Native cultural history and practices. Educational opportunities regarding Alaska Native culture are developed and reviewed by federally recognized Alaska Native Tribes and Alaska Native Corporations in partnership with the Forest Service.
2. The diverse ecological, physical, and social characteristics across the Chugach National Forest provide outstanding opportunities for education and connecting people to the outdoors. Through education and interpretive activities the public is made aware of national forest contributions to providing ecosystem services, such as outdoor recreation, wild renewable resources, and cultural heritage values.
3. Through outreach and interpretation the public is informed about the physical and biological attributes, citizen science opportunities, and visitor safety issues of the Chugach National Forest.

4. Local communities benefit economically and culturally from tourism, recreational and subsistence opportunities, and community events that depend on the outstanding fish, wildlife, and natural landscapes of the Chugach National Forest.
5. Healthy salmon stocks and quality fish habitat support all types of fisheries uses across the national forest; the combination of commercial, sport, and subsistence uses of the fisheries resources benefits local, regional, and national economies.
6. Researchers and managers coordinate and collaborate to answer ecological and socioeconomic questions for the Chugach National Forest to facilitate effective, adaptive land management.
7. Sustainable levels of goods and services such as recreation and tourism opportunities, established fisheries, minerals extraction and energy generation, forest products, outfitter and guide services, and ecosystem stewardship opportunities are available to communities. These goods and services contribute to the local economy through generation of jobs and income while creating a variety of products for use, both nationally and locally.

Objectives

There are no forestwide objectives for social and economic sustainability.

Management Approaches (MAP)

(FW-SOCIAL-MAP)

- Protect and maintain the distinct public values of priority heritage assets. Opportunities for interpretation, including use of Native language, research, stewardship, and enjoyment of the cultural past are available and are considered in management strategies and through consultation and coordination with affected Alaska Native Tribes or Alaska Native Corporations in accordance with Executive Order 13175, so that knowledge about the past is synthesized and made readily available for public interpretation.
- Continue to collaborate with partners and implement the 5-year action plan for interagency coordination for the Kenai Russian River complex.
- Work with interagency and tribal partners to manage human generated fish waste to provide for public safety in the concentrated use areas along the Russian River and Ibeck Creek.
- Continue to work and collaborate with the U.S. Fish and Wildlife Service (Kenai National Wildlife Refuge) and National Park Service (Kenai Fjords National Park) to coordinate co-management and educational messaging, such as forest orders and bear aware alerts, which are essential to the management of the Russian River and Exit Glacier areas.

Social and Economic Sustainability (SOCIAL) Partnership Opportunities (PO)

Management Approaches (MAP)

(FW-SOCIALPO-MAP)

- Work with the Alaska Railroad to develop funding opportunities related to recreation facilities (for example, Whistle Stop and huts). Ensure that long-term agreements with partners are maintained to provide continued funding related to recreational facilities (for example, Alaska Railroad and Whistle Stop).
- Explore fiscally effective and appropriate opportunities for operating and maintaining recreation infrastructure through means that include partners or permitted non-public organizations.

- Develop partnerships with agencies, organizations, and local communities to empower a sense of shared stewardship of trail systems across the national forest in alignment with the National Forest Trails Stewardship Act and the National Trails Strategy.
- Continue to develop, support, and provide interpretation and education services using financial support from partners.
- Pursue opportunities to leverage other funding sources to complete large, multi-year projects.

Social and Economic Sustainability (SOCIAL) Subsistence (SUB)

Desired Conditions (DC)

(FW-GL2-SOCIALSUB-DC)

1. The Chugach National Forest continues to support abundant wild renewable resources—such as berries, mushrooms, plants, roots, fish, mammals, and birds—important for subsistence uses by rural Alaska residents.
2. The value of subsistence opportunities and potential effects to rural residents are important factors in the design and implementation of Forest Service management actions.
3. Alaska residents engaged in subsistence uses have reasonable access to subsistence resources on National Forest System lands.

Objectives

There are no forestwide objectives for subsistence.

Management Approaches (MAP)

(FW-SOCIALSUB-MAP)

- Provide Alaska residents with information about subsistence uses on National Forest System lands.

Ecosystem Processes and Conditions (EPC)

Desired Conditions (DC)

(FW-GL3-EPC-DC)

1. Natural disturbance regimes (for example, glacial action, snow avalanches, earthquakes, floods, native insects and pathogens, windthrow, lightning-caused fire, and climatic variations) remain the primary mechanisms shaping the landscape and ecological communities of the plan area.
2. Natural ecological patterns and processes dominate the landscape of the plan area. Composition of ecological communities (plant and animal), distribution (patch size, density, shape, and connectivity), relative proportion of seral stage, and key habitat components reflect spatial and temporal patterns expected in a landscape predominantly shaped by natural disturbance processes.
3. National Forest System lands support the ecological processes and conditions necessary to maintain habitat quantity, quality, and distributions to sustain self-supporting populations of native aquatic, riparian, and terrestrial plants, fish, and wildlife.
4. Terrestrial and aquatic ecosystems retain their inherent capacity to adapt effectively to shifting climatic conditions and other stressors while maintaining key ecosystem functions.

5. Native plants, fish, and wildlife are the dominant species inhabiting National Forest System lands, while the establishment and spread of invasive species is prevented or minimized and does not threaten ecosystem function.
6. Existing aquatic, riparian, and terrestrial habitat connectivity is maintained to promote conservation of native plants, fish, and wildlife.

Objectives and Management Approaches

There are no forestwide objectives or management approaches for ecosystem processes and conditions.

Ecosystem Services (ES)

Desired Conditions (DC)

(FW-GL3-ES-DC)

1. Wild, renewable resources provided by the national forest are sustained by ecological processes, are accessible to users, and contribute to the livelihood and lifestyles of both rural and non-rural Alaska residents.
2. National Forest System lands continue to provide habitat for native and desired nonnative wildlife species, helping to support populations capable of sustaining hunting opportunities. Forest products are available and accessible for harvest for cultural, personal, and commercial use in a sustainable manner. Timber harvest meets multiple-use goals of providing wood products for commercial and private use, wildlife habitat enhancement, improving forest health, or achieving a land management plan desired condition.
3. Residents and visitors experience clean air and clear vistas. Airsheds meet all federal and state standards, which are designed to protect human health and public welfare. Prescribed burning on National Forest System lands is coordinated with the State of Alaska. Smoke from prescribed burning is short in duration and meets State of Alaska standards.
4. Watersheds on National Forest System lands produce high-quality water and sufficient flows to sustain municipal and public drinking water supplies, provide quality habitat for fish and other organisms, offer recreation opportunities, and meet scenic integrity objectives. Applicable federal, state, and local water quality standards are met.
5. Opportunities are available to experience a diverse mosaic of native plant communities; gather berries, mushrooms, and other products; view and catch salmon and other native fishes; and observe and harvest wildlife.
6. In places most commonly visited and viewed by the public, the national forest visitor sees intact landscapes with minimal variation from the existing landscape character type. Scenic characteristics retain the distinctive landscape character and sense of place associated with the Chugach National Forest.

Objectives and Management Approaches

There are no forestwide objectives or management approaches for ecosystem services.

Terrestrial Ecosystems (TE)

Desired Conditions (DC)

(FW-GL3-TE-DC)

1. National Forest System lands provide habitats of sufficient quality, diversity, connectivity, and abundance to support self-sustaining populations of native plants and animals and desirable nonnative species.
2. The landscapes and habitats of the Chugach National Forest and neighboring public and private wildlands are well connected, sustaining effective demographic and genetic exchange between wildlife populations, and facilitating seasonal movements and migration, and the ability to respond to changing conditions (for example, climate change).
3. Disturbance caused by Forest Service management actions and authorized activities is minimized during important time periods in habitat areas identified as critical to disturbance-sensitive wildlife species, such as kidding and lambing sites, concentrated nesting or foraging areas, and winter range.
4. Mechanisms are in place to prevent contact and disease transmission between domestic livestock and vulnerable Dall sheep and mountain goat populations within the Chugach National Forest.
5. Ecological conditions (for example, alpine tundra on moist, boulder-strewn, and solifluction slopes; wet mossy seeps; seepage areas among rocks; snow melt areas; and fine gravel saturated by snow melt) that maintain viable populations of Aleutian cress (*Aphragmus eschscholtzianus*) exist within the plan area. Forest Service management activities within these habitats are designed to minimize negative human impacts to Aleutian cress.
6. Sufficient nesting habitat is maintained to support persistent populations of dusky Canada geese.

Objectives (OBJ)

(FW-GL3-TE-OBJ)

1. Annually conduct a minimum of 800 acres of wildlife habitat improvement projects across the national forest.
2. Maintain at least 400 acres of low-predation-risk nesting habitat for dusky Canada geese.

(FW-GL1-TE-OBJ)

3. Within 2 years of land management plan approval, develop a memorandum of understanding with the Alaska Natural Heritage Program at the University of Alaska to promote the conservation of species on the Alaska rare plant list known or suspected to occur within the plan area.

Management Approaches (MAP)

(FW-TE-MAP)

The intact ecological systems of the Chugach National Forest sustain native vegetation, fish, and wildlife populations at levels that continue to support a broad range of commercial, recreational, and cultural opportunities important to local, regional, and national users. The strategy for managing terrestrial ecosystems is focused on maintaining the ecological processes that support these systems while providing opportunities for a variety of uses compatible with long-term sustainable management of native vegetation, fish, and wildlife. Management of Chugach National Forest terrestrial ecosystems will prioritize the following:

- Ensure Forest Service management actions or authorized activities do not impair the ecological conditions for native or desired vegetation, fish, or wildlife to a level likely to substantially alter their abundance, distribution, or persistence within the national forest.
- Maintain or restore landscape and habitat connectivity to maximize opportunities for species to shift home ranges or alter habitat selections in response to changing ecological conditions.
- Restore ecological communities and habitats altered by previous or ongoing human activities (acquired lands subject to previous timber harvest, vegetation management, and recreational impacts).
- Plan and implement habitat enhancement, prescribed fire, hazardous fuel reduction, and other treatments in an integrated landscape context designed to support desired conditions and the expected range of seral stages.
- Ensure Forest Service management activities promote the conservation of and minimize impacts to migratory bird species consistent with the provisions of the Migratory Bird Treaty Act, Executive Order 13186, and all interagency agreements between the Forest Service and the U.S. Fish and Wildlife Service regarding the conservation of migratory birds.
- Forest Service management actions and authorized activities likely to affect vulnerable wildlife species or their habitats during periods of sensitivity should incorporate specific measures designed to minimize the effects of proposed actions. Seasonal or daily activity restrictions or closures, compressed work periods, low impact operational methods, vehicle restrictions, site selection, and phased project implementation should be considered to minimize effects to wildlife during periods of sensitivity.
- Collaborate with state, federal, and non-governmental partners to monitor the status of key fish and wildlife species and maintain habitats for fish and wildlife species within the national forest.
- Collaborate with state, federal, and non-governmental partners to monitor the status of at-risk species and implement appropriate measures to support recovery.
- Collaborate with state, federal and non-governmental partners to monitor the status of rare and declining populations, identify population threats, and implement measures to avoid serious population declines and potential state or federal listing.
- Survey and document rare plant occurrences in specialized habitats and prescribe conservation measures as needed (specialized habitats likely to harbor rare plants include beaches and upper beach meadows, streamsides, bogs and fens, dry and wet meadows, alpine heath and talus slopes, rock outcrops, and calcareous soils).
- Support science-based land management by identifying and coordinating research proposals with Forest Service research stations and others to help inform actions about species of conservation concern, management activities, and potential climate change impacts to habitat productivity and resiliency, public use patterns, and infrastructure assets within the national forest.

Access and Infrastructure (INFRA)

Desired Conditions (DC)

(FW-GL2-INFRA-DC)

1. Administrative facilities serve the land management needs and purposes of the national forest in a sustainable, economical and cost effective manner. The size, number, and location of facilities meet current and future management needs commensurate with Forest Service financial capabilities, and are consistent with forestwide facility planning. Administrative facilities are affordable, safe, and energy efficient; and meet all applicable physical security and accessibility standards and guidelines. Wildlife friendly designs are considered and incorporated into facilities during construction. Existing and future facilities are included in a current facilities master plan and are consistent with direction in The Built Environment Image Guide for the National Forests and Grasslands (see appendix G).
2. A system of roads, trails, and areas designated for non-motorized vehicle and motor vehicle use is identified and is available for public use to access National Forest System lands. Roads and trails are efficiently managed, have minimal effect on aquatic and terrestrial systems, and meet Forest Service national quality standards. Unnecessary National Forest System roads and trails are decommissioned.

Objectives (OBJ)

(FW-GL2-INFRA-OBJ)

1. Within 10 years of land management plan approval, accomplish at least two rights-of-way acquisitions or adjustments that provide public access to the national forest and protect surrounding private, cultural, or sensitive lands from degradation associated with existing public use patterns.
2. Within 5 years of land management plan approval, update road management objectives for all National Forest System roads.
3. Within 5 years of land management plan approval, complete one site-specific travel management analysis in an area where current travel management is not in alignment with the desired recreation opportunity spectrum.
4. Within 10 years of land management plan approval, decommission at least 10 financially unsustainable assets.
5. Within 10 years of land management plan approval, complete at least five facilities projects that improve energy efficiency, safety, or resilience to climate change.
6. Within 5 years of land management plan approval, identify Forest Service administrative sites that have not been withdrawn from mineral entry and complete filing with the Bureau of Land Management to have any identified sites withdrawn.

Management Approaches (MAP)

(FW-INFRA-MAP)

- Manage the road system condition to comply with motor vehicle use as designated and illustrated on the motor vehicle use map (MVUM).

- Evaluate road development alternatives for planned uses considering safety, costs of transportation, changes in conditions resulting from climate change, and effects upon land and resources.
- Design roads to minimize recurring maintenance needs.
- Maintain an inventory of all national forest transportation facilities, including National Forest System Roads, trails, bridges, dams, and major culverts, including those that require fish passage (consult Forest Service Manual 7710).
- Use the infrastructure (Infra) system or a subsequently developed and approved system as the data management system for the national forest constructed assets such as buildings, utilities, road, trail, bridge, dam, and major culvert inventories, etc.
- Install barriers, or signs, or both to prevent roadside parking wherever necessary for safety and to protect natural resources.
- Construct or alter facilities to comply with applicable accessibility guidelines.
- Ensure that facilities comply with health and safety codes.
- Reduce deferred maintenance on priority recreation assets annually as identified in the recreation facility analysis.
- Use the Facility Master Plan to identify facility needs, including decommissioning.
- Seek opportunities annually to leverage recreation facility project funds from the Federal Lands Transportation Program and the Federal Lands Access Program and other funding sources to complete large, multi-year projects. Potential projects are prioritized and updated annually.
- Restore temporary roads or access ways created as part of management activities as soon as practical or upon completion of the use to prevent vehicle travel. Include stabilization measures and other best management practices to protect water quality.

Energy (ENG)

Desired Conditions (DC)

(FW-GL3-ENG-DC)

1. Exploration, development, production, and transmission of renewable energy resources contribute social and economic benefits to local communities and to the Nation; and are conducted in a manner that minimizes adverse impacts to natural, cultural, scenic resources, and ecosystem integrity.

Objectives and Management Approaches

There are no forestwide objectives or management approaches for energy.

Fire and Fuels (FIRE)

Desired Conditions (DC)

(FW-GL1-FIRE-DC)

1. Coordination and communication with other jurisdictions such as communities, tribes, and federal, state, borough and local governments for hazard fuel management, community wildfire protection planning, preparedness actions, and responses to wildfire is recognized as a proactive component of fire management.

(FW-GL2-FIRE-DC)

2. Wildfire prevention, education, and partnership efforts reduce the likelihood of unplanned human-caused wildfire and develop recognition of fire as an important ecological process and its role in ecosystem services.
3. Fire management minimizes the risk to people, communities, infrastructure, and natural and cultural resources. Firefighter and public safety is the first priority in every fire management activity.
4. Wildfire response strives for safe, effective and efficient management that allows for the natural role of fire to exist on the landscape while protecting public safety, infrastructure and valued resources.
5. Wildfire threat is reduced through fire management actions, such as hazard fuel management and other integrated resource management activities focusing on areas where fuel conditions pose a threat to people, communities, ecosystem functions, and valued resources.

(FW-GL3-FIRE-DC)

6. Planned and unplanned fire management activities recognize the need to employ management actions that minimize the adverse effects to soil, water quality, and riparian resources and limit the potential for spread of invasive species.

Objectives (OBJ)

(FW-GL3-FIRE-OBJ)

1. Implement hazard fuel management treatments with consideration of integrated resource opportunities and desired conditions averaging 450 acres annually.

Management Approaches (MAP)

(FW-FIRE-MAP)

- When responding to wildfire consider the full range of management actions, from immediate suppression to limited actions commensurate with integrated resource and ecological desired conditions and objectives. Employ risk management to assist in determining the level of response to and use of fire.
- Use existing or newly developed agreements to guide jurisdictional cooperation outlining responsibilities of protection agencies during initial responses to wildfire. Cooperative agreements will assist with interagency working relationships, defining protocols, financial arrangements, and joint activities.

- Work with adjacent land owners and agencies to identify methods of cooperation and planning to reduce costs and increase effectiveness of hazard fuel management. Prioritize hazard fuel management projects in areas that pose the greatest threat to people, communities, ecosystem functions and valued resources.
- Design fuel management protection objectives to integrate with terrestrial ecosystem desired conditions and habitat improvement opportunities.
- Agency personnel and the public understand the role of fire as a natural disturbance process and the relationship to ecosystem services. Additionally, education and outreach programs provide information to reduce adverse impacts of wildfire and encourages and assists in community wildfire protection planning.

Fuelwood (FUEL)

Management Approaches (MAP)

(FW-FUEL-MAP)

- When designing vegetation projects, consider opportunities for providing fuelwood.
- With other landowners, provide fuelwood that contributes to the needs of local residents.

Invasive Species (INV)

Desired Conditions

The forestwide desired condition for invasive species is contained in FW-GL3-EPC-DC-5 (see Ecosystem Processes and Conditions).

Objectives (OBJ)

(FW-GL3-INV-OBJ)

1. Annually treat at least 50 acres of invasive plants targeting species with an Alaska Exotic Plants Information Clearinghouse invasiveness rank of 70 or higher.

Management Approaches (MAP)

(FW-INV-MAP)

The current distribution of invasive plant and animal species remains closely tied to areas of concentrated human use within the Chugach National Forest. The most effective strategy to protect terrestrial and aquatic ecosystems from invasive species is to prevent invasive species introduction and establishment. Containing known infestations is also important for blocking the spread of invasive species from infested lands to surrounding areas. A number of factors will be considered when developing the invasive species management strategy for the national forest, including severity of the ecological threat posed by the species, ecological risk of available control options, potential for achieving effective long-term control, potential to prevent subsequent reintroductions, goals and objectives established for the management area, severity of threat relative to other invasive species threats, and capacity of the Forest Service and partners. The invasive species systems approach outlined in the National Strategic Framework for Invasive Species Management provides guidance on invasive species management on National Forest System lands. Management of invasive species on the Chugach National Forest will prioritize the following:

- Develop and implement a forestwide invasive species strategy to guide management of invasive aquatic and terrestrial plants and animals across the Chugach National Forest.
- Conduct targeted surveys to detect new infestations of invasive species of concern (terrestrial and aquatic plants and animals).
- Maintain a list of invasive species of concern and a geospatial database of locations where prevention measures will be required. Transfer invasive plant records to the Alaska Exotic Information Clearinghouse on an annual basis.
- Eradicate, contain, or control existing invasive plant species with an Alaska Exotic Information Clearinghouse invasiveness rank of 70 or higher.
- Implement management actions to prevent the spread of invasive plant species.
- Develop educational materials to educate national forest users about invasive species and help mitigate unintentional spread.
- Develop sources for weed-free plant material and seed supply to meet restoration needs.
- Ensure mineral material used for construction projects on National Forest System lands is sourced from weed-free suppliers.
- Provide spatial GIS layers to the Alaska Interagency Wildland Fire Management Plan annually to inform wildfire suppression operations, noting waterbodies and site-specific locations with known infestations of invasive aquatic species (for example, *Elodea* spp.).
- Work in partnership with Alaska Department of Fish and Game and U.S. Fish and Wildlife Service to prevent the spread of northern pike to new stream reaches and pond and lake habitat within the Kenai River watershed.

Lands (LAND)

Desired Conditions (DC)

(FW-GL2-LAND-DC)

1. As land entitlements of Alaska Native Corporations and the State of Alaska are fulfilled, lands within and adjacent to the national forest boundary are adjusted to consolidate ownership interests and support the resource management objectives of all land owners. Specific desired conditions for land ownership include:

    a. Areas of tribal importance with special land status, including the Sqilantnu Archaeological District and selected ANCSA cultural and historic sites, are protected against degradation in coordination with affected Alaska Native Tribes and Alaska Native Corporations.

    b. Land entitlements created under ANCSA, the Alaska Statehood Act, and related authorities are finalized and excess selections are relinquished, allowing removal of title encumbrances and associated Forest Service management restrictions.

    c. The Forest Service works collaboratively with affected Alaska Native Tribes and Alaska Native Corporations to identify and prioritize posting of boundaries of National Forest System lands and interests in lands (including roads, trailheads, and trails). Tribal input may be used to inform Forest Service developed visitor and permit information (maps, brochures, and websites).

d. All Forest Service interests in lands, which include EVOS-acquired lands (including water rights), are maintained and protected against devaluation or loss.

e. Interests in land, including EVOS Trustee Council funded conservation and timber easements managed by the Forest Service, are monitored and enforced in coordination with the State of Alaska or Alaska Native Village Corporation as the underlying landowner. Subject to valid existing rights, lands acquired in fee with EVOS Trustee Council funding are managed in a manner consistent with the restrictive covenants contained in the conservation easements, and in coordination with the Alaska Native village corporation grantor or State of Alaska conservation easement holder.

f. Land ownership adjustments through purchase, donation, exchange, or other authority are used to consolidate lands, produce management efficiency, and support resource management objectives.

g. Land acquisitions include those interests necessary to support long-term management goals (for example, subsurface estate or water rights in consultation with Alaska Native Corporations and Alaska Native Tribes and in cooperation with the State of Alaska).

h. Additional road and trail rights-of-way are obtained or modified as needed in consultation with federally recognized Alaska Native Corporations and Alaska Native Tribes and in cooperation with the State of Alaska to provide public access to the national forest.

2. Rights-of-way and easements provide adequate and legal access to National Forest System lands and remain compatible with State of Alaska, borough, and private management objectives for local access roads.

Objectives

There are no forestwide objectives for lands.

Management Approaches (MAP)

(FW-LAND-MAP)

To achieve a land ownership pattern that facilitates accomplishing resource management objectives or reducing administrative costs, the acquisition of lands and interests in lands through willing parties should emphasize lands that meet one or more of the following criteria:

- Are in or adjacent to specially designated areas, such as the wilderness study area; wild, scenic, or recreational rivers; national recreation trails; and research natural areas;
- Are isolated inholdings surrounded by National Forest System lands;
- Consolidate split estates;
- Support environmental education in communities or provide opportunity for interagency administrative sites in communities;
- Provide public access to National Forest System lands;
- Support management of natural resources of the national forest; and
- Fulfill the intent and purposes of the EVOS Trustee Council restoration goals.

Minerals (MINE)

Desired Conditions (DC)

(FW-GL2-MINE-DC)

1. Development of mineral resources contributes to local, regional, or national markets for valuable commodities and adds social and economic benefits to local communities. Mineral development is managed in a manner that minimizes, to the extent feasible, adverse impacts to groundwater, natural, cultural, and scenic resources and meets legal mandates. Past and present mine facilities are sufficiently reclaimed to prevent or control on-site and off-site impacts to the environment and national forest surface resources.

Objectives and Management Approaches

There are no forestwide objectives or management approaches for minerals.

Recreation (REC)

Desired Conditions (DC)

(FW-GL1-REC-DC)

1. Access to winter recreation opportunities is maintained or enhanced through a collaborative effort between the Forest Service, local communities, other agencies, and partner organizations to provide snowplowing of parking lots and trail grooming (where authorized).

(FW-GL2-REC-DC)

2. Through partnerships between the Forest Service and organizations and communities, the Chugach National Forest offers opportunities for unparalleled outdoor recreation experiences that showcase the natural and cultural heritage of the Kenai Peninsula, Prince William Sound, and Copper River Delta geographic areas.
3. The Forest Service encourages a diverse array of recreation opportunities by permitting businesses to provide guided recreation activities for visitors to the Chugach National Forest.
4. Developed recreation areas and municipal watersheds are withdrawn from mineral entry.
5. Recreation sites and trail systems are ecologically, economically, and socially sustainable and are supported by communities and partners through shared infrastructure development and maintenance, delivery of information, and provision of recreation services.
6. The number and location of recreation facilities reflect current and future public needs and demand commensurate with Forest Service financial capabilities, and are consistent with forestwide recreation facility planning.
7. Forest management activities are integrated with recreational opportunities and infrastructure, and adverse impacts to recreation settings are minimized or mitigated, consistent with forestwide and management area direction.
8. National forest visitors are aware these environments are frequented by wildlife. Visitors are informed of appropriate behaviors to minimize their chance for adverse interactions with animals, reducing risks for both humans and wildlife.
9. A diverse range of recreation settings is sustained and settings are spatially and seasonally distributed as shown on the desired recreation opportunity spectrum class map in the Maps section of this plan and summarized in table 1.

Table 1. Percentage of desired recreation opportunity spectrum settings on National Forest System lands

Recreation opportunity spectrum setting	Percent
Primitive	38%
Semi-primitive non-motorized	29%
Semi-primitive non-motorized (winter motorized allowed)	23%
Semi-primitive motorized	7%
Roaded natural	2%
Rural	Less than 1%

10. The level of social encounters described in table 2 are maintained in desired recreation opportunity spectrum classes for all recreation management activities including authorized commercial recreation use.

Table 2. Desired level of social encounters by recreation opportunity spectrum classes

Recreation Opportunity Spectrum Class	Level of Encounters[1] on or within 300 feet of trail	Level of Encounters[1] on shoreline and up to one-quarter mile inland from shore[2]	Level of Encounters[1] more than 300 feet from trail and inland more than one-quarter mile from shoreline
Primitive	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins.	Low: less than three parties per day. No other parties within sight or sound of campsites or cabins.	Very Low: zero to one party per day. No other parties within sight or sound of campsites or cabins.
Semi-primitive non-motorized	Moderate: less than 15 parties per day. No more than three other parties within site or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins.
Semi-primitive non-motorized (winter motorized allowed)	Moderate: less than 15 parties per day. No more than three other parties within site or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins.
Semi-primitive motorized	Moderate: less than 15 parties per day. No more than three other parties within site or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins 85 percent of the primary use season.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins.
Roaded natural	High: greater than 15 parties per day. Six or more other parties may be within sight or sound of campsites or cabins.	Moderate: less than 15 parties per day. Six or more other parties may be within sight or sound of campsites or cabins.	Low: less than six parties per day. No other parties within sight or sound of campsites or cabins 85 percent of the primary use season.
Rural	Not applicable	Not applicable	Not applicable

1 – Desired condition would still be met if level of encounters are exceeded for up to 15 percent of the primary use season (approximately 1 day per week average). Applies only to management areas 4, 5, 6, 7, and 8.

2 - This recreation opportunity spectrum characteristic does not include or count activities occurring in areas not managed by the Forest Service (for example, marine based activities).

Objectives (OBJ)

(FW-GL1-REC-OBJ)

1. Within 5 years of land management plan approval, develop at least two agreements with local communities or organizations to assist with trail data collection, trail maintenance, or other trail stewardship tasks.

(FW-GL2-REC-OBJ)

2. Within 5 years of land management plan approval, identify and prioritize developed recreation areas for withdrawal from minerals entry, and within 10 years of plan approval, complete mineral withdrawals on the two highest priority areas.

Management Approaches (MAP)

(FW-REC-MAP)

- Chugach Children's Forest programs connect youth, families, and adults to the outdoors through year-round opportunities to participate in outdoor recreation and stewardship activities.
- Prior to the expiration date of a campground concessionaire permit, provide information to potentially interested parties to prepare for upcoming prospectus submissions for the campground concessionaire permit.
- Develop collaborative partnership strategies across the national forest to raise public awareness; provide recreational, interpretive, and public safety information; and to promote resource stewardship by the public.
- Use an integrated approach with partners and trail users to collect and share trail data and information that better serve the public, emphasizing open data, citizen science, and other contemporary approaches.

Soils (SOIL)

Desired Conditions (DC)

(FW-GL3-SOIL-DC)

1. Productive soils provide key ecosystem services: sequestering and cycling carbon; providing nutrients, water, and physical support for vegetation; decomposing organic compounds, and releasing nutrients available for plant growth; providing flood control by storing and releasing water; and filtering and purifying water.
2. Soils retain key properties (such as, bulk density, porosity, presence of forest floor and surface horizons, and effective ground cover) that support ecosystem integrity and provide resilience against ground-disturbing activities, including those that compact soil and reduce porosity, affect water flow and aeration, displace surface soils, and cause nutrient and organic matter losses. Areas with sensitive and highly erodible soils or landtypes with mass failure potential are not destabilized as a result of management activities.
3. Long-term soil quality and site productivity on lands dedicated to growing vegetation are not impaired; support the regeneration, growth and successional pathways of native plant communities; and are resilient to climate change.
4. Soil and ecological inventory data are adequate to inform management decisions.

5. Undisturbed soils within the transportation system or utility corridors retain soil productivity. Under the road prism, soils are compacted and not maintained for soil productivity but to support a stable road base. In ditches, cut slopes, utility corridors, and other disturbed areas outside the road prism, soils support desired plant communities of typically native, noninvasive plants. Vegetation cover is present in these areas unless soil is absent. Soil erosion and sediment transport are minimized.

Objectives and Management Approaches

There are no forestwide objectives or management approaches for soils.

Watersheds and Aquatic Ecosystems (WAE)

Desired Conditions (DC)

(FW-GL3-WAE-DC)

1. Watersheds in the plan area have primarily free-flowing rivers and streams and unmodified lakes. Instream flows and lake levels are sufficient to maintain natural aquatic and riparian habitats, wildlife and fish populations and recreational needs, State of Alaska designated beneficial uses, and to support inherent watershed integrity.
2. The quality of both surface and subsurface waters on and flowing from National Forest System lands sustains native terrestrial and aquatic species and ecosystems, meets federal and state water quality standards, and supports State of Alaska designated beneficial uses.
3. Stream channel morphology, structure, complexity, and diversity are primarily within ranges characteristic of the stream process group and are consistent with disturbance regimes characteristic of the geographic area.
4. Within the inherent capacity of the identified stream process group, riparian areas and wetlands retain their functional capacity to:
    a. filter sediment, capture bedload, and aid in floodplain development;
    b. provide for floodwater retention and groundwater recharge; and
    c. develop diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish and aquatic invertebrate production, waterfowl breeding, and other beneficial uses.
5. Riparian vegetation is in dynamic equilibrium with the stream, lake, or wetland system and adequately covers and protects streambanks and shorelines from accelerated erosion and dissipates energy during high flows.
6. Native vegetation that is diverse in structure, cover, and composition dominates land cover in watersheds, particularly riparian and wetland areas, maintaining high integrity ecosystems.
7. Riparian and wetland vegetation is maintained to support important fish and wildlife habitats.
8. Watershed services provided by lakes, ponds, rivers, streams, riparian areas, and wetlands sustain healthy populations of native fish and other aquatic organisms. Abiotic factors, including flow characteristics, channel shape and function, stream length, stream gradient, water turbidity, spawning gravels, and large wood, remain in a functional natural state, providing resilience to climate change and supporting native fish and aquatic organisms.

9. Water follows natural flow paths and hydrologic connectivity is maintained. Roads, ditches, and trails do not disrupt hydrologic connectivity and do not act as an extension of the stream network.
10. Perennial flowing streams and associated lakes support a community of native macroinvertebrates indicative of high aquatic ecosystem integrity.

Objectives (OBJ)

(FW-GL3-WAE-OBJ)

1. Within 5 years of land management plan approval, restoration practices will improve the condition of at least two priority watersheds listed in appendix D.
2. Within 3 years of land management plan approval, identify and prioritize needs for instream flow reservations within the national forest.
3. Within 10 years of land management plan approval, file at least one instream reservation application with the State of Alaska to meet critical water demands on National Forest System lands to maintain fish and wildlife species and habitats and support recreational activities.
4. Within 5 years of land management plan approval, update the road-stream crossing aquatic organism passage inventory and prioritize remediation work. Use prioritization criteria that consider hydrologic changes resulting from climate change in addition to standard management criteria.

Management Approaches (MAP)

(FW-WAE-MAP)

Chugach National Forest has functional watersheds and abundant water resources. There are 275 6th-level hydrologic unit code watersheds, varying in size from 8,000 to more than 300,000 acres across the national forest. Properly functioning watersheds provide many important ecosystem services as well as high-quality water, recharge of streams and aquifers, moderation of climate variability, and long-term soil productivity. Management approaches aim to maintain the natural function of watersheds to sustain terrestrial, riparian, wetland, and aquatic habitats that support diverse, productive and resilient populations of native plants and animals. Management approaches for watersheds within the Chugach National Forest include:

- Use the watershed condition class attribute ratings to determine watershed restoration needs.
- Complete Watershed Restoration Action Plans for priority watersheds and update watershed condition class in accordance with the Forest Service Watershed Condition Framework. Throughout the life of the plan, additional priority watersheds (listed in appendix D) will move up into active designations and replace restored watersheds as desired watershed conditions are met.
- Work with partners to develop funding opportunities and accomplish watershed restoration objectives.
- Collaborate with state and federal agencies and partners on instream flow reservations.
- Collect and manage information about the properties, distribution, capabilities, condition, suitability, and limitations of soils associated with National Forest System lands in accordance with Forest Service inventory, monitoring, assessment, and information management policies.
- Develop a soil resource inventory or Terrestrial Ecologic Unit Inventory to meet the long-term planning and implementation needs of the Chugach National Forest.

- Continue to work in partnership with Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service to prevent the spread of northern pike to new stream reaches and pond and lake habitat within the Kenai River watershed.
- Prioritize replacement of road-stream crossing structures that do not meet aquatic organism passage requirements or conveyance requirements for current or projected stream flow. Class 1 and II streams should be given priority for replacement.
- Maintain hydrologic connectivity and aquatic organism passage by eliminating barriers such as undersized culverts, and maintaining fish passage infrastructure such as fish ladders.
- Administer mining activities to minimize irreversible or serious and adverse effects on soil and water resources.

Forestwide Standards and Guidelines

Not all resource area headings and subheadings have both standards and guidelines—some will have only standards or guidelines. If a resource area is not listed in this section of the plan, assume no forestwide standards or guidelines exist for that resource.

Numbering system for standards and guidelines: use the identifier in parentheses (inserting "S" or "G" for the standard or guideline) and add the number of the standard or guideline. For example, the identifier for the first standard under the heading Cultural Resources is FW-CULTURE-S-1, where FW means forestwide, CULTURE means Cultural Resources, S is for standard, and 1 is the number. For some resources, standards and guidelines are integrated under one heading; therefore, careful numbering is essential to show consistency with the land management plan.

Cultural Resources (Culture)

(FW-Culture-S)

1. The Forest Service shall implement stipulations and guidelines set forth in the Programmatic Agreement among the USDA Forest Service, Alaska Region; the Advisory Council on Historic Preservation; and the Alaska State Historic Preservation Officer regarding Heritage Program Management on National Forests in the State of Alaska when taking into account the effects of its actions on historic properties in satisfying the Forest Service's Section 106 responsibilities. [Standard]

Subsistence (SUB)

(FW-SUB-S)

1. Subsistence uses of fish and wildlife resources by federally qualified rural residents shall be the priority consumptive use of fish and wildlife resources. The Forest Service, acting under the delegated authority of the Federal Subsistence Board, shall restrict the taking of subsistence resources when needed to assure the persistence of a fish or wildlife population. [Standard]

(FW-SUB-G)

1. The effects to subsistence resources and uses by rural residents should be considered when designing management actions or evaluating authorized activities, and where appropriate, specific measures should be developed to minimize these effects. [Guideline]

Terrestrial Ecosystems (TE)

Terrestrial Ecosystems (TE) Vegetation Management (VEG)

(FW-TEVEG-S or G)

1. Protect and conserve known populations of Aleutian cress (*Aphragmus eschscholtzianus*) and any new populations identified during project or activity planning or implementation. [Guideline]
2. Fuels created as a result of vegetation management activities adjacent to roads and trails should be treated to reduce fire risk and visual impacts. [Guideline]
3. Avoid crossing of streams and wetlands by vehicles or heavy equipment or locate crossings in areas of hard bottoms and shallow banks to prevent streambank damage and erosion. [Guideline]
4. Locate slash piles intended for burning outside of riparian management zones to keep sediment, ash, and activity fuels out of stream channels and protect soil, water, and riparian resources. [Standard]
5. Burn piles should be of appropriate size and spacing such that detrimental soil conditions should not exceed 15 percent of the total acreage for the treated area. [Guideline]
6. In order to protect riparian ecosystems, cutting of green sawtimber for personal use should not be permitted in riparian management zones. Exceptions may be allowed if no other feasible location is viable and permit requirements minimize soil disturbance and maintain water quality, and aquatic and riparian integrity. [Guideline]

Terrestrial Ecosystems (TE) Silviculture (SILV)

(FW-TESILV-S or G)

1. Prescriptions and treatments should consider natural disturbance regimes and agents to produce forest and ground cover types and features that are consistent with the desired composition, structure, and function of the forest stand, as well as the landscape in general. [Guideline]
2. Manage forest vegetation according to a site-specific silvicultural prescription prepared or approved by an Alaska Region certified silviculturist. This standard does not include incidental tree removal as part of infrastructure maintenance or hazard mitigation. [Standard]
3. Site-specific silvicultural prescriptions must be approved prior to project implementation.
    a. Adjustments needed prior to project implementation will be coordinated with appropriate resource specialists and will be within the scope of the project-level analysis and decision.
    b. All prescriptions will be current and will accurately reflect project design features and on-the-ground conditions. [Standard]
4. Determine the appropriate silvicultural system as described in table 3. Where regeneration of a stand is the purpose for treatment, use the appropriate silvicultural system based on the ecological characteristics and silvics of the tree species present. [Guideline]
5. Limit clearcutting and other even-aged final harvest treatments to a maximum opening size of 40 acres in one operation. This limit does not apply to the size of openings created as a result of natural disturbance conditions, such as fire, windthrow, and insect or disease infestation. [Standard]

6. For the purposes of determining maximum opening sizes, an even-aged harvest treatment is no longer considered an opening when the average height of an adequately stocked stand is at least 5 feet in height. [Guideline]

Table 3. Even-aged, two-aged, and uneven-aged silvicultural systems appropriate for each forest type

Forest Type	Even-aged	Two-aged	Uneven-aged
White/Lutz spruce Sitka spruce Spruce/hemlock Western/mountain hemlock	Clearcut Seedtree Shelterwood All with or without leave trees	Clearcut Seedtree Shelterwood All with or without reserve trees	Single-tree selection Group selection with or without leave trees or reserve trees
Mixed conifer and mixed conifer/deciduous	Clearcut Seedtree Shelterwood All with or without leave trees	Clearcut Seedtree Shelterwood All with or without reserves trees	Single-tree selection Group selection with or without leave trees or reserve trees
Aspen	Coppice[1]	Coppice with standards[2]	Group selection
Paper birch	Clearcut Seedtree Shelterwood All with or without leave trees	Clearcut Seedtree Shelterwood All with and without reserve trees	Group selection with or without leave tree or reserve trees
Cottonwood/balsam poplar	Clearcut Seedtree Shelterwood All with or without leave trees	Clearcut Seedtree Shelterwood All with and without reserve trees	Group selection with or without reserves

1 - Coppice is a vegetative propagation or reproduction method whereby regeneration occurs through root suckering and stump sprouting.
2 - Coppice with standards are selected overstory trees reserved for a longer rotation at the time each crop of coppice material is cut.

7. Where available onsite, retain snags and green trees for snag recruitment and coarse down woody material for multiple resource objectives, such as nutrient cycling, site productivity, regeneration, and wildlife habitat, using the minimum retention requirements in table 4. Coordinate retention of snags and down woody material with fuels specialists to conform with hazardous fuels reduction requirements.

   a. Project-level design may determine that a greater or lesser number of snags or down woody material may need to be retained, based on site-specific analysis (for example, within the wildland-urban interface).

   b. To the extent feasible and practical from an operational and safety standpoint, retain large old trees and snags within residual patches and refugia in order to promote snag longevity.

   c. Address safety issues by using guidelines outlined in Reserve Tree Selection Guidelines, R10-MB-215 (March 1993). [Guideline]

Table 4. Minimum retention requirements for snags and coarse down woody material on forested sites following timber harvest

Forest Type	Snag Minimum Diameter[1] (inches)	Snag Minimum Height (feet)	Snag Retention Density[2] (number per acre)	Down Woody Material Minimum Diameter[1] (inches)	Down Woody Material Retention Density[3] (linear feet per acre)
White/Lutz spruce	15	15	4	12	100
Sitka spruce	20	15	4	15	150
Western/mountain hemlock	11	15	4	10	150
Mixed conifer deciduous	11	15	4	10	100
Aspen	10	15	4	10	90
Paper birch	10	15	4	10	90
Cottonwood/balsam poplar	10	15	4	10	90

1 - The minimum diameter figure shown or the largest diameters available, based on average existing stand conditions, will be retained calculated as per-acre averages over the project area. The appropriate distribution of snags and down logs will be described during project development. Snags smaller than 10 inches diameter at breast height or less than 10 feet tall are not considered. Retained trees should have reasonable assurance of windfirmness. Consider adding smaller trees or younger trees for future structure recruitment and to add windfirmness where needed.

2 - Retain a sufficient number of green tree recruitment snags that would survive over the stand rotation, to provide needed snag habitat as hard snags deteriorate and turn soft over time.

3 - Total linear feet per acre figure is not a cumulative value.

8. Design and layout of treatment areas will provide for irregular edges that blend with landscape features. Units will be sized, configured, and oriented using practices that provide for windthrow protection along unit edges as well as trees reserved within units. [Guideline]

9. Design and implementation of treatments and the removal of forest products (sales, public access, and long-term storage of product), should include measures to reduce the potential for increased dispersal, harboring, and concentration of bark beetles, including *Ips* spp. and *Dendroctonus* spp., both within and outside the national forest boundary.

    a. Time and implement stand treatments to disrupt beetle life history where feasible.

    b. Store and remove forest products in a manner that reduces insect infestations of logs, such as timely removal and processing.

    c. Treat log decks to prevent development and emergence of bark beetles during staging of the deck by means such as drying, debarking, tarping, or insect trapping.

    d. Reduce the dispersal of wood products with known spruce bark beetle and larval infestation when above endemic populations. [Guideline]

10. Stands managed using the even-aged system will not generally be scheduled for final harvest before stand growth has reached or surpassed 95 percent of the culmination of mean annual increment growth in cubic feet (table 5). Exceptions may be made where special resource considerations require earlier harvest, such as wildlife treatments, salvage, and sanitation harvesting of timber stands (16 U.S.C. 1604(m)). The culmination of mean annual increment requirement does not apply to stands managed using uneven-aged systems, except group selections or intermediate systems. [Guideline]

Table 5. Culmination of mean annual increment growth by forest type

Forest Type	Estimated Age of CMAI* (years)
White/Lutz spruce	125
Sitka spruce/western hemlock	100
Mountain hemlock	No estimate
Aspen	75
Paper birch	75
Cottonwood/balsam poplar	100

Note: CMAI = culmination of mean annual increment.

*Age of CMAI is estimated for the Chugach National Forest based on early Forest Service growth models and the Silvics of North American Trees. Locally calculated CMAI values may be used.

11. The preferred means of stand regeneration is by natural seeding from existing seed sources or vegetative reproduction in aspen and poplar stands. Natural regeneration is the preferred method for restocking a harvested stand where it is most ecologically suited. Artificial regeneration (hand planting using a native and site-adapted seed source) may be used where natural regeneration would not achieve the appropriate level of stocking within the initial establishment period (3 years) or where planting is needed to enhance species diversity, long-term site productivity, forest health, or scenic integrity. Direct seeding and tree planting should be used only when a seed source is unavailable or insufficient on site. [Guideline]

12. Harvest treatments should include ground scarification when needed for regeneration of desired species and where doing so will not cause unacceptable resource damage. Consult table 6 for recommended soil scarification site preparation needed for adequate natural regeneration. Coordinate soil scarification with a watershed specialist or ecologist during planning and implementation. [Guideline]

Table 6. Site preparation guidelines for natural regeneration

Harvest Method	Method of Seed Dispersal	Forest Tree Species[1]	Site Preparation Required	Soil Scarification Amount Needed[2]
Clearcut	Seedfall from surrounding trees or through direct hand seeding	All species	Yes	30 to 50 percent scarification to mineral soil
Seedtree	Seedfall from surrounding trees or through direct hand seeding	Spruce, Hemlock, Birch	Yes	30 to 50 percent scarification to mineral soil
Shelterwood	Seedfall from surrounding trees or through direct hand seeding	Spruce, Hemlock, Birch	Yes	10 to 30 percent scarification to mineral soil
Coppice (stump sprout)	Not applicable	Birch, Poplar	No	Minor soil scarification
Coppice (root suckering)	Not applicable	Aspen, Cottonwood	No	Minor soil scarification

1 - Seedfall dispersal for birch is more common than for poplar, aspen, and cottonwood, although some seedfall dispersal does occur in the latter three.

2 – Depth of soil scarification will not extend below the topmost mineral soil horizon.

13. Develop silvicultural prescriptions to assure stands are adequately stocked within 5 years of final harvest. The minimum stocking level that meets land management objectives is described in table 7. [Standard]

Table 7. Stocking objectives by forest type and harvest method

Forest Type	Harvest Method	Desired Seeding/Sapling[1] Stocking (per acre)	Adequate Seedling/Sapling[1] Stocking (minimum per acre[2])
Spruce/hemlock	Clearcut	450 or greater	300
	Seed tree	300 or greater	300
	Shelterwood	300 or greater	300
Aspen-poplar	Clearcut	1,250 or greater	300
	Seed tree	1,250 or greater	300
Popular	Shelterwood	1,250 or greater	300
Birch	Clearcut	1,250 or greater	300
	Seed tree	2,000 or greater	300
	Shelterwood	2,000 or greater	300

1 - Advanced regeneration in the form of saplings may exist with some harvest methods. Those used to help meet minimum stocking requirements must be of good quality and form.
2 - Minimum numbers per acre are those required at the time the regenerated stand is scheduled for certification to meet the National Forest Management Act 5-year timeframe requirement.

Access and Infrastructure (INFRA)

(FW-INFRA-S or G)

1. Road design specifications should be based on the following criteria: resource management objectives, environmental constraints, safety, physical environmental factors, traffic requirements, traffic service levels, vehicle characteristics, road users, and economics. [Guideline]
2. Design standards shall follow guidelines in the Forest Service Manual and Handbook. [Standard]
3. To protect watershed resources, road and trail work (construction, reconstruction, and relocation) should adhere to the following guidelines:
    a. Design new and replacement road-stream crossings, complex and major trail bridges and other engineered trail structures to pass at least the 100-year flood event, including bedload, debris, and ice jams. These structures shall be evaluated by a Forest Service Engineer to ensure compliance with this guideline prior to finalizing the design or implementation.
    b. Evaluate and design minor trail-stream crossing structures to minimize resource damage by reducing risk of failure.
    c. Design stream crossing and other engineered structures to maintain streamflow in the channel in the event of failure.
    d. Use best management practices to minimize sediment delivery to streams and other waterbodies. Road and trail drainage shall be routed away from potentially unstable channels, fills, and hillslopes. [Guideline]
4. Implement seasonal road restrictions when one or more of the following conditions are present:
    a. Weather or seasonal conditions result in vehicles causing unacceptable damage to the road and adjacent soil and water resources
    b. Damage incurs costs too great to justify repairing the road structure
    c. User safety may be jeopardized by the road condition or other hazards
    d. Motorized use would adversely impact major life-cycle events of at-risk species. [Guideline]

5. Planned road construction activities in areas with known or potential slope stability, erosion, and drainage concerns should be implemented only after soil, water, geotechnical engineering, and geological evaluations are made. [Guideline]
6. Identified access routes, transportation methods, and equipment—including but not limited to trails, trail bridges, roads, and road bridges—shall comply with engineered load and use standards of Forest Service assets in accordance with Forest Service Handbook 7709.56. [Standard]
7. Recreational motor vehicle use shall be limited to roads, trails, and areas designated for motorized use as shown on motor vehicle use maps. [Standard]
8. Regulate winter motorized access by forest order until such time that the regulatory over-snow vehicle use map is implemented. The winter motorized use season is December 1 through April 30 and may be extended or shortened by forest order based on snow conditions and coverage. [Guideline]
9. In Turnagain Pass the winter motorized use season is from the Wednesday before Thanksgiving through April 30 and may be extended or shortened by forest order based on snow conditions and coverage. [Guideline]
10. Motor vehicle access on routes closed to public motor vehicle access shall be allowed only through an authorized use permit or mining plan of operation. Administrative use of motor vehicles on routes closed to public motor vehicle access shall require line officer approval. [Standard]
11. The architectural character of administrative and recreation buildings, landscape structures, site furnishings, wayside structures, and signs installed or operated by the Forest Service and its cooperators or permit holders should be designed to be consistent with The Built Environment Image Guide for the National Forests and Grasslands (see appendix G). Structures should be visually subordinate to and complement the surrounding landscape. Use a design theme intended to blend facilities with the natural environment, meet user expectations, and maintain recreation niche consistency. [Guideline]
12. Design and locate recreation and administrative infrastructure to minimize impacts to water quality; riparian, aquatic and wildlife habitat; and to meet Alaska Department of Environmental Conservation requirements.[Guideline]
13. Require use of plant species native to the area or species approved for local use when revegetating disturbed sites and landscaping. [Standard]
14. To provide for security while also reducing light pollution, install only the minimum amount of permanent lighting necessary at infrastructure owned or operated by the Forest Service or its cooperators and permit holders. For new lighting installations, use light sensitive, motion-activated lighting systems that illuminate only when needed for security or for maintenance. Use hooded light fixtures to prevent horizontal and upward light pollution. [Guideline]
15. Forest Service facilities or infrastructure should be designed or modified to prevent entry or entrapment of birds, amphibians, and small mammals in open pipes or cavities 1.5 inches in diameter or greater through use of screening or other modifications. [Guideline]
16. Follow Dam Safety Requirements (Forest Service Manual 7500) for designs related to dams. [Standard]

Air Quality (AIR)

(FW-AIR-G)

1. Prescribed fire will meet State of Alaska air quality permitting requirements. [Guideline]

Fire and Fuels (FIRE)

(FW-FIRE-G)

1. After the evaluation of risk and application of mitigation actions associated with firefighter and public safety, wildfires should be managed to meet protection objectives, resource management objectives, desired conditions, or a combination of objectives and desired conditions. [Guideline]
2. Design hazard fuel management treatments to remove or rearrange vegetation, whether mechanically or through prescribed fire, that achieve at least one of the following outcomes: a reduction in fuel loadings, flame lengths, rates of spread, or torching and crowning potential compared to current conditions. [Guideline]
3. Waterbodies known to have aquatic invasive species should not be used for water extraction, aircraft landing or other actions that will spread invasive species during fire management activities. Wildfire response efforts will employ current maps and wildland fire decision-support tools that identify waters with key invasive species. [Guideline]
4. Avoid aerial application of all fire management chemicals within 300 feet of waterways. Assure any additionally identified avoidance areas are mapped and incorporated into wildland fire decision-support tools. [Guideline]
5. Apply minimum impact suppression tactics during fire management activities commensurate with incident objectives. [Guideline]
6. During wildland fire management activities, locate incident bases, camps, helicopter landing zones, aviation bases, staging areas, and other centers for incident activities in locations that will reduce chances of negative human-bear encounters and are outside of riparian management zones. [Guideline]
7. Coordinate with State of Alaska Department of Environmental Conservation to provide proactive and adequate public information about smoke from planned and unplanned fire management activities. [Guideline]

Invasive Species (INV)

(FW-INV-G)

1. Management actions and authorized activities should include specific measures to prevent or minimize the spread of aquatic and terrestrial invasive species of concern (as identified by Chugach National Forest). Measures should include general, group, or species-specific protocols that describe in detail:
    a. locations or situations where protocols are required;
    b. individual(s) or parties responsible for implementing and monitoring protocol compliance;
    c. proper methods for containment, transport, and disposal of any contaminated materials;
    d. proper methods and locations for safely and effectively cleaning or sanitizing multi-use equipment, clothing, and materials or transportation before and/or after use. [Guideline]

2. Existing infestations of invasive species of concern (as identified by the Chugach National Forest) located on National Forest System lands and waters should be evaluated and prioritized for containment or treatment to minimize negative effects to National Forest System and adjacent lands. [Guideline]

Land Status and Ownership (LAND)

(FW-LAND-G)

3. To achieve a land ownership pattern that facilitates accomplishing resource management objectives or reducing administrative costs, land exchanges or limited special authorities to dispose of National Forest System lands or interest in lands should be used for:

    a. isolated or inaccessible parcels surrounded by other ownership that are expensive to manage and do not significantly contribute to the desired conditions, goals, and objectives of the land management plan;

    a. lands inside or adjacent to communities or intensively developed private land that supports community needs and are more appropriate for community purposes;

    b. adjusting boundaries to support more logical and efficient management and reduce encroachment (for example, washout of an existing easement);

    c. exchanging lands not critical for national forest management for lands that are more desirable for Forest Service purposes. [Guideline]

Minerals (MINE)

(FW-MINE-S or G)

1. For mining operations that affect fish habitat and hydrologic function, reclamation plans will include requirements for reestablishing hydrologic connectivity, proper hydraulics, and stable geomorphology. [Standard]

2. For areas where vegetation and soil will be removed during mining operations, reclamation plans for mining operations should include stockpiling of topsoil, recontouring the land, and placing the topsoil across the mined area in addition to practices outlined in Min-1 and Min-8 of the National Core Best Management Practices Technical Guide FS-990a. The area should be revegetated with native and weed-free vegetation. Apply non-vegetation erosion control measures as needed to keep soil onsite and prevent sedimentation. [Guideline]

3. Minimize adverse effects of mineral exploration and development activities with respect to aquatic, riparian, soil and watershed resources where feasible. Include mitigation measures compatible with the scale of proposed development and commensurate with potential resource impacts. [Guideline]

4. Mining access routes, transportation methods, and equipment shall comply with engineered load and use standards of Forest Service assets, including but not limited to trails, trail bridges, roads, and road bridges.[Standard]

5. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other resident fish habitat to the maximum extent feasible (ANILCA section 505 [a]). [Guideline]

6. Support facilities, infrastructure, and equipment should be located outside riparian management zones if reasonable alternatives exist. [Guideline]

Non-Recreation Special Use Authorizations (NRSU)

(FW-NRSU-S or G)

1. For commercial uses or activities, a special use permit shall be required for all aircraft taking off and landing on National Forest System lands, including helicopters, fixed wing, and unmanned aircraft. If an activity is not considered a commercial use and is strictly point-to-point transportation, a special use permit is not required. [Standard]
2. Co-locate new permitted infrastructure with existing infrastructure where practical to reduce environmental and visual impacts of electronics sites, utility corridors, and other permitted infrastructure. [Guideline]
3. New energy-related development should be confined to existing corridors, or if impractical, use the minimum land area necessary for an efficient and safe facility. Energy-related development should be designed with consideration for the existing form, line, color, and texture of the characteristic landscape. To reduce adverse effects to scenery, when uses are compatible, new powerlines and pipelines should be co-located within existing corridors and co-located on the existing poles or buried where the landscape allows. New powerlines and pipelines located outside of existing corridors should be buried where the landscape allows. [Guideline]
4. When field camps associated with extended field projects are required, the following minimum conditions shall apply:
    a. Structures above tent platforms shall be taken apart and laid flat on top of or beneath the tent platform at the end of seasonal occupation.
    b. Camps shall not be visible from major travel routes, including designated trails or from boats.
    c. Distance from fresh water shall be specified. [Standard]

Pathogens (PATH)

(FW-PATH-G)

1. Management actions and authorized activities likely to result in contact with specific environmental pathogens of concern (as identified by the Chugach National Forest) should include specific measures to prevent or minimize human-caused spread of these organisms and to avoid harmful human exposure. Current pathogens of concern include white nose syndrome, *Mycoplasma ovipneumoniae*, and whirling disease. Measures should include general or pathogen-specific protocols that describe in detail:
    a. locations or situations where protocols are required;
    b. individual(s) or parties responsible for implementing and monitoring protocol compliance;
    c. required personal protective equipment to prevent or minimize human exposure to pathogens;
    d. proper methods for containment, transport, and disposal of any contaminated materials;
    e. proper methods and locations for safely and effectively cleaning or sanitizing multi-use equipment, clothing, and materials or transportation before and/or after use. [Guideline]

Recreation and Recreation Special Uses (REC)

(FW-REC-S or G)

1. When issuing or renewing authorizations for recreation events, include permit terms, as needed, to mitigate potential impacts of activities associated with these events on other users. [Guideline]
2. For commercial uses or activities, a special use permit shall be required for all aircraft taking off and landing on National Forest System lands, including helicopters, fixed wing, and unmanned aircraft. If an activity is not considered a commercial use and is strictly point-to-point transportation, a special use permit is not required. [Standard]
3. Management actions and authorized activities that could affect recreation opportunity spectrum setting characteristics should include specific measures (such as the timing of activities or removal of roads that were needed for temporary access) to minimize effects to recreational opportunities. [Guideline]
4. Grooming of winter trails should only be authorized through a written instrument such as a cooperative agreement with a partner organization or a volunteer agreement with a local community. [Guideline]
5. To achieve the character of the desired recreation settings, the recreation opportunity spectrum setting indicators shown in table 8 should be used to determine the type of on-site development and controls, the development scale for recreation facility and trail development, and the maximum party size for permitted recreation activities. [Guideline]

Table 8. Recreation opportunity spectrum setting indicators

Recreation Opportunity Spectrum Class	Maximum party size[1]	On-site Development	Development Scale	On-site Controls	Trail Management Class[2]
Primitive	15	None except for recreation cabins. Minimum: designed for site protection.	1	None	1 to 2
Semi-primitive non-motorized	15 in management area 1 24 in all other management areas	Recreation cabins, hardened campsites, no synthetic materials	2 to 3	Few, native materials only	3
Semi-primitive non-motorized (winter motorized allowed)	15 in management area 1 24 in all other management areas	Recreation cabins, hardened campsites, no synthetic materials	2 to 3	Few, native materials only	3
Semi-primitive motorized	30	Recreation cabins, hardened campsites, no synthetic materials	2 to 3	Few, native materials only	3
Roaded natural	Not applicable	Recreation cabins, improved trails, rustic style day-use facilities and lodges, campgrounds	3	Obvious rustic style, constructed parking areas, trails	3 to 5
Rural	Not applicable	Facilities for user comfort and convenience	4	Numerous and obvious barriers, parking areas, pedestrian controls	4 to 5

1 - Group size may be exceeded for up to 15 percent of the primary use season (approximately 1 day per week average). Applies only to management areas 4, 5, 6, 7, and 8.

2 - Trail class 3 allowed in primitive recreation opportunity spectrum class areas only where necessary for resource protection.

Scenic Resources (SCEN)

(FW-SCEN-S)

1. New management actions and authorized activities shall be consistent with mapped scenic integrity objectives (see scenic integrity objectives map in the plan's Maps section) and shall integrate the protection of aesthetic values with all resource planning. Areas of nonconformance caused by management activities are permissible as described in the forestwide scenic resources guidelines, or as identified in the management area scenery standards and guidelines. [Standard]

(FW-SCEN-G)

1. Deviations from the mapped scenic integrity objective may be allowed cumulatively (including past and present projects) for up to 10 percent of the seen area (acres) from identified viewing locations (trails, roads, developed recreation sites, marine waters, shorelines, lakes, and rivers), but the impact must not result in a lower scenic integrity level than the range displayed in table 9 for the management area. Deviations from scenic integrity objectives are allowed for unseen or seldom seen areas, but in no case may the effects of an activity be less than the lowest scenic integrity objective permitted in the range in table 9 for the management area. [Guideline]
2. Authorized non-discretionary mineral activities may result in scenic integrity levels lower than mapped scenic integrity objectives. Required reclamation activities should be, to the extent practicable, designed such that the affected area will meet the scenic integrity objectives to at least the lowest scenic integrity objective in the range for that management area (table 9) within 10 years of the completion of the reclamation work. [Guideline]

Table 9. Range of permissible scenic integrity objectives (SIO) deviations by management area (see scenery guideline FW-SCEN-G-1)

Management Area	SIO Very High	SIO High	SIO Moderate	SIO Low	SIO Very Low
Management Area 1 Wilderness Study Area	Yes	No	No	No	No
Management Area 2 Wild, Scenic, and Recreational Rivers	Yes	Yes	No	No	No
Management Area 3 Designated Research Natural Areas	Yes	Yes	No	No	No
Management Area 4 Backcountry Areas	Yes	Yes	Yes	No	No
Management Area 5 ANILCA 501(b) Areas	Yes	Yes	Yes	No	No
Management Area 6 EVOS-Acquired Lands	Yes	Yes	Yes	No	No
Management Area 7 Municipal Watershed	Yes	Yes	Yes	No	No
Management Area 8 Front Country	Yes	Yes	Yes	Yes	No

Note: Yes = within the range of permissible deviation; No = outside the range of permissible deviation.

Soils (SOIL)

(FW-SOIL-G)

1. On fine-textured soils of lacustrine origin, projects larger than one-half acre should be evaluated for soil stability and soil mass wasting effects prior to ground-disturbing activities. [Guideline]
2. In burned areas that have high potential for soil erosion or sedimentation, methods other than natural revegetation (mulching, erosion blankets, seeding of native species, etc.) should be used to accelerate revegetation. Plant materials should be native and weed free. [Guideline]

3. Apply soil conservation practices to meet Alaska Region Soil Quality Standards and prevent detrimental soil disturbance on all land disturbing activities, including fuels treatments and controlled burns. [Guideline]
4. Management activities using ground-based equipment on slopes greater than 35 percent gradient should be reviewed by a qualified resource specialist, typically a hydrologist or soil scientist. [Guideline]
5. Prescribe appropriate soil conservation practices, such as avoidance and timing restrictions, to protect high-risk soils during ground-disturbing activities. High-risk soils include some slopes over 50 percent gradient, most slopes over 72 percent gradient, fine-textured soils of lacustrine origin, and other unstable areas. To ensure appropriate conservation measures are prescribed, conduct a site visit on all ground-disturbing activities greater than one acre on high-risk soils. [Guideline]
6. To prevent rutting, winter motorized vegetation management operations should occur over at least 12 inches of compacted snow or 6 inches of frozen soil. [Guideline]
7. Ground-based equipment should avoid creating ruts greater than 6 inches deep for a continuous length of more than 10 feet. [Guideline]
8. Apply erosion control measures, where needed, to ditches, cut and fill slopes, utility corridors, and other areas where native soil cover has been disturbed in the construction and maintenance of transportation or utility systems. [Guideline]

Watersheds and Aquatic Ecosystems (WAE)

(FW-WAE-S or G)

1. Use best management practices as described in agency technical guides and handbooks to minimize adverse impacts to soils and water resources during the planning and implementation of all ground disturbing forest activities. (Consult the National Core Best Management Practices Technical Guide FS-990a and Chapter 10 of the Alaska Region Soil and Water Conservation Handbook, FSH 2509.22.) [Standard]
2. Identify and delineate riparian management zones for all ground-disturbing activities based on the Alaska Region Stream Classes and Channel Process Groups. Table 10 provides guidance for riparian management zone width delineations. [Standard]
3. No commercial timber harvest or wood product removal is allowed within the riparian management zones delineations listed in table 10. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the riparian management zone (pay special attention to the area within one-site potential tree height of the riparian management zone). [Standard]
4. Extraction of mineral materials (such as sand, gravel, and rock) should not occur within riparian management zones to protect terrestrial and aquatic resources associated with riparian management zones. Exceptions may occur for aquatic enhancement projects and trail projects where barrow pits (not more than 10 feet in diameter) may be necessary along trails. [Standard]

Table 10. Riparian management zone delineations by Alaska Region stream classes and channel process groups

Process Group	Process Group Riparian Management Zones[1]
Alluvial Fan (AF)	The greater distance of the active portion of the alluvial fan or 140 feet (the height of one site-potential tree) of the current channel(s).
Flood Plain (FP)	The greater distance of one site potential tree height (130 feet), the 100-year flood plain, riparian vegetation or soils, or the riparian associated wetland fens.
High Gradient Contained (HC) stream Class I and II	The greater distance of 100 feet or to the top of the V-notch (side slope break).
High Gradient Contained (HC) stream Class III	Within the V-notch to the break in the side-slope.
Low Gradient Contained (LC) stream Class I and II	The greatest distance of the area within 100 feet of the stream or to the top of the side-slope break.
Low Gradient Contained (LC) stream Class III	Area from the stream to the side-slope break.
Moderate Gradient Contained (MC) stream Class I and II	The greatest distance of the area within 100 feet of the stream or to the top of the side-slope break.
Moderate Gradient Contained (MC) stream Class III	Area from the stream to the side-slope break.
Moderate Gradient Mixed Control (MM)	The greater distance of one site potential tree height (120 feet), the 100-year floodplain, riparian vegetation or soils, or riparian associated wetland fens.
Palustrine (PA) stream Class I and II	The greater distance of one site potential tree height (100 feet), the 100-year floodplain, riparian vegetation or soils, or riparian associated wetland fens.
Lakes, Ponds and open water wetlands stream Class I and II	distance of 100 feet from the shoreline, the riparian vegetation, or associated wetland fens
Glacial Outwash (GO)	The greater distance of the active portion of the floodplain or 130 feet (the height of one site-potential tree).
Estuarine (ES)	1,000 feet of the estuary as defined as the landward extent of salt tolerant vegetation.

1 - Riparian management zones – the land area considered for management of both aquatic ecosystems and the terrestrial organisms directly dependent on aquatic ecosystems. All distances are measured horizontally from the bankfull margins. In all process groups the width of the riparian management zones in the descriptions above can be increased to protect sensitive resources. Commercial timber harvest and wood product removal are not permitted. Borrow pits are generally not appropriate.

5. Within the riparian management zone's (table 10), authorized management actions and activities should be designed to maintain:
    a. Water quality;
    b. Invertebrate food production;
    c. Adequate riparian and streambank vegetation and wood to maintain stream bank integrity, dissipate energy during high flow events and buffer sediment delivery to waterbodies;
    d. Natural stream channel processes and aquatic habitat complexity;
    e. Long-term riparian biodiversity and productivity. [Guideline]

6. Water impoundments, water diversions, and instream channel work should either maintain water levels or instream flows that:
    a. Support all life stages of native aquatic organisms
    b. Maintain the range, frequency, duration, and timing of natural water temperature patterns
    c. Support aquatic, riparian, and wetland habitats and associated wildlife
    d. Maintain geomorphic processes
    e. Support recreational activities and access
    f. Maintain aesthetic values or include mitigation for losses [Guideline]
7. Road-stream crossings and impoundments, when constructed or replaced, should be engineered to anticipate changes in hydrology resulting from climate change. [Guideline]
8. All new stream crossings must be verified for fish presence. All fish-bearing crossings must be designed to provide for adequate aquatic organism passage. [Standard]
9. Locate and design recreation trails to minimize sedimentation impacts to freshwater. Where stream crossings are unavoidable, the crossing approaches should include structures that minimize sedimentation, such as waterbars, ditches, berms, and runoff zones. [Guideline]
10. Prescribe measures as needed to ensure the natural range and frequency of aquatic habitat conditions are either maintained or restored within essential fish habitat. [Guideline]
11. Conduct management actions within or adjacent to fish-bearing waterbodies outside of seasonal timing windows for fish and wildlife species. [Guideline]

Wildlife Management (WL)

Wildlife Management (WL) General Wildlife (WL)

(FW-WL-G)

1. Location and design of new facilities and areas of concentrated human use should minimize effects to important habitats such as major animal movement corridors; areas of concentrated breeding, nesting, or feeding; or important habitats such as winter range. [Guideline]
2. Ground or vegetation altering management actions or authorized activities should include specific measures such as buffers, vegetative screening, seasonal restrictions, or fuels management to protect specialized habitats and the associated plant and animal species identified on the site from significant microclimate alterations (light, airflow, temperature, or moisture regimes). [Guideline]
3. Water developments or open impoundments, such as those for minerals operations, should include specific measures to prevent animal entrapments or to assist animals in their escape. [Guideline]

Wildlife Management (WL) At-Risk Species (RISK)

(FW-WLRISK-S)

1. Management actions and authorized activities shall include specific measures to minimize disturbance to marine mammals in compliance with the Marine Mammal Protection Act and the Endangered Species Act.
    a. Management actions and authorized activities are prohibited within 3,000 feet of endangered Steller sea lion critical habitat. Currently, this includes two rookeries and seven haulouts listed by National Marine Fisheries Service. [Standard]
2. Seasonal restrictions shall be included in all special use permits authorizing use of motorized watercraft on the Twentymile River (or other waterways if required by National Marine Fisheries Service to protect seasonally important foraging habitat for the Cook Inlet beluga whale).
    a. Use of motorized watercraft on the Twentymile River is not permitted between March 1 and May 31 to ensure endangered Cook Inlet beluga whales can effectively access early season food sources.
    b. Permitted vessel operators will not launch at the Twentymile River launch area while Cook Inlet beluga whale(s) are present within 328 feet (100 m) up or downstream from the launch site.
    c. Permitted boats will travel at a no-wake speed in the tidally influenced portion of the river (from the Seward Highway Bridge upriver 1.2 miles [1.9 km]).
    d. Permitted vessel operators will abide by standard National Marine Fisheries Service Alaska Marine Mammal Viewing Guidelines and Regulations, including:
        i. Permitted vessels will remain at least 328 feet (100 m) from Cook Inlet beluga whale(s);
        ii. If approached by a Cook Inlet beluga whale, operator will put the vessel in neutral (if safety allows) or throttle down to idle speed, allowing the whale(s) to pass before continuing travel.
    e. In coordination with the National Marine Fisheries Service, develop and incorporate additional conservation measures into management actions and authorized activities as required to promote the recovery and delisting of the Cook Inlet beluga whale. [Standard]

(FW-WLRISK-G)

1. Management actions and authorized activities should include specific measures such as seasonal or daily activity restrictions, low impact operational methods, and vehicle restrictions, to minimize disturbance to dusky Canada goose nesting habitat (March 15 through May 30), molting and brood rearing habitat (July 1 through August 15), and high use staging areas (September 1 through October 31). [Guideline]

Wildlife Management (WL) Bats (BAT)

(FW-WLBAT-S)

1. All personnel employed or authorized by the Forest Service entering known or suspected bat colonies or hibernacula, or handling bats, shall follow established white nose syndrome protection protocols to minimize the potential spread of white nose pathogen. [Standard]

(FW-WLBAT-G)

1. Public access to important roost sites, such as maternal colonies, and major hibernacula located on National Forest System lands should be restricted during seasonal use periods to protect bats from disturbance. [Guideline]
2. Surveys to identify the presence of or use by bats should be conducted prior to modifying or decommissioning abandoned cabins, buildings, or mine adits. If bats are present, proposed management actions should be reevaluated. Methods used to prevent or minimize disturbance to bats and protect existing habitat should be implemented to the greatest extent possible. [Guideline]

Wildlife Management (WL) Migratory Birds (MBIRD)

(FW-WLMBIRD-G)

1. Management activities should promote the conservation of, and minimize impacts to, migratory bird species, consistent with the provisions of the Migratory Bird Treaty Act, as directed in Executive Order 13186, and implemented by interagency agreements between the Forest Service and U.S. Fish and Wildlife Service. [Guideline]

Wildlife Management (WL) Raptors (RAPT)

(FW-WLRAPT-G)

1. Management actions and authorized activities should include specific measures, such as nest tree and nest stand protection, seasonal or daily activity restrictions or closures, site selection, compressed work periods, low impact operational methods, vehicle restrictions, or phased project implementation to reduce disturbance to active raptor nest sites during the nesting season. Specific guidelines have been established for the following species:

   Bald eagles: [Guideline]

   a. Avoid clear cutting and removal of overstory trees within 330 feet of a nest.
   b. Avoid disturbing nesting eagles within 660 feet of the nest during the breeding season (March 1 through August 31) in compliance with guidelines established in the National Bald Eagle Management Guidelines (see appendix G), which describe specific activities and conditions where these activities are likely to result in disturbance.

   Northern goshawks: [Guideline]

   c. Establish and maintain a 300-acre, 2,000-foot radius forested windfirm zone (an area of deep-rooted trees stable in high wind) where available around active goshawk nest locations.
   d. Prevent disturbance within a 660-foot radius of goshawk nests during the active nesting season (March 1 through July 31).
   e. If monitoring determines a nest area remains inactive for 2 years consecutively, habitat protection measures can be discontinued.

   Osprey: [Guideline]

   f. Minimize disturbance within 330 feet of active osprey nesting sites during the nesting period (April 20 through July 15).

   Falcons: [Guideline]

   g. Minimize disturbance within two miles of active peregrine falcon or gyrfalcon nesting sites (April 20 through July 15)

Wildlife Management (WL) Waterfowl and Shorebirds (WBIRD)

(FW-WLWBIRD-G)

1. Management actions and authorized activities should include specific measures to minimize disturbance to waterfowl or shorebirds using designated concentration areas (nesting and staging) during key periods.
    a. Implement seasonal restrictions on management actions and authorized activities determined to be disruptive to waterfowl:
        i. Within 330 feet of designated key nesting areas between March 15 and June 15.
        ii. Within 330 feet of designated waterfowl staging areas between July 1 and August 15, and also between September 1 and October 31.
    b. Implement seasonal restrictions on management actions and authorized activities determined to be disruptive to shorebirds:
        i. Within 330 feet of designated shorebird nesting areas between April 20 and June 15.
        ii. Within 330 feet of designated shorebird staging areas between July 15 and October 31. [Guideline]
2. Management actions and authorized activities should include specific measures to minimize disturbance to nesting and brooding trumpeter swans.
    a. Implement measures, such as seasonal or daily activity restrictions, low impact operational methods, and vehicle restrictions from April 15 through August 30 to minimize human disturbance to nesting and brooding trumpeter swans. Where swans establish new nest sites in proximity to ongoing or recurrent management actions or authorized activities, restriction of ongoing or recurrent actions or activities is unnecessary.
    b. Maintain a one-half-mile radius habitat management zone around active trumpeter swan nests to sustain habitat quality. Within this zone:
        i. No new roads or trails should be constructed.
        ii. Maintenance or reconstruction of existing roads, trails, or facilities may be authorized, but should be conducted to prevent disturbance to swans during the nesting season.
        iii. Vegetation management should be limited to habitat restoration projects that will not degrade trumpeter swan habitat, and should be conducted to prevent disturbance to swans during the nesting season. [Guideline]

Wildlife Management (WL) Managing Human-Bear Interactions (HBI)

(FW-WLHBI-G)

1. Administrative field camps, recreational facilities, special use permittee camps, day-use areas, and recreational facilities established, maintained, or authorized by the Forest Service should be designed and managed to minimize the potential for adverse interactions between humans and bears. Measures to be evaluated include: secure storage of food, trash, and other attractants; separation of sleeping areas from food and trash storage and cooking areas; site selection away from high use brown bear habitat; and methods of managing high use human activities. Specific measures to be implemented should be included in facility management plans, project implementation plans, special use permits, contracts, and agreements. [Guideline]

2. Management actions and authorized activities (for example, recreation events) located within or close to habitats supporting high concentrations of brown bear (such as key foraging sites during salmon spawning season or movement corridors) should include specific measures to reduce disturbance to bears and minimize potential for adverse human-bear interactions. Measures to consider include seasonal or daily activity restrictions or closures, site selection, compressed work periods, low impact operational methods, vehicle restrictions, and phased project implementation. [Guideline]

Wildlife Management (WL) Marine Mammals (MM)

(FW-WLMM-G)

1. Forest Service employees and all personnel conducting activities authorized by the Forest Service should adhere to the National Marine Fisheries Service Alaska Marine Mammal Viewing Guidelines and Regulations. More restrictive land management plan guidelines apply for Cook Inlet beluga whales (see At-Risk Species section) and hauled out seals or sea lions (below). [Guideline]
2. Management actions and authorized activities should include specific measures to minimize human disturbance to sea lions or seals hauled out on land. Actions or activities that may cause a hauled out sea lion or seal to startle or flush (leave their resting site) should be avoided where possible.
    a. When transiting an area where seals or sea lions are hauled out on land or ice, travel routes should be selected to avoid approaching within 750 feet of hauled out seals or sea lions. If safe travel requires a closer approach, watercraft or individuals should proceed in a compact group, maintain a relatively constant speed, and remain as far from the hauled out animals as possible.
    b. Actions or activities to be conducted at sites within 750 feet, or at greater distances if causing disturbance, of any sea lion or seal hauled out on land should be delayed until the animal(s) depart the area. [Guideline]

Wildlife Management (WL) Mountain Goats and Dall Sheep (Goat)

(FW-WLGOAT-S or G)

1. Management actions and authorized activities should include specific measures to minimize disturbance to mountain goats and Dall sheep, especially near important wintering, kidding, and lambing habitats.
    a. Special use permits authorizing fixed-wing aircraft and helicopter flights should include stipulations requiring:
        i. Aircraft maintain a minimum landing distance of one-half mile from all observed mountain goats or Dall sheep.
        ii. Aircraft maintain a 1,500-foot minimum vertical distance from all observed mountain goats or Dall sheep.
    b. Seasonal restrictions should be considered when designing management actions or authorizing activities that would occur within or close to mountain goat or Dall sheep wintering habitat (October 1 through May 30) and kidding and lambing habitat (May 10 through June 15). [Guideline]
2. Personnel conducting Forest Service management actions or authorized activities (employees, contractors, cooperators, and special use permit holders) shall not use or keep domestic goats or sheep on National Forest System lands within the Chugach National Forest. [Standard]

Special Areas Direction

"Special Areas" (SA) are federal public lands designated for a specific use or uses. These lands contain outstanding examples of plant and animal communities, geological features, scenic grandeur, or other special attributes, and merit special management. This section includes the special areas on the Chugach National Forest and the plan components needed to manage these areas.

Special Areas Desired Conditions and Guidelines

Iditarod National Historic Trail (INHT)

Desired Conditions (DC)

(SA-GL2-INHT-DC)

1. The Iditarod National Historic Trail, a conservation system unit as defined by ANILCA, connects the communities of Seward, Moose Pass, Portage, and Girdwood with a trail system that features world class summer and winter recreation opportunities and celebrates the rich history of the area.

(SA-GL1-INHT-DC)

2. Partner and volunteer contributions and shared trails stewardship opportunities are expanded on the Iditarod National Historic Trail with an increased focus on maintenance and access. Local communities and partner agencies and organizations are actively involved in the management and maintenance of the trail.

(SA-GL2-INHT-DC)

3. The historic characteristics for which the trail was designated are preserved through Forest Service management of trail easements through state lands. The Forest Service cooperates with the State of Alaska on activities occurring within the easements and within the protective buffer adjacent to the trail easements.

(SA-GL1-INHT-DC)

4. The Forest Service cooperates with the State of Alaska Department of Natural Resources in managing public access and cultural resources, and providing interpretation, outreach and education about the Iditarod National Historic Trail.

(SA-GL2-INHT-DC)

5. The remaining segments of Iditarod National Historic Trail to be completed are prioritized, have potential funding sources identified, and are constructed as funding becomes available.

   Scale: Kenai Peninsula Geographic Area.

Guideline (G)

(SA-INHT-G)

1. Activities within the 1,000-foot trail corridor for the Iditarod National Historic Trail should be consistent with the Iditarod National Historic Trail comprehensive management plan (see appendix G), and the nature and purpose of the trail as described by Congress in 1978 (Senate Report 95-1034. May 17, 1978. P. 12), including:

    a. Maintaining the trail and adjacent landscape so that visitors can experience the wildland setting and challenges faced by gold rush travelers a century ago.

    b. Protecting natural, historic, and cultural resources along the trail. [Guideline]

Objectives, Management Approaches, and Standards

There are no Iditarod National Historic Trail objectives, management approaches, or standards.

Inventoried Roadless Area (IRA)

Desired Conditions (DC)

(SA-GL3-IRA-DC)

1. The undeveloped character of inventoried roadless areas is retained consistent with the 2001 Roadless Area Conservation Rule.

    Scale: Forestwide.

Objectives, Management Approaches, Standards, and Guidelines

There are no inventoried roadless area objectives, management approaches, standards, or guidelines.

Kenai Mountain-Turnagain Arm National Heritage Area (KMTANHA)

The Kenai Mountains-Turnagain Arm National Heritage Area encompasses a landscape of mountains, lakes, rivers, fjords, roads, trails, and small communities with nationally significant historic and cultural values.

Desired Conditions (DC)

(SA-GL2-KMTANHA-DC)

1. Community centered initiatives that preserve the regions nationally important history are encouraged and supported in cooperation with the Kenai Mountains-Turnagain Arm Corridor Communities Association, Alaska Native Tribes, Alaska Native Corporations, National Park Service, partners, and communities.

2. A variety of opportunities are available for people to learn about this area’s rich geologic, cultural, and natural history.

    Scale: Kenai Peninsula Geographic Area.

Objectives, Management Approaches, Standards, and Guidelines

There are no Kenai Mountains-Turnagain Arm National Heritage Area objectives, management approaches, standards, or guidelines.

Key Coastal Wetlands (KCW)

The Alaska Region of the Forest Service has identified three coastal wetlands important to local and global resources: the Copper River Delta within the Chugach National Forest and the Yakutat Forelands and Stikine River Flats within the Tongass National Forest. Together, these wetlands comprise approximately 1.1 million acres of critical coastal wetland habitat that sustain shorebirds, waterfowl, and fish populations that in turn support commercial, recreational, and subsistence lifestyles of Alaska residents. These key coastal wetlands are essential to maintaining long-term productivity of fish and wildlife throughout the Pacific Rim.

The largest of Alaska Region's key coastal wetlands is the Copper River Delta. Migratory bird species travel from South and Central America as well as Southeast Asia to converge on the Copper River Delta. Birds either remain on the delta to breed or use it as a stopover before continuing their journey to their breeding grounds in the Arctic or Russia. Given that wildlife and fish species spend part of their life cycles in other states or countries, national and international cooperative management efforts are necessary to conserve these species and their habitats.

Desired Conditions (DC)

(SA-GL3-KCW-DC)

1. The coastal wetland complex of the Copper River Delta remains an intact, functioning ecosystem that continues to provide globally significant ecological services (consistent with ANILCA 501(b) direction).

(SA-GL1-KCW-DC)

2. Fish and wildlife and their habitats are conserved through partnerships and cooperative work with the State of Alaska, other states, countries and organizations throughout the Pacific Rim and Western Hemisphere Shorebird Reserve Network (such as the Pacific Flyway Council, Copper River International Migratory Bird Initiative, and Wild Salmon Center) to meet mutual conservation goals.

(SA-GL2-KCW-DC)

3. Pacific Rim communities realize economic benefits from fish and wildlife conservation, education, and tourism.

4. Regardless of political borders, Pacific Rim communities are connected through conservation efforts for migratory birds and fish and actively assist and learn from each other.

(SA-GL3-KCW-DC)

5. The coastal wetland complex continues to serve as a natural laboratory for scientific investigation of wetland function, coastal ecology, vegetation succession, bird migration, fish biology, hydrology, and aquatic ecology.

   Scale: Copper River Delta.

Objectives, Management Approaches, Standards, and Guidelines

There are no key coastal wetlands objectives, management approaches, standards, or guidelines.

National Recreation Trails (NRT)

Desired Conditions (DC)

(SA-GL2-NRT-DC)

1. National recreation trails offer visitors a variety of recreation opportunities, are managed to meet the intended nature and purposes that form the basis for the trail's designation, and, where appropriate, are integrated with existing trail networks.
2. The Resurrection Pass National Recreation Trail, a conservation system unit as defined by ANILCA, offers visitors the opportunity to access spectacular natural landscapes and intact ecosystems from the existing highway system. The trail system accommodates diverse recreation opportunities throughout the year, including day use and multi-day overnight experiences. As a result of sustainable maintenance strategies, a series of backcountry cabins are available for trail users to rent for remote overnight accommodations along the trail.
3. The Williwaw National Recreation Trail, a conservation system unit as defined by ANILCA, offers opportunities to view and experience glacial landscapes and ecosystems of the Portage Valley. Connections to the Trail of Blue Ice; Begich, Boggs Visitor Center; and other adjacent recreation opportunities in and near the Portage Valley are promoted and maintained in a sustainable manner.

   Scale: Kenai Peninsula Geographic Area.

Guideline (G)

(SA-NRT-G)

1. Other uses within the administrative boundaries of the trail corridor may be allowed provided they do not conflict with the nature and purposes of the national recreation trail. [Guideline]

Objectives, Management Approaches, and Standards

There are no national recreation trails objectives, management approaches, or standards.

Scenic Byways (SB)

Desired Conditions (DC)

(SA-GL2-SB-DC)

1. People traveling the Seward Highway Scenic Byway experience rugged natural scenery of ocean and mountain landscapes and can access a variety of recreational opportunities. The Seward Highway corridor provides an aesthetically pleasing driving experience through the Chugach National Forest. Forest Service management activities along the Seward Highway blend with natural settings and meet or improve aesthetic values. Effective visitor management along the highway corridor promotes long-term economic development. The Forest Service cooperates with the State of Alaska, local borough agencies, and communities for management of lands within the scenic byway to be consistent with the Seward Highway Corridor Partnership Plan.

   Scale: Kenai Peninsula Geographic Area.

Guidelines (G)

(SA-SB-G)

1. To accommodate the need for scenic views, trailheads, interpretive sites, and campsites within the Seward Highway corridor, areas should be developed consistent with the Seward Highway Corridor Partnership Plan. [Guideline]
2. Activities within the Seward Highway corridor shall be consistent with the Seward Highway Corridor Partnership Plan, which provides the conceptual framework for managing the highway corridor across all land ownerships. Nodal development areas shall not be allowed on National Forest System lands. [Guideline]

Objectives, Management Approaches, and Standards

There are no scenic byways objectives, management approaches, or standards.

Geographic Areas Direction

Geographic areas are spatially contiguous land areas identified within the planning area. A geographic area may overlap with a management area (36 CFR 219.19). Due to the size of the Chugach National Forest and how people view the Chugach (that is, identify where they are standing), this land management plan includes plan components for geographic areas.

Geographic Areas Desired Conditions and Management Approach

Copper River Delta Geographic Area (GACRD)

The Copper River Delta Geographic Area of the Chugach National Forest is managed primarily for the conservation of fish and wildlife as defined under section 501(b) of ANILCA. Human access remains almost exclusively by boat or aircraft, with the exception of road-accessed areas of the west Copper River Delta.

Desired Conditions (DC)

(GACRD-GL3-DC)

1. Multiple user groups are able to engage in consumptive fish and wildlife activities on the west Copper River Delta with minimal crowding. The Forest Service collaborates with stakeholders, including local communities, federally recognized Alaska Native Tribes and Alaska Native Corporations, and the State of Alaska to manage permitted recreational consumptive uses.

Fish, Wildlife, and Habitats (HAB)

(GACRD-GL3-HAB-DC)

1. Streams, rivers, ponds, lakes, estuaries, and wetlands of the Copper River Delta provide critical spawning, rearing, and overwintering habitat for both resident and anadromous fish species. Anadromous fish runs of sockeye, pink, coho, and Chinook salmon, along with Dolly Varden char, cutthroat trout, steelhead trout, whitefish, and eulachon occur in the waters of the Copper River Delta. Healthy streams, ponds, lakes, and wetlands sustain resident populations of rainbow trout, cutthroat trout, Dolly Varden char, and grayling. Commercially and culturally important anadromous fish runs of sockeye salmon and Chinook salmon spawn upstream of the Chugach National Forest boundary and pass through the lower Copper River.
2. The Copper River Delta, one of the largest wetlands on the Pacific Coast of North America, and a unit of the Western Hemisphere Shorebird Reserve Network, maintains its high biological productivity for migrating waterfowl, shorebirds, and a large variety of other species. These wetlands continue to provide diverse and productive habitats, remain connected in a functional natural state, and have sufficient resilience to accommodate stressors (for example, climate change).
3. Nesting trumpeter swans are not disturbed by new management actions or authorized activities.
4. Barrier islands at the mouth of the Copper River Delta represent the most extensive and well-developed system along the Gulf of Alaska coast. These ecosystems continue to provide important habitat for marine mammals and birds, including haul outs for harbor seals, stopover feeding grounds for migrating shorebirds, and nesting habitat for a variety of other bird species.

5. Early seral vegetation established through natural processes, vegetation management, and prescribed fire is appropriately distributed to provide forage for sustainable moose populations.
6. Coastal rainforests composed of Sitka spruce and western hemlock are characterized by extensive, unmodified natural environments, and prevailing forest conditions are the result of natural ecological processes. Floodplains and outwash plains support deciduous forests of black cottonwood, while stringers of Sitka spruce occur between extensive wetlands of the distal outwash and uplifted marsh.

Recreation and Tourism (REC)

(GACRD-GL2-REC-DC)

1. Opportunities for boating, hiking, off-highway vehicle use, mountaineering, fishing, hunting, snowmachine use, skiing, and heli-skiing are available. Commercial recreation opportunities in the form of transportation services, outfitter and guide services, and boat, aircraft, or other specialized tours of the area are available for visitors to access the remote settings and outstanding fish and wildlife resources.
2. The national forest visitor sees intact landscapes with minimal variation from the existing landscape character type. Scenic characteristics retain the distinctive landscape character and sense of place associated with the Chugach National Forest.

Resource Development and Use (RDU)

(GACRD-GL2-RDU-DC)

1. Resource development and a variety of uses are allowed, consistent with ANILCA. Private landowners have reasonable access to their lands, including subsurface estates, and the public has reasonable access to the federal mineral estate, consistent with forestwide and management area direction.
2. The national forest provides opportunities for local residents to use various forest products, including fuelwood and personal use sawtimber, through vegetation management activities along the road corridor.

Management Approach (MAP)

(GACRD-MAP)

- Local line officers will work with stakeholders to manage overcrowding between Forest Service permitted recreational consumptive uses of fish and wildlife on the west Copper River Delta and federally qualified rural Alaskan residents engaged in subsistence activities.

Objectives, Standards, and Guidelines

There are no Copper River Delta Geographic Area objectives, standards, or guidelines.

Kenai Peninsula Geographic Area (GAKP)

The Kenai Peninsula Geographic Area of the Chugach National Forest is managed to accommodate high levels of human use, while maintaining its natural appearing character. The Seward, Sterling, Hope, and Portage highway corridors (encompassing three-quarters of a mile on either side of the highways) and other road corridors contain developed recreation sites and provide access points for a variety of dispersed recreational activities, fuelwood collection, mining operations, State of Alaska lands, and private inholdings.

Desired Conditions (DC)

Fish, Wildlife, and Habitats (HAB)

(GAKP-GL3-HAB-DC)

1. Diverse, healthy and functional aquatic and riparian habitats support anadromous fish runs of salmon, Dolly Varden char, and eulachon and resident populations of rainbow trout, lake trout, and Dolly Varden char along with grayling and whitefish in the waters of the Kenai Peninsula. Resurrection Creek, Cooper Creek, and the Russian River support productive fish habitat.

(GAKP-GL2-HAB-DC)

2. Effective visitor education and compliance with regulations, combined with proper management of recreational facilities and authorized activities, minimizes adverse interactions between people and wildlife, such as bear or moose.

(GAKP-GL3-HAB-DC)

3. Early seral vegetation established through natural processes, vegetation management, and prescribed fire remains appropriately distributed to provide suitable winter forage for sustainable moose populations.

4. Forests composed of Lutz spruce, mountain hemlock, birch, and aspen occur across the landscape in mid to low elevations, and conditions are generally the result of natural ecological processes. Forest composition, structure, and function are resilient to fire, drought, insects, pathogens, and climate change. The proportion of early-, mid-, and late-seral stages across the landscape is consistent with what would be expected under natural disturbance regimes.

5. The composition, structure, and distribution of aspen stands across the landscape is consistent with what would be expected under natural disturbance regimes.

6. Mountain hemlock forests occur in upper elevations, on northerly aspects, and near the treeline. Forest conditions are the result of natural ecological processes, which occur with little direct human influence.

Recreation and Tourism (REC)

(GAKP-GL2-REC-DC)

1. During the winter season, opportunities for snowmachine use and other winter motorized recreation are available and well distributed over most of the Kenai Peninsula. Areas closed to winter motorized recreation provide non-motorized recreational opportunities near existing roads, and in a few situations, in basins or larger areas where motorized sounds are not present. Scenery along the Seward Highway All-American Road and other major travel corridors retains a natural landscape appearance. Helicopter access for commercially guided and non-guided heli-skiing is available at appropriate locations.

2. During the summer season, non-motorized uses predominate across the area. These opportunities include hiking, camping, mountain biking, horseback riding, fishing, hunting, and mountaineering, with opportunities for canoeing, rafting, and other forms of boating on lakes and rivers. Opportunities for off-highway vehicle use are provided on several trails designated for such use. Opportunities are available for helicopter-assisted guided and non-guided recreation activities consistent with desired recreation opportunity spectrum classes that allow for summer motorized use. Recreation infrastructure, such as cabins, campgrounds, and trails, are available in many areas of the Kenai Peninsula geographic area, including along the Alaska Railroad between Moose Pass and Portage.

Resource Development and Use (RDU)

(GAKP-GL2-RDU-DC)

1. Local communities have opportunities to access and use various forest products, including fuelwood and personal use sawtimber, through small-scale vegetation management activities along road corridors and various restoration and habitat management activities, such as mechanical vegetation treatments.
2. The Sterling Highway, Seward Highway All-American Road, and the Alaska Railroad continue to provide transportation between Anchorage and Seward and access to scenery and recreation opportunities within the Chugach National Forest.
3. Private landowners with inholdings have reasonable access to their lands. The public has reasonable access to the federal mineral estate. The means of access is consistent with management area direction and emphasis.

Objectives, Management Approaches, Standards, and Guidelines

There are no Copper River Delta Geographic Area objectives, management approaches, standards, or guidelines.

Prince William Sound Geographic Area (GAPWS)

National Forest System lands within the Prince William Sound Geographic Area maintain the natural qualities and ecological processes of the area. Human access remains almost exclusively by boat or aircraft, with the exception of road-accessed portals of Whittier and Valdez.

Desired Conditions (DC)

Fish, Wildlife, and Habitats (HAB)

(GAPWS-GL3-HAB-DC)

1. Prince William Sound Geographic Area habitats are unimpaired; and national forest rivers, streams, and coastal wetlands support healthy anadromous fish runs of sockeye, pink, coho, Chinook, and chum salmon, along with cutthroat trout and Dolly Varden char. The Prince William Sound inland wetlands and streams support healthy resident populations of cutthroat trout and Dolly Varden char.
2. Major seabird and marine mammal colonies in Prince William Sound are not negatively affected by disturbance from management actions or authorized activities.
3. National Forest System lands contribute to ecological conditions and processes necessary to support recovery of the Steller sea lion.

4. Management actions or authorized activities do not negatively affect important habitats used by endemic wildlife populations, such as Montague hoary marmot, Montague tundra vole, and the Kenai song sparrow.
5. Coastal rainforests composed of hemlock and Sitka spruce are predominant in lower to mid-elevations and are characterized by extensive, unmodified natural environments. Western hemlock and mountain hemlock co-occur, though western hemlock is dominant in eastern Prince William Sound. Prevailing forest conditions are the result of natural ecological processes.
6. Forests dominated by mountain hemlock occur in upper elevations, on low-productivity sites, and on northerly aspects, where the forest type can occur from to sea level to treeline. Forest conditions are the result of natural ecological processes, which occur with little direct human influence.
7. Yellow-cedar populations are stable or increasing in the coastal rainforest of the Chugach National Forest. Forest conditions are generally the result of natural ecological processes, which occur with little direct human influence.
8. Coastal ecosystems, including tidal marshes, estuaries, tide flats, beaches, rocky shorelines, and beach meadows remain intact, are maintained by natural ecological processes, support populations of native plants and animals, and continue to provide essential ecosystem services. Extensive rocky shorelines and gravel beaches characterize the region. Fine sediments (sands and silts) accumulate in localized areas and support tidal marsh and beach meadow communities. Tidal marshes occur in sheltered areas, such as lagoons and estuaries; these highly productive ecosystems provide essential habitat for shorebirds, waterfowl, and coastal fisheries. Sandy beaches and beach meadows form on low-gradient sites that have an abundant source of sediment, usually delivered by glacier-fed rivers or along-shore transport; these ecosystems support a diversity of native plant populations and communities.

Recreation and Tourism (REC)

(GAPWS-GL2-REC-DC)

1. Opportunities for dispersed hiking, hunting, skiing, mountaineering, snowmachining, and fishing are available. The remote and spectacular settings within Prince William Sound provide commercial tourism business opportunities in the form of transportation services, outfitter and guide services, and boat, aircraft, or other specialized tours of the area. Limited shoreline areas capable of accommodating dispersed recreation use are maintained in good condition and consistent with desired use levels, including consideration of adjacent state and private lands.

(GAPWS-GL3-REC-DC)

2. The scenery of Prince William Sound is maintained with intact landscapes and minimal variation from the existing landscape character type.

Resource Development and Use (RDU)

(GAPWS-GL2-RDU-DC)

1. Resource development and a variety of uses are allowed, consistent with ANILCA. Private landowners have reasonable access to their lands, including subsurface estates, and the public has reasonable access to the federal mineral estate, consistent with forestwide and management area direction.
2. The national forest provides opportunities for local residents to use various forest products such as berries, mushrooms, and alder. Most of these forest products are accessed along the shoreline.

Objectives, Management Approaches, Standards, and Guidelines

There are no Prince William Sound Geographic Area objectives, management approaches, standards, or guidelines.

Suitability of Lands

Lands within the plan area are identified as suitable or conditionally suitable for uses or activities based on applicable desired conditions and the land's inherent capability to support the use. If uses are not compatible with the desired condition of the land, the use is identified as not suitable.

Identification of lands as suitable is not a commitment to allow a particular use but rather an indication that the use might be appropriate. If an activity or use is identified as suitable, it may or may not be approved, based on project-specific decision processes. If a plan identifies certain lands as not suitable for a use, then that use or activity may not be authorized.

Refer to desired conditions, objectives, standards, and guidelines for each management area for specific guidance. For more guidance on conditional determinations, see appendix F.

Suitability has been determined by management area. Suitable (S), conditionally suitable (C), and not suitable (N) determinations for management areas are displayed in table 11.

Suitable (S): A use or activity is, in most cases, consistent with the desired condition of the land and the land is inherently capable of supporting this use.

Conditionally suitable (C): A use or activity may be, in specific cases, consistent with the desired condition of the land. The use or activity is restricted based on specific circumstances described in specific management area plan components or based on other law, policy, or designation (for example a recommended wild river versus a scenic river or a conservation easement). Appendix F provides information on when conditionally suitable activities and uses are either suitable or not suitable.

Not suitable (N): A use or activity is not consistent with the desired condition or inherent capability of the land to support the use.

A plan is direction for the Forest Service, not the public; therefore, the plan alone cannot prohibit public uses such as biking, fishing, camping, hiking, horseback riding, or hunting. Any constraint on the public's use of National Forest System lands, not otherwise imposed by law or regulation, requires the responsible official to issue an order under 36 Code of Federal Regulations part 261, subpart B. For more information, refer to Forest Service Handbook 1909.12, section 21.8.

Table 11. Suitable (S), conditionally suitable (C), and not suitable (N) determinations for management areas (MAs), by use or activity

Use or Activity[1]	MA 1 Wilderness Study Area	MA 2 Wild, Scenic, and Recreational Rivers	MA 3 Research Natural Areas	MA 4 Backcountry Areas	MA 5 ANILCA 501(b) Area	MA 6 EVOS-Acquired Lands	MA 7 Municipal Watershed	MA 8 Front Country
Soil and watershed projects	C	C	C	S	S	C	S	S
Wildlife and fish management and research	C	C	C	S	S	C	S	S
Wildlife habitat projects	C	C	C	S	S	C	S	S
Fish habitat projects	C	C	C	S	S	C	S	S
Commercial timber production	N	N	N	N	N	N	N	N
Commercial wood products	N	C	N	C	N	N	N	S
Commercial special forest products	N	C	N	S	S	N	N	S
Personal use special forest products (excluding fuelwood)	S	C	N	S	S	C	C	S
Personal use sawtimber (Alaska free use)	C	C	C	S	S	C	N	S
Personal use fuelwood (Alaska free use)	C	C	N	S	S	C	N	S
Salable minerals	N	N	N	S	S	Not applicable	N	S
Day-use facilities	N	C	N	S	C	C	N	S
Communication sites	C	C	N	S	C	C	C	S
Energy-related infrastructure and utilities	C	C	N	C	C	C	C	S
Forest Service recreational cabins	C	C	N	S	C	C	N	S
Campgrounds	N	C	N	C	C	N	N	S
Hardened dispersed camping sites	C	C	N	S	S	C	C	S
Emergency motorized access	S	S	S	S	S	S	S	S

Use or Activity[1]	MA 1 Wilderness Study Area	MA 2 Wild, Scenic, and Recreational Rivers	MA 3 Research Natural Areas	MA 4 Backcountry Areas	MA 5 ANILCA 501(b) Area	MA 6 EVOS-Acquired Lands	MA 7 Municipal Watershed	MA 8 Front Country
Fixed-wing aircraft	S	S	S	S	S	C	S	S
Commercial helicopter landings	N	S	N	C	C	C	N	S
Recreation events	N	C	N	S	S	N	N	S
Assigned sites for outfitters and guides	N	C	N	S	C	C	N	S

1 – See a description of uses and activities on the following pages.

Descriptions of Use or Activity

Soil and watershed projects include streambank restoration, stream channel restructuring to restore natural conditions, vegetation establishment or improvement, erosion prevention and control, stream crossing/culvert replacements and other activities.

Wildlife and fish management and research includes habitat inventories, surveys or mapping, population inventories, monitoring, capture and telemetry, installation and use of remote monitoring devices, and other research and management activities conducted by the Forest Service or other federal and state agencies (including authorized agents) that have jurisdiction and responsibilities for the protection and management of wildlife and fish populations.

Wildlife habitat projects include vegetation or other habitat modifications; installation and maintenance of nesting, denning, and cover structures; removal of movement barriers and installation of crossing structures; and installation of exclusion screening, specialized lighting, or other equipment on facilities to reduce threats or disturbance to wildlife species.

Fish habitat projects include restoration or enhancement of instream or lake habitat, stream fencing to protect riparian habitat from damage, installation of road culverts, dams or bridges to restore fish passage, maintenance and repair of fish passage structures and spawning channels, or removal of fish passage structures and spawning channels if they are not performing as desired.

Commercial timber production refers to purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into sawtimber, logs, bolts, or other round sections for industrial processing for commercial resale.

Commercial wood products refer to purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into fuelwood, and incidental amounts of sawtimber, bolts, or other roundwood sections for commercial resale to consumers.

Commercial special forest products are ferns, mushrooms, wildflowers, seedlings, Christmas trees, burls, berries, cones, conks, and other non-timber, plant-based products harvested for commercial resale.

Personal use special forest products include ferns, mushrooms, wildflowers, seedlings, Christmas trees, burls, berries, cones, conks, and other non-timber, plant-based products harvested for personal use. For the purpose of suitability determination (table 11), this use does not include fuelwood.

Personal use sawtimber is as provided for in 36 Code of Federal Regulations 223.10 (Alaska free use).

Personal use fuelwood is as provided for in 36 Code of Federal Regulations 223.10 (Alaska free use).

Salable minerals are common variety minerals including rock, sand, and gravel and are generally used for construction purposes.

Day-use facilities include restrooms and picnic areas developed for public day use.

Communication sites include electronic transmitters, receivers, and resource monitoring equipment used for communication systems.

Energy-related infrastructure and utilities include hydroelectric and other renewable energy projects such as wind, solar, and geothermal; transmission lines; and energy corridors.

Forest Service recreational cabins are structures built and maintained by the Forest Service for public use.

Campgrounds are hardened sites developed for overnight use for the public and includes facilities and amenities such as toilet facilities, picnic tables, and garbage receptacles. Campgrounds are generally road accessible.

Hardened dispersed camping sites are camping sites typically located in remote areas and modified by the Forest Service in naturally appearing ways to reduce site damage, preserve scenic quality of focal points of interest, and reduce impacts to nearby vegetation by discouraging expansion of the campsite footprint.

Emergency motorized access via boat, helicopter, fixed-wing aircraft, or other modes for health and safety purposes is allowed throughout the national forest regardless of management area direction.

Fixed-wing aircraft are allowed to land without a permit on all suitable lakes, beaches, and ice fields (if the activity does not require a permit for another reason), unless closed for health, safety, or resource protection reasons by forest order.

Commercial helicopter landings refer to the use of helicopters engaged in a commercial activity for recreational purposes (for example, heli-skiing and flight-seeing landings) and are authorized by permit only.

Recreation events are recreational activities conducted on National Forest System lands for which an entry or participation fee is charged, such as fishing contests, running races, and dog trials.

Assigned sites for outfitters and guides are locations authorized for use and occupancy by an outfitting and guiding permit for which a fee is paid. Assigned sites are areas designated for outfitters and guides to establish base camps, to store equipment, or for other uses that support their guided activity. The use of assigned sites generally precludes use of the site by other visitors while occupied by the outfitter or guide.

Timber Suitability

As described in appendix B, 6,060 acres of forest land may be suitable for timber production based on requirements outlined in the National Forest Management Act (36 CFR 219.11). To determine whether timber production within these 6,060 acres is compatible with the goals and objectives of the land management plan, criteria outlined in Forest Service Handbook 1909.12-61.2 were applied. These criteria include:

1. Timber production is a desired primary or secondary use of the land.
2. Timber production is anticipated to continue after desired conditions are achieved.
3. A flow of timber can be planned and scheduled on a reasonably predictable basis.
4. Regeneration of the stand is intended.
5. Timber production is compatible with the desired conditions or objectives for the land designed to fulfill the requirements of 36 Code of Federal Regulations 219.8 to 219.10.

The primary reason no lands were determined suitable for timber production is that a sustainable flow of timber cannot be planned and scheduled on a reasonably predictable basis on this limited land area (criterion three above). The primary and secondary uses of these lands include wildlife habitat management, providing a source of fuelwood for local communities, and providing recreational opportunities. Table 12 displays timber production suitability by land classification category for the Chugach National Forest.

Table 12. Total acres of land available within the Chugach National Forest for timber production based on land classification and suitability

Land Classification Category	Acres
A. Total National Forest System lands in the plan area	5,415,148
B. Lands not suitable for timber production due to legal or technical reasons	5,409,088
C. Lands that **may be suitable** for timber production (A minus B)	6,060
D. Total lands **suitable** for timber production because timber production is compatible with the desired conditions and objectives established by the land management plan	0
E. Lands not suitable for timber production because timber production is not compatible with the desired conditions and objectives established by the land management plan (C minus D)	6,060
F. Total lands not suitable for timber production (B plus E)	5,415,148

Source: Chugach National Forest GIS database. Acreages are current as of 2019.

Although no lands are suitable for timber production, 11,170 acres were identified as lands suitable for the management of wood products for purposes other than timber production. Appendices B and C in this plan provide details on timber suitability and wood products management for the Chugach National Forest.

Management Areas Direction

Management areas are areas of the national forest that have similar management intent and a common management strategy. Suitable uses and activities by management area are provided in the Suitability of Lands section above. The description for each management area includes management intent and associated plan components. Not every management area includes all of the plan components—only those components that apply are included. Management area direction does not substitute for, or repeat, forestwide direction. Management area direction in this section should be used in conjunction with forestwide direction. Where management area direction conflicts with forestwide direction, the more stringent or restrictive direction prevails.

Eight management areas are identified for the Chugach National Forest. Each management area has a unique management intent. Table 13 displays the number of acres for each management area by geographic area. See management areas map in the Maps section of this land management plan.

Table 13. Acres within each management area, by geographic area

Management Area	Kenai Peninsula	Prince William Sound	Copper River Delta	Total
Management Area 1 Wilderness Study Area	1,944	1,906,941	0	1,908,885
Management Area 2 Wild, Scenic, and Recreational Rivers	28,345	3,318	31,150	62,813
Management Area 3 Research Natural Areas	5,951	16,273	7,619	29,843
Management Area 4 Backcountry Areas	1,013,205	577,516	104,694	1,695,415
Management Area 5 ANILCA 501(b) Areas	0	94	1,507,417	1,507,511
Management Area 6 EVOS-Acquired Lands	0	84,210	16,168	100,378
Management Area 7 Municipal Watershed	0	0	439	439
Management Area 8 Front Country	104,566	5,299	0	109,865
Total acres	1,154,011	2,593,651	1,667,487	5,415,149

Source: Chugach National Forest GIS database. Acreages are current as of 2019.

Management Area 1 Wilderness Study Area

Management Area 1 (MA1) Management Intent

The Nellie Juan-College Fiord Wilderness Study Area—more than one-third of the Chugach National Forest—is known and recognized for its ecological integrity, unique and important recreation opportunities, and the values it holds to residents and visitors alike. The wilderness study area was designated by Congress in Section 704 of ANILCA, enacted in 1980. Congress directed the Secretary of Agriculture to review public lands within the wilderness study area and submit recommendations to the President and Congress regarding suitability of the lands for wilderness area designation. In 1985 the Wilderness Final Environmental Impact Statement and Wilderness Study Report for the Chugach National Forest (see appendix G) was completed, and 1.7 million acres of the Nellie Juan-

College Fiord Wilderness Study Area were recommended for wilderness designation. The report explains that until Congress has acted on the recommendations, the wilderness study area will be managed so as to maintain its presently existing character. As part of the 2002 land management plan process, an updated wilderness area recommendation was submitted. To date, Congress has not acted upon these recommendations.

Specific management direction for the wilderness study area is located in the following documents:

- Statute (law): ANILCA has provisions specifically addressing activities within the wilderness study area, on National Forest System lands, and within all public lands. ANILCA provides no further direction on overall management of the wilderness study area. The wilderness study area is not a conservation system unit as defined by ANILCA (section 102(4)).
- Forest Service policy: The Alaska Region supplement to Forest Service national wilderness policy provides management direction for both designated wilderness and the wilderness study area.

Through collaboration and cooperation, the Forest Service acknowledges the mission, objectives, and authorities of other jurisdictions and ensures adequate and reasonable access to state and private lands, including subsurface rights. Marine waters, and those portions of inland rivers and lakes legally determined navigable for purposes of title through either a quiet title action in the federal courts or an administrative recordable disclaimer of interest, are generally outside Forest Service jurisdiction. Where the boundary between state and federal tidelands and submerged lands is unresolved as a result of the 1964 Good Friday earthquake, the Forest Service and State of Alaska will continue to operate under a 1992 memorandum of understanding. The Forest Service also acknowledges the State of Alaska has jurisdiction and responsibilities for the protection and management of fish and wildlife populations within the wilderness study area, excluding the jurisdiction and responsibilities reserved to the federal government.

The lands within the boundary of the wilderness study area (between Jackpot Bay and Paddy Bay, southern tip of Knight Island around Hogan Bay, and Junction Island north of Chenega Island) acquired with EVOS Trustee Council funding will be managed following direction in Management Area 6 EVOS-Acquired Lands consistent with their site-specific covenants and conservation easements. Management area 1 direction does not apply to these lands.

Taken as a whole, the plan components for management area 1 provide a high degree of protection for the social and ecological characteristics of the entire wilderness study area and maintains its presently existing character and potential for inclusion in the National Wilderness Preservation System. All management area 1 plan components below apply to all National Forest System lands in the wilderness study area (except acquired lands mentioned above), regardless whether lands are recommended for inclusion in the National Wilderness Preservation System.

MA1 Desired Conditions (DC)

(MA1-DC)

1. Visitors to the wilderness study area find outstanding opportunities for solitude, remoteness, closeness to nature, and self-reliance in a natural environment of coastal rainforests and tidewater glaciers.
2. The wilderness study area provides opportunities for research, the full range of subsistence uses, and a robust recreation and tourism economy, while maintaining its presently existing character and potential for inclusion in the National Wilderness Preservation System.

3. Visual and noise impacts are minimized from motor vehicles and other forms of authorized access and from the use of authorized motorized equipment.
4. Evidence of recreation use is generally only apparent at popular sites.
5. Ecosystems function primarily without direct human manipulation. The landscape is undeveloped and appears primarily influenced by the forces of nature.
6. Prevention and early detection of invasive terrestrial and aquatic species is emphasized and treatments are implemented where appropriate.
7. Fisheries and wildlife management activities are planned and implemented in a cooperative manner with the State of Alaska and other federal agencies and are consistent, to the greatest extent feasible, with maintaining the area's presently existing character and potential for inclusion in the National Wilderness Preservation System.
8. The wilderness study area's injured resources and services identified in the 1994 *Exxon Valdez* Oil Spill Restoration Plan have largely recovered from the effects of the 1989 *Exxon Valdez* oil spill.

MA1 Objectives (OBJ)

(MA1-OBJ)

1. Within 2 years of land management plan approval, review wilderness study area outfitter and guide special use permit clauses and operating plans to determine if new stipulations are needed to minimize commercial recreation impacts on the area's presently existing character and its potential for inclusion into the National Wilderness Preservation System.
2. Within 1 year of land management plan approval, develop a forest order prohibiting public landings of helicopters, and landings, taking off, and possession of drones on National Forest System lands within the wilderness study area.
3. Within 1 year of land management approval, define the presently existing character of the Nellie Juan-College Fiord Wilderness Study Area.

MA1 Management Approaches (MAP)

(MA1-MAP)

- Authorize new air and water navigation aids, communications sites and related facilities, and facilities for weather, climate, and fisheries research and monitoring. Reasonable access to and operation and maintenance of these facilities shall be granted and authorized within the special use authorization subject to stipulations that maintain the area's presently existing character and potential for inclusion into the National Wilderness Preservation System.
- Support the restoration of the *Exxon Valdez* oil spill injured resources through collaboration with EVOS Trustee Council-funded proposals for surveys, studies, and other monitoring of fish and wildlife species affected by the *Exxon Valdez* oil spill. Projects should be implemented in a manner that maintains the area's presently existing character and potential for inclusion in the National Wilderness Preservation System.
- When identifying treatment needs and methods, consider the impact of invasive species on the wilderness study area's presently existing character and potential for inclusion into the National Wilderness Preservation System.

- Develop and use an interdisciplinary based wilderness study area stewardship plan that identifies activities necessary to maintain the wilderness study area's presently existing character and potential for inclusion in the National Wilderness Preservation System.
- As part of the wilderness study area stewardship plan, develop and conduct recreation site and recreation opportunity inventories for the wilderness study area, using national protocols for designated wilderness areas as a guide.
- Restore degraded camping sites.

MA1 Standards (S) and Guidelines (G)

(MA1-S)

1. Authorizations for access to the subsurface estate within the lands described in patents 50-84-0466 and 50-2002-0251 (located at the head of Drier Bay on Knight Island) shall include the covenants and conditions described in the 1982 Chugach Natives, Incorporated Settlement Agreement and the patents. [Standard]

MA1 Forest Service Administrative Activities and Facilities (ADM)

(MA1-ADM-G)

1. When evaluating a proposal for use of motorized equipment, landing of aircraft, other forms of mechanical transport, structures, and installations, the authorizing officer should weigh the effects to the social and ecological characteristics of the wilderness study area with the need for area management. If the decision is to authorize the activity, the decision and rationale should be documented and the authorization should include provisions that maintain presently existing character and potential for inclusion in the National Wilderness Preservation System. [Guideline]
2. Administrative sites and visitor facilities may be established in the wilderness study area only if they are compatible with maintaining the area's presently existing character and potential for inclusion in the National Wilderness Preservation System. New structures and installations for administrative purposes should be limited to only those needed for the management, protection, and use of the wilderness study area. [Guideline]
3. When temporary administrative field camps, including research camps, are authorized for use, the following practices should be used:
    a. Camp conditions reflect Leave No Trace practices.
    b. Permanent foundations or anchors should be avoided and only minimal clearing of vegetation should occur.
    c. Temporary, aboveground materials (such as tent platforms and boardwalks) should be used instead of gravel pads or gravel trails.
    d. Camps and all associated equipment and materials should be removed at the conclusion of the project or field season. [Guideline]
4. Radio repeaters should be installed only when necessary for providing essential communications for the health and safety of employees involved in the administration of the area. [Guideline]
5. Naturally ignited fires should be managed to meet or enhance wilderness study area values and to maintain fire's natural role in the ecosystem. [Guideline]

6. While evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    a. Availability of suitable opportunities outside of the wilderness study area
    b. Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed
    c. Proposed use of motorized equipment or mechanical forms of transport [Guideline]
7. New public recreation use cabins may be constructed subject to restrictions necessary to maintain the wilderness study area's presently existing character and potential inclusion in the National Wilderness Preservation System. Existing public recreation use cabins may be operated, maintained, or replaced in a manner that maintains the wilderness study area's presently existing character. [Guideline]
8. Signs should be installed only when essential for public safety or resource protection. [Guideline]
9. Bridges or other trail structures should be constructed only if needed for resource protection. Trails and facilities should blend with the natural environment and promote primitive recreation opportunities. Trails should be maintained to a primitive condition level. [Guideline]

MA1 Non-Forest Service Facilities and Authorized Activities (NONFS)

(MA1-NONFS-S)

1. Shore ties, shore caches, waterlines, or other onshore facilities associated with floating residential and commercial facilities shall not be authorized or permitted. [Standard]
2. Landings of helicopters in the wilderness study area for the purpose of commercial recreation activities will not be authorized. [Standard]
3. Recreation events shall not be authorized. [Standard]
4. Proposed mining operations will be approved only for the minimum amount of surface use necessary for accomplishing mining operations and the minimum access that is also adequate and feasible. Plans of operation must include reasonable requirements to protect the social and ecological characteristics of the wilderness study area and maintain its presently existing character and potential for inclusion in the National Wilderness Preservation System. [Standard]

(MA1-NONFS-G)

1. New land uses should not be authorized, except as provided for by ANILCA (sections 1303, 1314, 1315(b), 1316, 1323), regulations, Forest Service policy, or otherwise allowed in management area 1 standards and guidelines or described in the management approach section. [Guideline]
2. No new permanent structures or installations should be authorized, except as provided for in ANILCA (sections 1303, 1315(b), and 1316) or as described in other management area 1 standards and guidelines or management approaches. [Guideline]
3. When evaluating a proposal for use of motorized equipment, landing of aircraft, other forms of mechanical transport, structures, and installations, the authorizing officer should weigh the effects to the social and ecological characteristics of the Wilderness Study Area with the need for area management. If the decision is to authorize the activity, the decision and rationale should be documented and the authorization should include provisions that maintain presently existing character and potential for inclusion in the National Wilderness Preservation System. [Guideline]

4. Changes to existing permitted facilities for existing air and water navigation aids, communications sites and related facilities, weather, climate, and fisheries research and monitoring should maintain the wilderness study area's presently existing character without unreasonably limiting the access, operations, and maintenance of permitted facilities. [Guideline]
5. When authorizing temporary camps or tent platforms associated with the taking of wildlife and fish (ANILCA section 1316), the following constraints should be included:
    a. A maximum of two tent platforms may be authorized. Platforms will not exceed 14 by 16 feet in dimension.
    b. One outhouse or pit privy may be authorized and must meet state requirements for treatment and disposal of human waste.
    c. Permanent foundations or anchors should be avoided and only minimal clearing of vegetation should occur.
    d. Aboveground, temporary, and easily removable materials (such as tent platforms and boardwalks) should be used instead of gravel pads or gravel trails. [Guideline]
6. Subject to ANILCA provisions and valid existing rights, authorized use and resource-related work being accomplished by other agencies and cooperators should minimize the effects to social and ecological characteristics of the Wilderness Study Area and maintain the area's presently existing character and potential for inclusion in the National Wilderness Preservation System. [Guideline]
7. In order to protect and maintain the social and ecological characteristics of wilderness study area, helicopter landings will only be authorized when found to be necessary for the administration of the area and impacts are minimized to maintain the area's presently existing character and potential inclusion in the National Wilderness Preservation System.[Guideline]
8. New commercial services may be authorized to facilitate recreation and other purposes of the wilderness study area. Special use authorizations should include permit clauses that maintain the area's presently existing character and potential for inclusion in the National Wilderness Preservation System. [Guideline]
9. Group size for special use recreation activities should be limited to 15 people or less. [Guideline]
10. Commercial filming may be authorized when the following conditions are met:
    a. The activity does not include the use of helicopters or drones.
    b. The authorization includes stipulations to maintain the area's presently existing character. [Guideline]
11. When evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    a. Availability of suitable opportunities outside of the wilderness study area;
    b. Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed;
    c. Proposed use of motorized equipment or mechanical forms of transport. [Guideline]

MA1 Scenery (SCEN)

(MA1-SCEN-G)

1. Project-specific non-discretionary activities, such as locatable mineral development or road access to private lands, may result in scenic integrity levels lower than the mapped scenic integrity objective. However, effects to scenery should be mitigated to the greatest extent practicable and in no case result in a scenic integrity objective of less than moderate. [Guideline]

Management Area 2 Wild, Scenic, and Recreational Rivers

Management Area 2 (MA2) Management Intent

The purpose of the National Wild and Scenic Rivers System is to maintain and protect the free-flowing character of certain river corridors that exhibit outstanding natural, cultural, and recreational values for the benefit of present and future generations. Outstandingly remarkable values are those unique, rare, or exemplary features considered significant when compared with similar values from other rivers at a regional or national scale. Such values must be river-related and can include scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values.

Congress has not acted on the 2002 recommendations for wild, scenic, or recreational river segments within the Chugach National Forest. Until a decision is made by Congress or there is a change in eligibility or suitability status from a future study, river segments currently classified as eligible or suitable will be managed under direction described in Forest Service Handbook 1909.12, chapters 84.2 and 84.3 and consistent with National Wild and Scenic Rivers System designation classes. Table 14 lists river segments within the Chugach National Forest determined eligible or suitable for inclusion in the National Wild and Scenic Rivers System.

All river segments determined to be suitable have been recommended for inclusion in the National Wild and Scenic Rivers System. Childs Glacier has not been evaluated for suitability and retains its eligible status.

Table 14. River segments within the Chugach National Forest determined eligible or suitable for inclusion in the National Wild and Scenic Rivers System

River Segment	Miles	Preliminary Classification	Outstandingly Remarkable Values	Status
Twentymile River	14.2	Scenic	Ecologic, fish, wildlife, recreational	Suitable
Portage Creek	6.2	Recreational	Recreational, scenic	Suitable
Sixmile Creek	5.7	Recreational	Recreational, scenic	Suitable
East Fork Sixmile Creek	5.6	Recreational	Recreational, scenic	Suitable
Lower Russian River	4.9	Recreational	Fish, historic and cultural values (prehistory), recreational	Suitable
Upper Russian River	12.4	Wild	Fish, historic and cultural values (prehistory), recreational	Suitable
Lower Snow River	5.1	Scenic	Scenic	Suitable
Upper Snow River	18.7	Wild	Scenic	Suitable
Nellie Juan River	9.6	Wild	Recreational, scenic	Suitable
Childs Glacier	9.5	Scenic	Scenic, recreational, geologic	Eligible

River segments are classified and administered according to definitions in the Wild and Scenic Rivers Act (1968):

Wild rivers: Those rivers or sections of rivers free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic rivers: Those rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely primitive and shorelines undeveloped but accessible by road in places.

Recreational rivers: Those rivers or sections of rivers readily accessible by road or railroad, may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

MA2 Desired Conditions (DC)

(MA2-DC)

1. The free-flowing character, water quality, outstandingly remarkable values, and preliminary classifications of eligible and suitable river segments are maintained and protected.
2. The special character of rivers eligible or suitable for inclusion in the National Wild and Scenic Rivers System is safeguarded, with recognition of their potential for appropriate but limited use and development. Where river management crosses ownership boundaries, goals for river protection are developed collaboratively as a result of stakeholder and public participation.
3. Within the corridor of suitable wild river segments, the hydrologic and biological character, including its associated riparian areas, remain in their natural state without evidence of alteration by human activities.
4. Within the corridor of eligible or suitable scenic river segments, the hydrologic and biological character remains in a largely natural condition with some human-related alteration and impact to existing habitat.
5. The ecological function and processes of eligible or suitable recreational river segments are not significantly impaired as a result of human related activities and management.
6. Shorelines of suitable wild rivers are free of shoreline development and remain primitive in nature.
7. Roads, camping areas, and trailheads provide the necessary and consistent level of access and use opportunity for eligible or suitable scenic and recreational river segments.

MA2 Objectives (OBJ)

(MA2-OBJ)

1. Within 10 years of land management plan approval, file for instream flow reservations on at least one recommended wild, scenic, or recreational river.

MA2 Management Approaches

There are no MA2 management approaches.

MA2 Standards (S) and Guidelines (G)

(MA2-S)

1. All projects and activities within eligible or suitable wild, scenic, and recreational river corridors must be consistent with interim protection measures in Forest Service Handbook 1909.12, section 84.3, except as provided for by ANILCA. [Standard]
2. Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [Standard]
3. Management actions and authorized activities shall meet the mapped scenic integrity objectives within eligible or suitable wild, scenic, and recreational river corridors. The only nonconformance allowed is for authorized non-discretionary mineral activities as described in forestwide scenery guideline (FW-SCEN-G-2). [Standard]
4. Recreation events shall not be authorized within eligible or suitable wild river corridors. [Standard]
5. The effects of water and flood control dams, diversions, or other water resource projects on the free-flowing condition, water quality, and outstandingly remarkable values of eligible or suitable wild, scenic, and recreational river corridors shall be prevented to the extent of agency authorities. [Standard]
6. Hydroelectric facility development with the potential to affect free-flowing condition, water quality, and outstandingly remarkable values of wild, scenic, or recreational eligible or suitable rivers corridors shall not be permitted. [Standard]

(MA2-G)

1. Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects should maintain the free-flowing character, preserve water quality, and protect the segment's preliminary classification and outstandingly remarkable values. [Guideline]
2. When water resource development projects are authorized on eligible or suitable rivers, prevent adverse impacts to the extent possible under existing agency authorities. [Guideline]
3. Fire management actions should use minimum impact suppression tactics to protect water quality, the free-flowing character, preliminary classification, and the outstandingly remarkable values of eligible or suitable wild, scenic, and recreational river segments. [Guideline]

Management Area 3 Research Natural Areas

Management Area (MA3) Management Intent

Research natural areas are permanently established to maintain representative areas of natural ecosystems and areas of special ecological significance. Research natural areas emphasize non-manipulative research, monitoring, education, and the maintenance of natural diversity by allowing natural physical and biological processes to prevail with minimal human intervention. Because research natural areas are managed in a natural state, they can function as a control when evaluating long-term effects and ecological change on similar more intensively managed areas. Each research natural area has its own establishment record, which includes detailed location maps, information on distinguishing features, and the purpose for establishment of the research natural area. Table 15 displays information about five designated research natural areas within the Chugach National Forest.

Table 15. Total acres and research descriptions for designated research natural areas within the Chugach National Forest

Research Natural Area	Size (acres)	Resource Focus
Kenai Lake-Black Mountain	5,850	Sitka spruce/white spruce/Lutz spruce forest and a diversity of vegetation types.
Wolverine Glacier	6,861	One of four U.S. Geological Survey benchmark glaciers in North America and a diversity of tundra plant communities within the Nellie Juan-College Fiord Wilderness Study Area.
Green Island	2,558	Old-growth forests and beaches uplifted by the 1964 earthquake, haul out sites for harbor seals and Steller sea lions, sea otter refugia, marine and shorebird bird colonies, and linkages between terrestrial and highly productive marine environments.
Olsen Bay Creek	6,821	Non-manipulative anadromous fisheries research and a wide diversity of lower and upper elevation vegetation types and landforms.
Copper Sands	1,520	Shifting barrier islands with breakwater sandbars and active vegetation succession on sand dunes.

Source: Chugach National Forest GIS database. Acreages are current as of 2019.

Management for recreation uses, habitat improvement, or restoration and resource development are not emphasized in research natural areas. Recreation uses with potential to interfere with the establishment objectives of a research natural area may be restricted. Research natural areas provide outstanding opportunities for research, study, observation, monitoring, and educational activities consistent with the objectives for which the research natural area was established. While maintaining a natural condition is the goal when establishing research natural areas, some evidence of past human use, such as primitive trails or historic structures, may be present.

MA3 Desired Condition (DC)

(MA3-DC)

1. Research natural areas retain the unique and natural conditions for which they were established and provide opportunities for principally non-manipulative research, monitoring, and education aligned with the objectives for which each research natural area was established.

MA3 Objectives

There are no MA3 objectives.

MA3 Management Approaches (MAP)

(MA3-MAP)

- Pursue withdrawal of research natural areas from mineral entry for locatable minerals.
- Decommission trails that are not compatible with the purpose of the research natural areas.

MA3 Standards (S) and Guidelines (G)

(MA3-S)

1. Any proposed action within a research natural area must be coordinated with the Pacific Northwest Research Station. [Standard]
2. Timber harvest and wood gathering of any kind are not permitted unless required for restoration of an area to natural conditions. [Standard]
3. Research natural areas will be avoided when providing access to private lands unless no other reasonable access exists. [Standard]
4. Shore ties, shore caches, waterlines, or other onshore facilities associated with floating residential and commercial facilities shall not be authorized or permitted. [Standard]
5. Special use permits for recreation events shall not be authorized. [Standard]
6. Construction of permanent administrative facilities shall not be permitted. Temporary facilities may be permitted only to support approved research projects in compliance with forestwide standards and guidelines. [Standard]
7. Green Island Research Natural Area: occupancy under a special use permit shall not be allowed nor shall construction of permanent improvements be permitted except improvements required in connection with experimental use unless authorized by the district ranger for the Cordova Ranger District. [Standard]
8. Do not approve outfitter and guide requests that use lands designated as research natural areas. [Standard]

(MA3-G)

1. Soil and watershed restoration projects and wildlife and fish habitat manipulation should be allowed only for the protection of threatened or endangered species and species of conservation concern or where it is necessary to perpetuate or restore natural conditions for which the research natural area was established. [Guideline]
2. Signs or fences should be installed only when essential for public safety or resource protection. [Guideline]
3. New trails should not be constructed unless they contribute to the objectives of or to the protection of the research natural area. [Guideline]
4. Administrative and non-recreational motorized access (for example, helicopter landings) should be allowed only if such activities do not interfere with the objectives for which the research natural area was established. Access for emergencies is allowed. [Guideline]
5. The Wolverine Glacier research facilities may result in scenic integrity levels lower than the forestwide scenery guideline. Any future authorization of this site and any future elements of development should include mitigation to reduce effects to scenery to not lower than a moderate scenic integrity objective. [Guideline]
6. Naturally ignited wildfires may be managed to meet research natural area objectives. [Guideline]
7. Prescribed fire may be used only as necessary to accomplish research natural area objectives. [Guideline]

Management Area 4 Backcountry Areas

Management Area 4 (MA4) Management Intent

Backcountry areas are managed to emphasize a variety of recreational opportunities in primarily backcountry settings where the landscape character is intact with little, if any, deviations. Fish and wildlife habitats are conserved and ecological processes are largely unaffected by human activity.

MA4 Desired Conditions (DC)

(MA4-DC)

1. Backcountry areas provide recreation opportunities in remote settings with low densities of visitors and support subsistence uses and tourism based economic opportunities.
2. Scenery is natural in appearance and exemplifies the rugged beauty of southcentral Alaska.
3. Native wildlife species are not displaced or significantly affected by human disturbance (motorized or non-motorized) and can make effective use of important or limited habitats such as, kidding or lambing areas, concentrated nesting sites, foraging areas, or wintering range.

MA4 Objectives

There are no MA4 objectives.

MA4 Management Approaches (MAP)

(MA4-MAP)

- Maintain backcountry values in all projects, activities and uses including opportunities for visitors to experience remote recreation settings and lower densities of visitors, subsistence uses, ecological processes, and scenic values.
- Maintain trails, public use cabins, and hardened campsites in a sustainable manner.
- Maintain the diversity of wildlife habitats and ability of wildlife to effectively use important or limited habitats such as, kidding or lambing areas, concentrated nesting sites or foraging areas, and winter range.
- Avoid displacing or significantly affecting wildlife species.

MA4 Standards (S) and Guidelines (G)

(MA4-S)

1. Shore ties, shore caches, waterlines, or other onshore facilities associated with floating residential and commercial facilities shall not be authorized or permitted. [Standard]

(MA4-G)

1. Campgrounds should not be developed except for campground facilities associated with the Whistle Stop recreation area. [Guideline]

Management Area 5 ANILCA 501(b) Areas

Management Area 5 (MA5) Management Intent

This area is managed to meet the direction of ANILCA section 501(b), which states the primary purpose for management of the Copper/Rude River and Copper River/Bering River sections of the national forest should be for "conservation of fish and wildlife and their habitat." ANILCA direction also clarified that taking of fish and wildlife would be permitted, pursuant to other applicable laws, and that multiple-use activities would be permitted "in a manner consistent with the conservation of fish and wildlife and their habitat." The intent of this management area is to provide management direction to meet the purposes set forth in ANILCA while providing opportunities for multiple-use activities in a natural appearing landscape. The importance of this area for fish and wildlife led agencies responsible for area resources (Alaska Department of Fish and Game, Alaska Department of Natural Resources, U.S. Fish and Wildlife Service, Bureau of Land Management, and Forest Service) to establish a memorandum of understanding in 1986 to better coordinate management.

MA5 Desired Conditions (DC)

(MA5-DC)

1. Natural ecological processes, largely unaffected by human activity, continue to dominate this management area.
2. The ecological communities remain functional, interconnected, and resilient, supporting sustainable populations of native and desirable nonnative fish and wildlife species.
3. National Forest System lands continue to provide users opportunities for hunting and fishing, as well as other outdoor recreation and commercial activities.

MA5 Objective (OBJ)

(MA5-OBJ)

1. Within 3 years of land management plan approval, publish a forest order that closes Barrier Island to overland motorized use.

MA5 Management Approaches

There are no MA5 management approaches.

MA5 Standards (S) and Guidelines (G)

MA5 Administrative Facilities (ADM)

(MA5-ADM-G)

1. New, permanent administrative facilities should be constructed consistent with ANILCA (sections 1303, 1306, and 1310) and should be consistent with the requirement that conservation of fish and wildlife and their habitat is the primary purpose for management (ANILCA section 501 (b)). [Guideline]

MA 5 Minerals (MINE)

(MA5-MINE-G)

1. Road construction should not be authorized for initial prospecting or exploration to determine the existence of mineral deposits. Aircraft access is allowed for initial prospecting or exploration and will be coordinated with the responsible line officer to minimize impacts to other users and, to the extent possible, be consistent with management intent. [Guideline]
2. Mitigation measures shall be employed to prevent or minimize adverse impacts to fish and wildlife and should be included for all approved or authorized minerals activities. [Guideline]
3. Small salable mineral material sites to support trail and facility development or road construction may be developed only in roaded natural areas identified on the desired recreation opportunity spectrum map. Sites should minimize or mitigate effects on fish and wildlife habitat. All sites should be reclaimed upon completion of projects. [Guideline]

MA5 Recreation (REC)

(MA5-REC-S)

1. Public recreation use cabins should be constructed only if construction and use do not adversely impact fish and wildlife populations. [Standard]
2. Special use permitted assigned sites should be authorized only when necessary for effective management of fish and wildlife resources or for health and safety reasons. [Standard]
3. Fish and wildlife viewing sites should be constructed only if the design is consistent with conservation efforts and the natural character of the area. [Standard]

(MA5-REC-G)

1. Developments and amenities for larger groups should be concentrated along road corridors to minimize the effects on the overall management area. [Guideline]

MA5 Special Uses (non-recreation) (SU)

(MA5-SU-S)

1. Shore ties, shore caches, waterlines, or other onshore facilities associated with floating residential and commercial facilities shall not be authorized or permitted. [Standard]
2. Power generation facilities, transmission systems, and utility corridors should be authorized only when no reasonable alternative is available. [Standard]
3. Valid existing rights, including rights-of-way providing access to Alaska Native Corporation lands, shall be recognized. [Standard]

(MA5-SU-G)

1. The use of motorized equipment (for example, backhoes, tracked vehicles, and off-highway vehicles) should be minimized but may be used to implement fish and wildlife habitat improvement projects. [Guideline]
2. Communication sites should be authorized only when necessary for health and safety reasons or when no reasonable alternative exists. Facilities should be designed and located to minimize effects on the natural character of the area. [Guideline]
3. Permanent structures or facilities should be located to minimize effects on habitat for fish and wildlife. [Guideline]

Management Area 6 EVOS-Acquired Lands

Management Area 6 (MA6) Management Intent

As part of the *Exxon Valdez* oil spill settlement and the *Exxon Valdez* Oil Spill (EVOS) Trustee Council, lands or interests in lands have been purchased with the purpose of habitat protection and for recovery of resources injured by the *Exxon Valdez* oil spill. Habitats are protected to help prevent additional injury to species due to intrusive development or loss of habitat. The EVOS Trustee Council accomplishes this by providing funds to government agencies to acquire title or conservation easements on land important for its restoration value.

Lands and interests acquired via the EVOS Trustee Council purchase program include surface estate lands and conservation easements. The acquired surface estate lands are subject to conservation easements to ensure restoration objectives of the EVOS Trustee Council purchase program are achieved. The Chugach Alaska Corporation owns the subsurface estate beneath many EVOS Trustee Council funded acquired lands and is entitled to access for exploration and development of subsurface resources. Three categories of EVOS Trustee Council purchased lands or easements include:

Lands Acquired by the United States: These are lands where the surface estate has been purchased in fee with the goal of maintaining the land in perpetuity for conservation and restoration purposes by the federal government.

All lands acquired through the EVOS Trustee Council by the United States are subject to a State Conservation Easement retained on the acquired land. The State Conservation Easement includes use restrictions, prohibitions, and allowed activities for these Forest Service managed lands. The Forest Service acquired the surface estate only for these EVOS Trustee Council purchased lands. The covenants associated with conservation easements are tied to the parcels in perpetuity.

Lands Acquired by the State of Alaska: These are lands where the surface estate has been purchased in fee with the goal of maintaining the land in perpetuity for conservation and restoration purposes by the State of Alaska.

All lands acquired through the EVOS Trustee Council by the State of Alaska are subject to a Federal Conservation Easement retained on the acquired land. The Federal Conservation Easement includes use restrictions, prohibitions, and allowed activities for these State of Alaska managed lands. The State of Alaska acquired the surface estate only for these EVOS Trustee Council purchased lands. The covenants associated with conservation easements are tied to the parcels in perpetuity.

Lands Retained by Alaska Native Village Corporations with Partial Interests Acquired: Surface estate was retained by Alaska Native village corporations. On these lands, the Native village corporations generally retain all rights of surface ownership, except for the covenants placed on the lands and outlined in the Conservation Easements held by both the United States and the State of Alaska. The purpose of these conservation easements is to ensure that the conservation values of the property will be maintained to prevent any use of the property that will materially impair or interfere with its conservation values. Most of these easements allow public access; some do not. The Forest Service has the right to enter these lands to support the conservation values on the property. The covenants associated with conservation easements are tied to the parcels in perpetuity.

There are a variety of EVOS Trustee Council purchased lands or easements and it is important to check for the specific restrictions for each land agreement to ensure management practices are in alignment.

This management area was developed to specify management direction for lands or interests acquired with EVOS Trustee Council funds. Purchase agreements and related documents for the sale, purchase, protection of lands and interests in lands among the Chenega Corporation, Eyak Corporation, Tatitlek Corporation, the United States of America, and the State of Alaska contain specific covenants that apply to each protected property. These purchase agreements and related documents identify detailed management requirements.

MA6 Desired Conditions (DC)

(MA6-DC)

1. EVOS acquired lands will be managed consistent with the terms and conditions of the conservation easements that encumber the lands and the reserved rights of the grantors from whom the United States acquired lands or interests in lands.
2. Ecological processes dominate lands acquired with EVOS Trustee Council funding, subject to valid existing rights. In areas where soil, water, and timber resources have been impacted by previous management activities or by natural events, management activities focus on restoring watershed function and protecting riparian and wetland habitats.
3. Resources affected by the *Exxon Valdez* oil spill are restored or enhanced, and intact fish and wildlife habitats are maintained on all lands acquired with EVOS Trustee Council funding, subject to valid existing rights.
4. The Forest Service continues to support projects to improve acquired lands, including projects that will restructure habitat to restore fish and wildlife productivity on lands purchased and acquired with EVOS Trustee Council funds.

MA6 Objective (OBJ)

(MA6-OBJ)

1. Within 10 years of land management plan approval, explore two land exchanges or acquisition projects with EVOS Trustee Council willing sellers to fulfill the intents and purposes of the EVOS Trustee Council restoration and habitat protection objectives.

MA6 Management Approaches (MAP)

Following the March 24, 1989 grounding and oil spill by the *Exxon Valdez* tanker vessel, approximately 11 million gallons of Alaska crude oil was spilled into Prince William Sound, affecting shorelines, vegetation, fish, and wildlife for years to follow.

In 1992, a trustee council was formed to oversee restoration of the injured ecosystem through the use of a $900 million civil settlement. In 1994, the EVOS Trustee Council adopted the *Exxon Valdez* Oil Spill Restoration Plan to guide the development and implementation of a comprehensive interdisciplinary recovery and rehabilitation program. The EVOS Trustee Council consists of three State of Alaska and three federal trustees (or their designees). The EVOS Trustee Council is advised by members of the public and members of the scientific community.

The Chugach National Forest management approaches for the EVOS Trustee Council program include:

(MA6-MAP)

- The U.S. Department of Agriculture appoints a trustee to EVOS Trustee Council.

- Special use permits may be issued to support surveys, studies, and other monitoring projects for the restoration of fish and wildlife that were injured by the *Exxon Valdez* oil spill and associated with National Forest System lands.
- The Forest Service will continue to support and participate in the established organizations designed for spill prevention and response. Through the Alaska Regional Response Team and the Cook Inlet and Prince William Sound Subarea planning committees, contingency planning for oil spills in Prince William Sound and Cook Inlet will be maintained with Forest Service assistance. Planning for spill response, natural resource damage assessment, restoration, and participation in annual spill and damage assessment drills will continue.
- The Forest Service will continue to support surveys funded by the EVOS Trustee Council to locate, identify, and increase understanding of the persistence and toxicity of lingering oil on or adjacent to National Forest System lands.

MA6 Standards (S) and Guidelines (G)

(MA6-S)

1. All lands shall be managed consistent with the terms and conditions of the conservation easements that encumber the lands and the reserved rights of the grantors from whom the United States acquired the lands. [Standard]
2. The Forest Service shall not authorize commercially operated flightseeing landings on federal lands acquired with EVOS Trustee Council funding. Alaska Native village corporations shall retain authority to permit landings on Native village corporation conservation easement lands. [Standard]
3. Construction of power generation and transmission lines, communication sites, and utility corridors shall not be authorized unless specifically needed to reasonably develop the subsurface estate. [Standard]
4. Methods of reasonable access, exploration, and development of the private subsurface estate will be negotiated according to the terms of the land conveyance documents. [Standard]

(MA6-G)

1. Permits should be issued for special uses on federal lands acquired with EVOS Trustee Council funding only when they do not conflict with conservation easement restrictive covenants and in coordination with other entities having management or ownership interests in the affected lands. [Guideline]
2. Management actions and authorized activities may be allowed that exceed the mapped scenic integrity objective to fulfill management intent of the federal lands acquired with EVOS Trustee Council funding and allow reasonable access and development of the subsurface estate. Reclamation activities should, to the extent practicable, be negotiated such that the affected area will meet at least a moderate scenic integrity objective within a reasonable timeframe as determined by the reclamation plan (not to exceed 20 years). [Guideline]

Management Area 7 Municipal Watershed

Management Area 7 (MA7) Management Intent

Management emphasis is to provide protection of municipal water supplies for the community of Cordova. The area is managed to maintain these watersheds as municipal water supply reserves in a manner that meets provisions of the Safe Drinking Water Act and State of Alaska water quality standards and drinking water regulations in accordance with Forest Service Manual 2542 and 36 Code of Federal Regulations 251.9.

Management activities are designed to protect and maintain natural resources. The landscape is predominantly shaped by natural ecological processes and disturbance events. All management activities are designed to maintain water quality. Vegetation management and improvements for fish and wildlife are designed to blend with the area's natural features.

MA7 Desired Conditions (DC)

(MA7-DC)

1. Watersheds within this management area meet federal and state water quality standards and drinking water regulations to provide municipal water supply for present and future generations.
2. Ecological processes, largely unaffected by human activity, dominate the management area. Vegetation in the area is mostly late successional unless regenerated by resource projects or natural processes, such as fire and insects and disease.

MA7 Objectives (OBJ)

(MA7-OBJ)

1. Within 10 years of land management plan approval, withdraw one municipal watershed from mineral entry after consultation with the municipality, subject to valid existing rights.

MA7 Management Approaches and Standards

There are no MA7 management approaches or standards.

MA7 Guidelines (G)

Refer to Forest Service Manual 2542, 36 Code of Federal Regulations 251.9, and 18 Alaska Administrative Code 80 for guidance.

(MA7-G)

1. Do not authorize activities that create or maintain a condition that would cause or allow the pollution or contamination of the municipal watershed. [Guideline]
2. Limit ground disturbance, restrict public access (in consultation with the municipality), and restrict use of hazardous materials and disposal of hazardous waste for any authorized activity that may affect water quality. [Guideline]

MA7 Access (ACC)

(MA7-ACC-G)

1. Restrict access as needed to protect water quality. [Guideline]
2. Motorized access for administrative and non-recreational permitted special uses must be consistent with protection of the municipal water supply and must be approved by the responsible line officer. [Guideline]

MA7 Minerals (MINE)

(MA7-MINE-G)

1. Surface occupancy for the purpose of mineral development should be designed to maintain the management area desired conditions and protect municipal watershed values to the extent feasible. [Guideline]

Management Area 8 Front Country

Management Area 8 (MA8) Management Intent

Front country management areas have a high density of human activities and associated structures, including roads, utilities, and trails. Scenery may exhibit evidence of past and ongoing vegetation management activities. This management area provides a wide variety of opportunities including both recreation and subsistence, both for motor vehicles and non-motorized uses. It also includes most of the acreage identified as suitable for wood products management.

Ecological processes moderately affected by high human activity dominate Management Area 8 Front Country. Management emphasizes restoration of fish habitat, and opportunities for watchable wildlife, fishing, and hunting. In areas of high human use, managing forest and riparian vegetation and wildlife habitat affected by insects, disease, windstorm, fire, and other disturbances is a priority. Forest vegetation is managed to reduce potential for ignition and spread of human-caused fires. Areas identified for restoration, such as Cooper and Resurrection Creeks, are in this management area.

Front country provides a wide range of recreational opportunities. Facilities, such as campgrounds, viewing sites, visitor or information centers, and interpretive signs, may occur on existing roads or along trails. Front country areas are managed for high densities of visitors near road or trail systems. Historic cabins, trails, and aboveground historic features may be actively managed with limited onsite interpretation. Recreation cabins are present and new cabins may be constructed. Tourism-related activities should accommodate large groups.

Roads and trails occur throughout the management area, and new roads may be built for resource management activities or for providing access to trailheads, camping areas, or recreation concentration areas. These roads, however, may be closed either seasonally or yearlong to meet wildlife habitat objectives, to protect road infrastructure, or for recreation purposes. Viewsheds along the Seward, Sterling, and Hope Highways and Portage Glacier Road are managed to meet scenic integrity objectives. Forest products may be harvested to meet forest products and resource objectives. Vegetation will generally be managed in campgrounds to provide mature forest character. Areas adjacent to private lands should consider wildland-urban interface objectives.

MA8 Desired Condition (DC)

(MA8-DC)

1. Front country management areas provide national forest users with a wide range of both recreation and subsistence opportunities accessible from the road system.
2. Front country management areas continue to provide access to forest products to meet community needs.

MA8 Objectives, Management Approaches, and Standards

There are no MA8 objectives, management approaches, or standards.

MA8 Guideline (G)

(MA8-G)

1. Areas of non-conformance with the forestwide scenery guideline (FW-SCEN-G-1) may be allowed if no other alternative is feasible for the planned activity, but may not result in a scenic integrity level lower than a low scenic integrity objective. Mitigation should be included to reduce effects from management activities on the seen landscape from common viewing locations (trails, roads, developed recreation sites, marine waters, shorelines, lakes, and rivers) to the greatest extent practicable. [Guideline]

Appendix A. Monitoring Program

Introduction

The monitoring program is one of three phases in the forest planning cycle, which includes assessment, plan development or revision, and monitoring. The monitoring program is implemented during the life of the land management plan and informs the next forest assessment. Monitoring helps the Forest Service determine if a change to the plan may be needed to improve national forest management. Each land management plan has its own monitoring program.

Monitoring

Monitoring forms the basis for continuous improvement of the land management plan and provides information for adaptive management of the plan area. The purpose of monitoring in an adaptive management framework is to facilitate learning to support decisions on necessary changes to the plan. The land management plan monitoring program enables the responsible official to determine where changes are needed in plan components, other plan content, and plan implementation strategies that guide resource management in the plan area. The land management plan monitoring program is laid out as a set of monitoring questions and indicators, and monitoring is conducted during the life of the plan.

The regional forester develops a broader scale monitoring strategy for monitoring questions identified by land management plans in the region that can be answered best at a geographic scale broader than one plan area. A broader scale monitoring strategy has not yet been developed for the Alaska Region. Existing national and regional monitoring programs, like the Forest Inventory and Analysis Program or the National Visitor Use Monitoring Program, contribute to the plan monitoring program. Monitoring is also coordinated with other Forest Service program mission areas (such as, State and Private Forestry and Research and Development), other agencies, partners, and the public.

The Forest Service will evaluate monitoring information and produce a monitoring evaluation report biennially, beginning no later than 2 years after the effective date of land management plan approval. The written report will be publicly available and include information gathered through this monitoring program as well as relevant information from the Alaska Region broader scale monitoring strategy. Where frequency of monitoring is longer than 2 years, evaluation of that information will be made in the timeframe identified in the relevant monitoring protocol.

The land management plan monitoring program consists of relevant questions and associated indicators. An indicator can be measured, observed, or described and, when observed over time, may show trends. Monitoring questions and associated indicators are designed to inform management of resources within the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness.

Monitoring questions and indicators measure land management plan effectiveness and assess progress toward achieving or maintaining the plan's desired conditions and objectives; however, each plan component does not have a corresponding monitoring question. Monitoring in the land management plan is focused on priority management questions and related core information. The land management plan monitoring program does not include all monitoring conducted for the national forest or the Alaska Region. Limited resource monitoring will be included in the plan monitoring program. Project and activity monitoring is not included in the land management plan monitoring program, although information collected with such monitoring may inform the monitoring program and adaptive management of the plan.

The monitoring program contains one or more monitoring questions and associated indicators addressing each of the following eight required topics (36 CFR 219.12(a)(5)):

1. The status of select watershed conditions.
2. The status of select ecological conditions, including key characteristics of terrestrial and aquatic ecosystems.
3. The status of focal species to assess ecological conditions required under the Code of Federal Regulations, specifically 36 Code of Federal Regulations 219.9.
4. The status of a select set of ecological conditions required (under 36 CFR 219.9) to contribute to recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
5. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
6. Measurable changes within the plan area related to climate change and other stressors that may be affecting the plan area.
7. Progress toward meeting desired conditions and objectives in the land management plan, including providing for multiple-use opportunities.
8. The effects of each management system, to determine they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

Some monitoring questions and indictors may address more than one of these required topics. The entire monitoring program must be within the financial and technical capabilities of the Forest Service and is augmented by broader scale monitoring by the Alaska Region of the Forest Service and monitoring with partners.

The monitoring program for the Chugach National Forest is presented in the following set of tables, each related to one of the eight required items listed previously. For clarity, monitoring questions for terrestrial ecosystems and aquatic ecosystems are presented in separate tables. In the tables below, each row represents a single monitoring question and associated indicators. Rows begin with selected desired conditions or other plan components that lead to the monitoring question. Next, the monitoring question and associated indicators are listed. Desired conditions are generally complex statements that cannot be fully monitored. Therefore, the monitoring questions and indicators focus on some core aspect of the desired condition related to the required monitoring item that can be monitored. Details of the land management plan monitoring program, including monitoring and analysis protocols, will be part of a separate monitoring guide.

Watershed Conditions

Table 16 displays monitoring questions and associated indicators related to water resources and watershed conditions in the plan area. The geographic scale may extend beyond the plan area and may include receiving areas for water that flows out of the plan area.

Table 16. Monitoring questions and associated indicators that evaluate watershed conditions

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Watersheds The watersheds in the plan area have primarily free-flowing rivers and streams and unmodified lakes. Instream flows and lake levels are sufficient to maintain natural aquatic and riparian habitats; wildlife and fish populations and recreational needs; State of Alaska designated beneficial uses; and to support inherent watershed integrity. The quality of both surface and subsurface waters on and flowing from National Forest System lands sustains native terrestrial and aquatic species and ecosystems, meets federal and state water quality standards, and supports designated beneficial uses. Within the inherent capacity of the identified stream process group, riparian areas and wetlands retain their functional capacity to filter sediment, capture bedload, and aid in floodplain development; improve flood-water retention and ground-water recharge; and develop diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish and aquatic invertebrate production, waterfowl breeding, and other beneficial uses Water follows natural flow paths and hydrologic connectivity is maintained. Roads, ditches, and trails do not disrupt hydrologic connectivity and do not act as an extension of the stream network.	Are management actions effective in maintaining or improving watershed integrity?	National best management practices monitoring rating results. Watershed condition classification ratings.

Terrestrial Ecosystems

Table 17 displays monitoring questions and associated indicators that evaluate ecological conditions for terrestrial ecosystems. A select set of ecological conditions is monitored for terrestrial ecosystems. The monitoring questions and indicators are selected to measure the effectiveness of the land management plan to maintain or restore ecological conditions and key ecosystem characteristics of select terrestrial ecosystems. Key ecosystem characteristics are those associated with ecosystem composition, structure, function, and connectivity.

Table 17. Monitoring questions and associated indicators that evaluate ecological conditions for terrestrial ecosystems

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Ecosystem Processes Native plants, fish, and wildlife are the dominant species inhabiting National Forest System lands, while the establishment and spread of invasive species is prevented or minimized and does not threaten ecosystem function.	Are management strategies effectively controlling or preventing the spread of invasive species in aquatic and terrestrial systems?	Trend in the geographic range and the local abundance of *Elodea* spp. as measured by the number of new waterbodies occupied and the average spatial extent (for example, percentage cover) of *Elodea* spp. in currently occupied waters. Trend in the distribution and abundance of four highly invasive nonnative terrestrial plants (bird vetch, orange hawkweed, white sweetclover, and reed canarygrass) as measured by their presence by management area, in each of the three geographic areas of the national forest.

Riparian, Wetland, and Aquatic Ecosystems

Table 18 displays monitoring questions and associated indicators that evaluate ecological conditions for riparian, wetland, and aquatic ecosystems. A select set of ecological conditions are monitored for riparian, wetland, and aquatic ecosystems. The monitoring questions and indicators are selected to measure the effectiveness of the land management plan to maintain or restore ecological conditions and key ecosystem characteristics of select riparian, wetland, and aquatic ecosystems. Key ecosystem characteristics are those associated with ecosystem composition, structure, function, and connectivity.

Table 18. Monitoring questions and associated indicators that evaluate ecological conditions for riparian, wetland, and aquatic ecosystems

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Watersheds Watershed services provided by lakes, ponds, rivers, streams, riparian areas, and wetlands sustain healthy populations of native fish and other aquatic organisms. Abiotic factors, including flow characteristics, channel shape and function, stream length, stream gradient, water turbidity, spawning gravels, and large wood, remain in a functional natural state, providing resilience to climate change and supporting native fish and aquatic organisms. Water follows natural flow paths and hydrologic connectivity is maintained. Roads, ditches, and trails do not disrupt hydrologic connectivity and do not act as an extension of the stream network. Perennial flowing streams and associated lakes support a community of native macroinvertebrates indicative of high aquatic ecosystem integrity.	Are management activities maintaining or improving aquatic habitat connectivity?	Percentage of human-associated aquatic organism barriers improved or restored.

Focal Species

Table 19 displays monitoring questions and associated indicators that evaluate the status of focal species. Focal species are indicators of ecological integrity, and they provide insight into the integrity of ecological systems on which they depend or that they influence. Monitoring the status of these species provides meaningful information about the effectiveness of the land management plan in maintaining or restoring the ecological system. Focal species may be selected on the basis of their functional role in ecosystems.

Table 19. Monitoring questions and associated indicators that evaluate the status of focal species

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Ecosystem Processes Native plants, fish, and wildlife are the dominant species inhabiting National Forest System lands, while the establishment and spread of invasive species is prevented or minimized and does not threaten ecosystem function.	Are management strategies effectively controlling or preventing the spread of invasive species in aquatic and terrestrial systems?	Trend in the geographic range and the local abundance of *Elodea* spp. as measured by the number of new waterbodies occupied and the average spatial extent (for example, percentage cover) of *Elodea* spp. in currently occupied waters. Trend in the distribution and abundance of four highly invasive nonnative terrestrial plants (bird vetch, orange hawkweed, white sweetclover, and reed canarygrass) as measured by their presence by management area, in each of the three geographic areas of the national forest.

Ecological Conditions for At-Risk Species

Table 20 displays monitoring questions and associated indicators that evaluate ecological conditions for select at-risk species. For select at-risk species, a select set of ecological conditions, including habitat, is monitored. The selected ecological conditions are necessary to provide for diversity of plant and animal communities and contribute to the recovery, conservation, or maintenance of the viability of at-risk species within the plan area. At-risk species include federally recognized threatened, endangered, proposed, and candidate species and species of conservation concern identified for the Chugach National Forest. Only a select set of ecological conditions is monitored for select at-risk species and may include characteristics at both the ecosystem and species-specific levels of terrestrial, riparian, or aquatic ecosystems.

Table 20. Monitoring questions and associated indicators that evaluate ecological conditions for select at-risk species

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Terrestrial Ecosystems Sufficient nesting habitat is maintained to support persistent populations of dusky Canada geese. Ecological conditions (for example, alpine tundra on moist, boulder-strewn, and solifluction slopes; wet mossy seeps; seepage areas among rocks; snow melt areas; and fine gravel saturated by snow melt) that maintain viable populations of Aleutian cress (*Aphragmus eschscholtzianus*) exist within the plan area. Forest Service management activities within these habitats are designed to minimize negative human impacts to Aleutian cress.	Are habitat conditions necessary to support populations of species of conservation concern (dusky Canada goose and Aleutian cress) being maintained?	Dusky Canada goose: Population trends in the Copper River Delta Fledging success Nest depredation Aleutian cress: Trend of known populations of Aleutian cress Tree and shrub encroachment in alpine habitat

Visitor Use, Visitor Satisfaction, and Progress toward Meeting Recreation Objectives

Table 21 displays monitoring questions and associated indicators that evaluate visitor use, visitor satisfaction, and progress toward meeting recreation objectives. The plan monitoring program includes monitoring questions and associated indicators that address the status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

Table 21. Monitoring questions and associated indicators that evaluate visitor use, visitor satisfaction, and progress toward meeting recreation objectives

Selected Plan Component(s)	Monitoring Questions	Associated Indicators
Goal 2 Desired Conditions Recreation Through partnerships between the Forest Service and organizations and communities, the Chugach National Forest offers opportunities for unparalleled outdoor recreation experiences that showcase the natural and cultural heritage of the Kenai Peninsula, Prince William Sound, and Copper River Delta geographic areas. Recreation sites and trail systems are economically and socially sustainable and are supported by communities and partners through shared infrastructure development and maintenance, delivery of information, and provision of recreation services. The number and location of recreation facilities reflect current and future public needs and demand, within Forest Service financial capabilities, and are consistent with forestwide recreation facility planning. Access to winter recreation opportunities is maintained or enhanced through a collaborative effort between the Forest Service, local communities, other agencies, and partner organizations to provide plowing of parking lots and trail grooming (where authorized).	Are recreation opportunities and infrastructure achieving desired conditions and are they sustainable?	Recreation facility occupancy rate Number of outfitter guide permits issued and administered, types of guided activities, and locations Number of miles of trail maintained by volunteers and partners Number of recreation sites operated and maintained by volunteers and partners Deferred maintenance accomplished annually ($) New deferred maintenance needs added to Infra annually ($) Total deferred maintenance forestwide ($)

Climate Change and Other Stressors

Table 22 displays monitoring questions and associated indicators that measure changes in the plan area resulting from climate change and other stressors. The plan monitoring program includes monitoring questions and associated indicators to determine whether there are measurable changes in the plan area resulting from climate change and other stressors.

Table 22. Monitoring questions and associated indicators that measure changes in the plan area resulting from climate change and other stressors

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Ecosystem Processes Terrestrial and aquatic ecosystems retain their inherent capacity to adapt effectively to shifting climatic conditions and other stressors while maintaining key ecosystem functions.	Is climate change affecting key ecological functions of terrestrial and aquatic habitats within the national forest?	Changes in hydrographs on selected sites Tree and shrub encroachment in alpine habitat and recently deglaciated areas Changes in water temperature on selected sites Snow depth, season of snow cover (SNOTEL data)

Desired Conditions, Including Social, Cultural, and Economic Sustainability

Table 23 displays monitoring questions and associated indicators that evaluate progress toward meeting desired conditions not addressed elsewhere in the monitoring program, particularly those related to social, cultural, and economic sustainability of communities. Progress toward meeting desired conditions, objectives, or other plan components that do not fall under one of the other eight required items is included in the monitoring program. Specifically, the plan monitoring program must contain one or more questions and associated indicators addressing land management plan contributions to communities, social and economic sustainability of communities, multiple-use management in the plan area, or progress toward meeting the desired conditions and objectives related to social, cultural, and economic sustainability.

Table 23. Monitoring questions and associated indicators that evaluate progress toward meeting desired conditions not addressed elsewhere in the monitoring program, particularly those related to social, cultural, and economic sustainability of communities

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 2 Desired Conditions Ecosystem Services Healthy salmon stocks and quality fish habitat support all types of fisheries uses across the national forest; the amalgamation of commercial, sport and subsistence uses of the fisheries resources benefits local, regional and national economies. Wild, renewable resources provided by the national forest are sustained by ecological processes, are accessible to users, and contribute to the livelihood and lifestyles of both rural and non-rural Alaska residents. National Forest System lands continue to provide habitat for native and desired nonnative wildlife species, helping to support populations capable of sustaining hunting opportunities. Forest products are available and accessible for harvest for cultural, personal, and commercial use in a sustainable manner. Timber harvest meets multiple-use goals of providing wood products for commercial and private use, wildlife habitat enhancement, improving forest health, or achieving a land management plan desired condition. Sustainable levels of goods and services such as recreation and tourism opportunities, established fisheries, minerals extraction and energy generation, forest products, outfitter and guide services, and ecosystem stewardship opportunities are available to communities. These goods and services contribute to the local economy through generation of jobs and income while creating a variety of products for use, both nationally and locally. The Forest Service encourages a diverse array of recreation opportunities by permitting businesses to provide guided recreation activities for visitors to the Chugach National Forest.	Is the national forest providing a sustainable, predictable level of goods and services to communities?	Trends in number of commercial recreation permits issued Trends in developed recreational facility use Trends in number of forest product permits issued Trends in commercial and sport fishing harvest Trends in number of permits issued for subsistence harvest Trends in number of mineral materials permits issued and locatable mineral plans of operations approved

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Management Area 1 Wilderness Study Area Desired Conditions Visitors to the wilderness study area find outstanding opportunities for solitude, remoteness, closeness to nature, and self-reliance in a natural environment of coastal rainforests and tidewater glaciers. Visual and noise impacts from the use of authorized motorized equipment are minimized. Evidence of recreation use is generally only apparent at popular sites. Ecosystems function primarily without direct human manipulation. The landscape is undeveloped and appears primarily influenced by the forces of nature. Prevention and early detection of invasive terrestrial and aquatic species is emphasized and treatments are implemented where appropriate.	Is the presently existing character of the wilderness study area, including areas recommended for wilderness, being maintained?	Trends in the following four qualities of presently existing character: • Wildness • Natural conditions • Undeveloped • Outstanding opportunities for solitude or primitive, unconfined types of recreation

Productivity of the Land

Table 24 displays monitoring questions and associated indicators that evaluate soils and soil productivity. Monitoring is focused on key ecosystem characteristics related to soils and soil productivity.

Table 24. Monitoring questions and associated indicators that evaluate soils and soil productivity

Selected Plan Component(s)	Monitoring Question	Associated Indicators
Goal 3 Desired Conditions Soils Soils retain key properties (such as, bulk density, porosity, presence of forest floor and A horizons, and effective ground cover) that support ecosystem integrity and provide resilience against ground-disturbing activities, including those that compact soil and reduce porosity, affect water flow and aeration, displace surface soils, and cause nutrient and organic matter losses. Areas with sensitive and highly erodible soils or land types with mass failure potential are not destabilized as a result of management activities. Long-term soil quality and site productivity on lands dedicated to growing vegetation are not impaired; support the regeneration, growth, and successional pathways of native plant communities; and are resilient to climate change.	Are management activities, as implemented, meeting and maintaining soil productivity, state water quality standards, and land management plan desired conditions, goals, and objectives?	Soil disturbance resulting from management activity (soil disturbance is defined in Alaska Region Soil Quality Standards)

Appendix B. Timber and Wood Products Suitability

Identification of Lands Suitable for Timber Production

The National Forest Management Act requires that the agency determine the suitability of National Forest System lands for timber production and has specific requirements for timber suitability analysis in land management plans. Timber production is the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR 219.19).

Identification of land that may be (tentatively) suitable for timber production is the first step in the process of determining lands that are suited for timber production. This preliminary classification excludes National Forest System lands that are not suitable for timber production based on the following criteria 36 Code of Federal Regulations 219.11(a)(1):

- Timber production is prohibited by statute, executive order, or regulation. (Excluded inventoried roadless areas, research natural areas, suitable wild and scenic river segments, wilderness study area, EVOS-acquired lands, ANILCA 501b areas, and pending State of Alaska selections.)
- Land is not forest land.
- Known environmental factors exist that preclude reasonable assurance that restocking can be achieved within 5 years of final regeneration harvest. (Excluded unproductive forest land as designated in the timber type layer.)
- Technology to harvest timber is not currently available without causing irreversible damage.

Of the 5,415,148 acres of National Forest System lands in the plan area, 5,409,088 acres are not suitable for timber production for legal or technical reasons listed above. The remaining 6,060 acres may be suitable for timber production (table 25). The final step in determining lands suitable for timber production is to determine which of the lands that may be suitable for timber production are suited for timber production based on compatibility with the land management plan. To make this determination the five criteria listed in Forest Service Handbook 1909.12-61.2 were considered:

1. Timber production is a desired primary or secondary use of the land.
2. Timber production is anticipated to continue after desired conditions have been achieved.
3. A flow of timber can be planned and scheduled on a reasonably predictable basis.
4. Regeneration of the stand is intended.
5. Timber production is compatible with the desired conditions or objectives for the land designed to fulfill the requirements of 36 Code of Federal Regulations 219.8 to 219.10.

Lands that may be suitable for timber production meet site conditions that could allow for sustainable timber production, but do not meet the criteria listed above. The primary reason no lands were determined suitable for timber production is a sustainable flow of timber cannot be planned and scheduled on a reasonably predictable basis on this limited land area (criterion three), and timber production is not the desired primary or secondary use of the land (criterion one).

Table 25. Lands suitable for timber production

Land Classification Category	Acres
A. Total National Forest System lands in the plan area	5,415,148
B. Lands not suitable for timber production due to legal or technical reasons	5,409,088
C. Lands that **may be suitable** for timber production (A minus B)	6,060
D. Total land **suitable** for timber production, because timber production is compatible with the desired conditions and objectives established by the land management plan	0
E. Lands not suitable for timber production, because timber production is not compatible with the desired conditions and objectives established by the land management plan (C minus D)	6,060
F. Total lands not suitable for timber production (B plus E)	5,415,148

In addition to the determination reached in the suitability assessment, the viability of timber production in the plan area is limited because no commercial timber manufacturing facilities or mills currently exist within 100 miles of the Chugach National Forest. Furthermore, past spruce beetle mortality and subsequent salvage logging have severely reduced the standing volume and acreage of sawtimber available for harvest within the roaded corridor.

Identification of Lands Suitable for Forest Wood Products Management

The determination that no lands are suited for timber production does not preclude integrated forest vegetation management on lands within and outside the roaded area. Silviculture treatments are applied to control the establishment, growth, composition, and health of forests to meet management objectives, such as wildlife habitat enhancement (moose winter range), forest stand improvement, and hazardous fuels reduction. Timber harvested from these treatments contributes to a sustainable fuelwood supply sufficient to meet local community needs. Table 26 illustrates the process used to determine the area suitable for wood products management. About 11,170 acres have been identified within the roaded corridor as lands suitable for forest wood products management.

Local contractors are often used to facilitate removal of wood products, and in areas where forest wood product sales are allowed, contractors sell these wood products to the public. By using local business contractors, the Forest Service avoids prolonged treatment timeframes and long-term on-site storage of woody material, which can become a risk to the forest. Sale of forest wood products can be used when material is marketable and is advantageous to both the public and the Forest Service.

Harvest of wood products is allowed under 36 Code of Federal Regulations Part 223—Sale and Disposal of National Forest System Timber, Special Forest Products, and Forest Botanical Products. Management areas suitable for harvest activities are listed in table 11 of this plan.

Table 26. Lands suitable for wood products management

Land Designation or Other Identification	Acres Subtracted from Wood Products Management Areas	Acres
Total National Forest System	Not applicable	5,415,148
Total nonforested	(4,334,421)	Not applicable
Total forested lands	Not applicable	1,081,727
Inventoried roadless areas	(1,058,195)	Not applicable
Pending State of Alaska land selections[1]	(1,620)	Not applicable
Land where technology is not currently available without causing irreversible damage (lands greater than 72 percent slope gradient)	(790)	Not applicable
Lands between 35 and 72 percent slope gradient	(4,270)	Not applicable
Lands for interim management of eligible or suitable wild scenic and recreational river corridors	(1,730)	Not applicable
Lands with high scenic integrity along the Alaska Railroad, between Placer River and Upper Trail Lake	(3,950)	Not applicable
Total lands suitable for forest wood products management Accessibility breakdown: Lands accessible from existing roads: 8,950 acres Lands inaccessible without road construction: 2,220 acres	Not applicable	11,170[2]

1 - Lands currently selected but not conveyed or lands not yet selected by the State of Alaska statehood entitlement within the Chugach National Forest.

2 - These acres may be further reduced (by 5 to 15 percent) during implementation on a project-specific basis due to the need for special resource protection measures (for example, sensitive riparian, wildlife, and archaeological areas).

Sustained-Yield Limit

The sustained-yield limit is the amount of timber that can be removed annually in perpetuity on a sustained-yield basis from the plan area. It is the amount of timber that could be produced on all lands that may be suitable for timber production, assuming all lands were managed to produce timber without considering other multiple uses or fiscal organizational capability. Calculations of the sustained-yield limit include all potential outputs of timber that would meet utilization standards. The sustained-yield limit for the 6,060 acres that may be suitable for timber production was estimated to be 1,515 CCF (one hundred cubic feet) or 1,182 cords (table 27).

A sustained-yield limit was also calculated for the area within the roaded corridor that is available for wood products management (11,170 acres); this area includes lands that may be suitable for timber production as well as lands within the roaded corridor where commercial sales are prohibited (table 26). Calculating a sustained-yield limit for this area ensures that wood products, including personal-use fuelwood and sawtimber, as well as fuelwood and sawtimber sold to commercial contractors, are managed on a sustainable basis.

The sustained-yield limit for wood products was calculated using average growth rates for the planned areas where wood products would be managed on a sustainable basis. Table 27 and accompanying discussion describes how the sustained-yield limit for wood products was calculated for the Chugach National Forest.

Table 27. Calculation of sustained-yield limit for lands that may be suitable for timber production and lands that are suitable for wood products management on the Chugach National Forest

Forested Lands	Acres	Growth Rate[1] (CCF per acre per year)	Annual Production (CCF)	Annual Production (cords)
Lands accessible with existing roads	8,950	0.25	2,240	1,750
Lands inaccessible without road construction	2,220	0.25	550	430
Total of all lands suitable for wood products management	11,170	0.25	2,790	2,180
Projected wood sale quantity lands (PWSQ)[2]	9,840	0.25	2,460	1,920
Lands that may be suitable for timber production	6,060	0.25	1,515	1,182

Note: CCF = one hundred cubic feet.

1 - Growth rates applicable to the Chugach National Forest were derived from the Forest Service Forest Inventory and Analysis data for Alaska coastal rainforests and interior boreal forests.

2 - Projected wood sale quantity lands do not include 1,330 acres of the *Exxon Valdez* oil spill and 501b easement areas that can be treated for vegetation management reasons. Commercial sales are prohibited in these management areas.

Tree growth rates shown in table 27 are based on Forest Service Forest Inventory and Analysis data for the Chugach National Forest. Growth rates vary by forest stand, as well as throughout the area, due to the differing ecological conditions associated with the transition from coastal rainforest to boreal forest. Therefore, an approximate average is used for planning purposes. Actual productivity ranges from about 0.15 to 0.35 CCF (one hundred cubic feet) per acre per year in the area. A conservative estimate of growth of 0.25 CCF per acre per year is used for the sustained-yield limit calculation.

The Chugach National Forest has about 15 miles of maintained roads and an estimated 10 miles of non-maintained, historical, or unmapped roads, most of which are located outside of inventoried roadless areas. Maintained roads currently provide access (within one-quarter mile of a road) to about 8,950 acres of potentially manageable lands using customary ground-based logging equipment. Typically this equipment can operate safely and efficiently on slopes up to 35 percent. Improved equipment development in recent years (for example, tethered ground-based equipment) has resulted in the ability to operate ground-based equipment on slopes that exceed 35 percent, but equipment costs are high. Harvest systems such as tethered ground-based, cable, or helicopter are not currently economically practical because of low timber volume and low product value within the roaded corridor.

Additional temporary road development across similar slope conditions could increase the potential harvestable ground access by an additional 2,220 acres. Future project-level environmental analysis and decisions would be needed to provide this additional access and associated acres. These areas have not been harvested for wood products in the past, but with improved access could potentially provide forest products in the future.

Projected Timber Sale Quantity and Projected Wood Sale Quantity

The projected timber sale quantity is the estimated quantity of timber having a utilization standard that is expected to be sold during the plan period and must take into account the fiscal capability of the planning unit and be consistent with all plan components (FSH 1909.12-64.32). Because no lands were identified as suitable for timber production, a projected timber sale quantity was not calculated for the Chugach National Forest. Lands that may be suitable for timber production were included as part of the area used to calculate projected wood sale quantity.

Projected wood sale quantity is the estimated volume of all timber and other wood products expected to be sold during the plan period from expected harvests (for any purpose except salvage and sanitation harvest) on all lands in the plan area, whether the woody material meets utilization standards or not. To clarify, sawtimber products have specific merchantability utilization standards, whereas fuelwood and other woody material, such as wood chips, do not. Lands suitable and available for projected wood sale quantity are estimated to be about 9,840 acres (table 28). The projected wood sale quantity for this area is estimated to be 2,460 CCF or 1,920 cords (table 27).

Areas where wood sales are generally not allowed by law, regulation, and policy include inventoried roadless areas, ANILCA 501b lands, and EVOS-acquired lands. Wood products may be cut and removed from these lands under certain exceptions or other authorities, such as Alaska free use.

Table 28. Lands suitable and available for projected wood sale quantity

Land Designation or Other Identification	Acres Subtracted from Projected Wood Sale Quantity Areas	Acres
Total National Forest System		5,415,148
Total nonforested	(4,334,421)	
Total forested lands		1,081,727
Inventoried roadless areas[1]	(1,058,195)	
Pending State of Alaska land selections	(1,620)	
Land where technology is not currently available without causing irreversible damage (lands greater than 72 percent slope gradient)	(790)	
Lands between 35 and 72 percent slope gradient	(4,270)	
High scenic value integrity lands adjoining wild and scenic rivers within roaded corridor	(1,730)	
Lands with high scenic value integrity	(3,950)	
ANILCA 501B[1]	(1,330)	
Total projected wood sale quantity lands		9,840

1 - Lands where harvest is generally not permissible, except for specific exceptions listed in the 2001 Roadless Rule.

Appendix C. Proposed and Possible Actions

Forest Vegetation Management Practices

Table 29 displays the forestwide forest vegetation management practices and the approximate acres of treatment for the first and second decade planned for the Chugach National Forest. Planned practices are the types of treatments needed to achieve or maintain desired conditions within the plan area accessible for forest wood products management. These practices are not a commitment to action. Other factors affecting management activities may affect the use of specific practices.

Table 29. Forestwide forest vegetation management practices—annual average acres of treatment for the first and second decades, by forest cover type

Forest Cover Type and Forest Vegetation Management Practices	First Decade Annual Average (acres)	Second Decade Annual Average (acres)
Aspen/birch management practices		
Regeneration (even-aged system[1])	350	175
Thinning (intermediate treatment[2])	250	300
Spruce/hemlock/birch mid-seral management practices		
Regeneration (even-aged system)	0	0
Thinning (intermediate treatment)	300	300
Selection (uneven-aged system[3])	100	100
Spruce/hemlock late-seral management practices		
Regeneration (even-aged system)	0	0
Thinning (intermediate treatment)	20	20
Total management practices		
Regeneration (even-aged system)	350	100
Thinning (intermediate treatment)	550	620
Selection (uneven-aged system)	100	100
Total annual average acres of treatment	1,000	820

1 - Even-aged regeneration systems include clearcut, shelterwood, and seedtree harvest methods and may include two-aged system with or without reserves where needed to meet specific management objectives, such as wildlife habitat enhancement and meeting visual aesthetic integrity.

2 - Intermediate treatment, such as thinning, pruning, or other individual tree removal, are applied where the purpose is the improvement or protection of the residual stand of trees.

3 - Uneven-aged regeneration systems include single-tree selection and group tree selection harvest methods.

The regeneration and intermediate systems and methods listed in table 29 are described below.

1. Regeneration systems and methods: a regeneration system refers to the manner in which a new stand of trees is created. There are three categories of regeneration systems: even-aged, two-aged, and uneven-aged systems.
    a. Even-aged systems
        i. Clearcutting method (clearcut without leave trees and clearcut with leave trees). This method removes essentially all mature trees in a forest stand in one operation to create a fully exposed microenvironment to regenerate a new age class of seedlings. It is chosen

for shade-intolerant species. The National Forest Management Act requires that the stand be adequately stocked within 5 years of final harvest. Some leave trees (typically less than 10 percent of the growing space) may or may not be retained depending on their windfirmness and other resource reasons. Natural regeneration occurs from seed cast and blown in from adjacent standing tree seedwalls. A coppice method is a form of clearcutting that removes all trees where the stand regenerates vegetatively from root suckers and stump sprouts, rather than by seed. Hardwood trees and shrubs typically reproduce using the coppice method.

ii. Seedtree method (seedtree without leave trees and seedtree with leave trees). This method removes essentially all mature trees in a stand in one to three operations that may span 20 years to create a fully-exposed microenvironment for a new age class of seedlings, except for a small number of well-distributed mature trees retained to provide seed. The National Forest Management Act requires that the stand be adequately stocked within 5 years of final harvest. Some leave trees (typically less than 10 percent of the growing space) may or may not be retained depending on their windfirmness and other resource reasons. This method is typically applied on cool north aspects and is used for shade-intolerant species.

iii. Shelterwood method (shelterwood without leave trees and shelterwood with leave trees). This method removes essentially all mature trees in a stand in one to four operations that may span 20 years to create a moderated microenvironment for a new age class of seedlings, except for a moderate number of well-distributed mature trees retained to provide both seed and shelter on exposed sites. The National Forest Management Act requires that the stand be adequately stocked within 5 years of final harvest. Some leave trees (typically less than 10 percent of the growing space) may or may not be retained depending on their windfirmness and other resource reasons. This method is typically applied on warm south aspects and is used for moderately shade-tolerant species.

b. Two-aged systems

i. Clearcutting method (clearcut without reserves and clearcut with reserves). Similar to “a.i” above, except mature reserve trees comprise at least 10 percent of the growing space of the stand to create a two-storied stand structure.

ii. Seedtree method (seedtree without reserves and seedtree with reserves). Similar to “a.ii” above, except mature reserve trees comprise from 10 to 20 percent of the growing space of the stand to create a two-storied stand structure.

iii. Shelterwood method (shelterwood without reserves and shelterwood with reserves). Similar to “a.iii” above, except mature reserve trees comprise from 10 to 30 percent of the growing space of the stand to create a two-storied stand structure.

c. Uneven-aged systems

i. Single-tree selection method. This method removes individual trees of all size classes uniformly throughout the stand, to promote growth of remaining trees and to provide space for regeneration. Following treatment the stand remains fully stocked and therefore the National Forest Management Act 5-year timeframe does not apply. This method can be applied on any aspect and is used for moderately shade-tolerant to shade-tolerant species.

ii. Group selection method (group selection without leave tree or reserves and group selection with leave trees or reserves). This method removes trees in small groups to create a new age class of trees. The width of groups is approximately twice the height of the mature trees, with small openings providing microenvironments suitable for shade-tolerant regeneration, and larger openings providing conditions suitable for shade-intolerant regeneration. Typically one-quarter of the stand is treated on a 20-year cycle to create an overall stand composed of four ages that are grouped. Following conclusion of the group cut operation, the National Forest Management Act 5-year reforestation timeframe requirement is invoked for each cut area.

2. Intermediate systems and methods: treatments are designed to enhance growth, quality, vigor, health, composition, and structure of the stand at any seral stage.

   a. Methods include salvage cut, sanitation cut, (commercial) thinning, precommercial thinning, weeding-release, and pruning.

   b. Use of these treatments does not invoke the National Forest Management Act 5-year reforestation timeframe, because the stand remains adequately stocked following treatment.

   c. Where the majority of a stand has been blown down by wind or a high severity fire or other major disturbance has occurred, a salvage cut treatment no longer applies. Even though the trees may be salvaged to recover economic value, the stand would be considered to be in a regeneration mode, and an even-aged system would likely apply.

   d. Assess areas that have received intermediate treatments to ensure management objectives have been met.

Timber and Wood Products Harvest Levels

As described in appendix B, no lands have been determined suitable for timber production within the Chugach National Forest based on the criteria outlined in Forest Service Handbook 1909.12-61.2. The primary reason for this determination is the limited land area that may be suitable for timber production (6,060 acres) precludes planning a sustainable flow of timber on a predictable basis.

Other wood products including fuelwood, would be managed on a sustainable basis, therefore a sustained-yield limit for wood products harvest has been developed. About 11,170 acres have been identified as lands suitable for wood products management, and this area could potentially produce 2,180 cords of fuelwood per year based on estimated growth rates (table 27). However, this area was heavily impacted by the spruce bark beetle outbreak of the 1990s and subsequent salvage of dead spruce trees, and as a result, current forest composition is skewed toward younger age classes. For this reason, recommended harvest levels are below the sustained-yield limit of 2,180 cords for the first and second decades.

Table 30 and table 31 display the planned wood products program annual average volume outputs for the first and second decades. These are the projected wood products quantity outputs expected to be achieved through implementation of forest vegetation management practices identified in table 29.

Table 30. Planned wood products program—timber products annual average volume[1] outputs for the first and second decades

Projected Timber Sale Quantity (sustained-yield limit)	First Decade (CCF)	First Decade (MBF)	Second Decade (CCF)	Second Decade (MBF)
Lands suitable for timber production				
Sawtimber	0	0	0	0
Other products	0	0	0	0
Lands not suitable for timber production				
Sawtimber	0	0	0	0
Other products	0	0	0	0
Total annual average volume	0	0	0	0

Note: CCF = one hundred cubic feet; MBF = one thousand board feet.

1 - Volumes other than salvage or sanitation that meet timber product utilization standards.

Table 31. Planned wood products program—other wood products annual average volume[1] outputs for the first and second decades

Other Estimated Wood Products (annual average harvest)	First Decade (CCF)	First Decade (cords)	Second Decade (CCF)	Second Decade (cords)
Fuelwood and other wood products sold[2]	512	400	832	650
Forest vegetation treatments[3]	768	600	960	750
Projected wood cut and removed as Alaska free use[4]	384	300	384	300
Total annual average volume	1,536	1,300	2,048	1,750

Note: CCF = one hundred cubic feet.

1 - Fuelwood, biomass, and other volumes that do not meet timber product utilization standards.

2 - Products sold to commercial contractors.

3 - Products harvested by salvage, silviculture treatments, and other prescribed activities.

4 - Harvested as part of Alaska free use.

Commercial Wood Products

According to the Timber Sale Accounting database, the volume of wood products (fuelwood and sawtimber) sold and cut annually to commercial contractors over the past 15 years (2002 to 2016) has been low, averaging 350 cords sold and about 300 cords cut and removed annually. These figures include both sawtimber (2 MBF or 4 cords) and fuelwood (349 cords) sold.

During the previous 10 years (1992 to 2001), 58 permits and contracts were sold for an annual average of about 7,900 cords sold and 4,600 cords cut and removed over that period. These figures include sawtimber (925 MBF or 1,850 cords) and fuelwood (6,050 cords). These high harvest levels reflect uncharacteristic spruce bark beetle salvage efforts between 1992 and 2001, and do not reflect current conditions or opportunities for increased commercial timber program for the Chugach National Forest. Additional fuelwood was permitted at no cost to the public after commercial salvage ended.

Alaska Free-Use Sawtimber and Fuelwood

As listed in table 31, 1,300 to 1,750 cords of fuelwood and sawtimber is expected to be cut, gathered, and removed annually as part of the Forest Service's mandate to provide wood products to the public. The authority for providing wood products is detailed in 36 Code of Federal Regulations 223. Harvest would occur through an array of mechanisms, ranging from personal harvest to vegetation treatment implemented by contract or by Forest Service personnel.

Alaska free use (36 CFR 223.10) allows Alaskan settlers, miners, residents, and prospectors for minerals to take, free of charge, green or dried timber from the national forests for personal use but not for sale. Permits are required for green sawtimber. Fuelwood may be taken without permit where feasible, but may be restricted based on specific land use and natural resource conditions.

Appendix D. Priority Watersheds

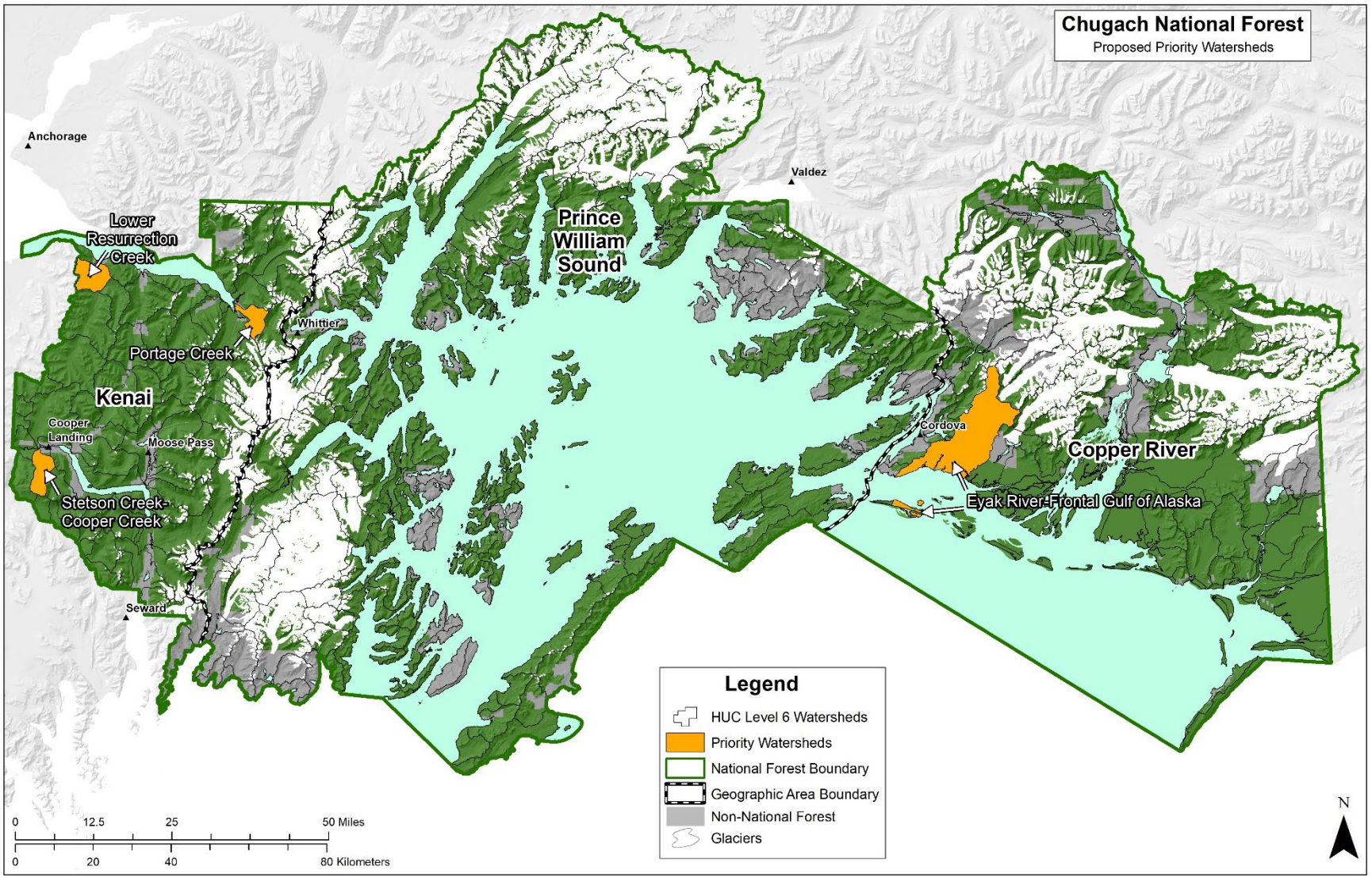
The Watershed Condition Framework is a comprehensive approach for classifying watershed condition to proactively implement integrated restoration in priority watersheds on national forests and grasslands and track outcome-based program accomplishments for performance accountability. Identification of priority watersheds was completed through an interdisciplinary team process to focus efforts on 5-year integrated restoration of watershed conditions in those areas based on criteria listed in Forest Service Handbook 1909.12, chapter 20. Priority watersheds were selected based on existing restoration priorities and include sites of ongoing restoration or restoration actions expected to be completed or started during the life of the plan. Priority watersheds consist of areas where restoration actions are proposed or are being planned during the next 10 to 20 years.

When work is completed in priority watersheds, it is expected the Forest Service will identify new sets of priority watersheds for individual national forests so restoration needs are met over the long term; however, work will remain focused on a smaller set of watersheds at any given time. The current list of Chugach National Forest priority watersheds are displayed in table 32 and map 2. For the most up to date and current priority watershed list and Watershed Restoration Action Plans, refer to the Watershed Condition Framework map viewer (https://www.fs.fed.us/biology/watershed/condition_framework.html).

Table 32. Chugach National Forest priority watersheds

Subbasin	12-digit HUC Code	Watershed Name (6th-level HUC)	NFS lands (percent)	NFS lands (acres)
Lower Copper River	190201041605	Eyak River-Frontal Gulf of Alaska	83	63,084
Upper Kenai Peninsula	190203020304	Portage Creek	90	8,737
	190203020504	Lower Resurrection Creek	91	12,984
	190203021403	Stetson Creek-Cooper Creek	99	11,054

Note: HUC = hydrologic unit code; NFS = National Forest System.



Map 2. Chugach National Forest priority watersheds

Appendix E. Wild and Scenic Rivers Evaluation

Introduction

Wild and scenic rivers are managed to protect their free-flow, water quality, classification, and their particular outstandingly remarkable values. The National Wild and Scenic River System is a system of free-flowing rivers designated by Congress that offers outstanding natural, heritage, or recreational features and protects them for future generations. During forest planning, the Forest Service evaluates rivers that flow through National Forest System lands for their eligibility and suitability for inclusion in the National Wild and Scenic River System. Planning might result in recommendations for wild and scenic river designations.

For a river to be included in the National Wild and Scenic River System, it must meet eligibility and suitability tests. To be eligible, a river must be free flowing and possess one or more river or river-related values judged to be "outstandingly remarkable." An outstandingly remarkable value is defined as one that is unique, rare, or an exemplary feature and is significant when compared with similar values from other rivers at a regional or national scale.

A suitability study provides the basis for determining eligible rivers or river segments that should be recommended for inclusion in the National Wild and Scenic River System based on a standard set of criteria identified in the planning directives.

Eligible and suitable rivers are assigned a preliminary classification as wild, scenic, or recreational based on the degree of access and amount of development along the river area. Designated river segments are classified and administered according to definitions in the Wild and Scenic Rivers Act:

Wild river areas: Those rivers or sections of rivers free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These rivers represent vestiges of primitive America.

Scenic river areas: Those rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely primitive and shorelines undeveloped, but accessible in places by roads.

Recreational river areas: Those rivers or sections of rivers readily accessible by road or railroad that may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

Summary of the Analysis for the 2002 Land Management Plan

A systematic inventory and evaluation of rivers and glaciers was completed for the Chugach National Forest 2002 land management plan. The process began with consideration of 760-plus named rivers. Approximately 400 of these rivers passed an initial screening process and were evaluated in detail. River attribute data sheets documenting this evaluation are available in the supervisor's office of the Chugach National Forest (planning record documents 39109, 39111, and 39112). Planning record document 39356 includes descriptions of the regions of comparison and methods used to determine the eligibility of rivers studied.

The 2002 land management plan decision document recommended nine river segments. These are described in the record of decision and appendix D of the 2002 plan, along with the rationale for recommendation. The rationale for not recommending the additional eligible rivers is also described.

Numerous appeals were filed related to the evaluation process that resulted in this recommendation. The Chief of the Forest Service found the appeal record demonstrated the evaluation process was conducted appropriately, with the exception of one instruction to the regional forester, which was subsequently followed and documented in the record. The Forest Service re-evaluated nine rivers as instructed by the Chief, and of these, Child's Glacier was the only river determined eligible. A suitability determination for Child's Glacier was not undertaken.

2015 Evaluation to Support Current Land Management Plan Revision

The Forest Service initiated a second Wild and Scenic Rivers Evaluation concurrent with the Chugach National Forest assessment (March 12, 2015) and prior to publication of the planning directives in February 2015. The evaluation was not required to meet the requirements in those directives, as stated in Forest Service Manual 1920.3 (b):

> For plan amendments and revisions initiated prior to the issuance of an amended directive. If a plan amendment or a revision has been initiated prior to issuance of the amended directive, the Responsible Official should use the amended directive in any new step or phase of the planning process, but is not required to revise past steps or phases within the process….. For a phase or step that is ongoing at the time of the issuance of the amended directive, the Responsible Official should incorporate the amended directive to the extent practicable, but may choose to complete that phase or step as planned to avoid significant disruptions to ongoing public engagement and planning schedules….
>
> As another example, if a unit is in the process of developing a draft plan and has identified segments of rivers to study for eligibility for wild and scenic river designation, the Responsible Official would not be required to re-inventory segments based on the amended directives. The Responsible Official must document in the project file the circumstance and rationale for staging compliance with the amended directive.

Using this transition language, the forest supervisor determined that the 2006 directives could be used for the evaluation to support the current land management plan revision. The applicable requirements from the 2006 directives follow:

> ...additional assessment and study at time of land management plan revision need only be done if changed circumstances warrant additional review of eligibility or if the Responsible Official decides to evaluate suitability for one or more eligible rivers in the planning process. Otherwise, the process need not be revisited in land management planning. Document this in the revised land management plan (FSH 1909.12, chapter 81.2).

Based on this, the scope of the 2015 evaluation was described as follows:

> Because an extensive inventory and analysis of river segments was previously conducted, the responsible official has discretion to limit the focus of any subsequent review to those changed circumstances affecting the outstandingly remarkable values for rivers previously found eligible (2015 evaluation, page 6).

The 2015 evaluation analyzed changed circumstances related to the 28 rivers previously found eligible (table 33). No changed circumstances were found that affected the outstandingly remarkable values, and no new outstandingly remarkable values were identified. A summary of this analysis follows.

Table 33. Rivers and glaciers found eligible for inclusion in the National Wild and Scenic River System

River Name	Outstandingly Remarkable Values	Wild River Segment (miles)	Scenic River Segment (miles)	Recreational River Segment (miles)
Alaganik Slough	Historic and cultural		13	
Bear Creek	Geologic			3.4
Bering River and Lake	Scenic, recreational, fish	6.6	25.2	
Canyon Creek	Geologic		6.8	
Cascade Creek	Scenic	2		
Childs Glacier	Scenic, recreational, geologic		9.5	
Coghill River	Fish, recreational, scenic	11.5		
Columbia Glacier	Geologic	19		
Copper River (lower)	Scenic, historic and cultural, fish, wildlife	24.3	1	
Copper River (upper)	Scenic, recreational, fish	51.3		
East Fork Sixmile Creek*	Recreational, scenic			5.6
Katalla River	Fish	4.8	7.1	
Kenai River	Fish			5.5
Martin Glacier	Geologic	18		
Martin River and Lake	Scenic, geologic, fish, recreational	24.5	1.8	
Nellie Juan River*	Recreational, scenic	9.6		
Nellie Martin River	Fish	0.4	1.6	
Number One River	Recreational, geologic	6.7		
Palmer Creek	Scenic		10.9	
Portage Creek*	Scenic, recreational			6.2
Portage Glacier	Scenic, recreational	4.7		
Portage Lake	Scenic, recreational	2.3		
Russian River (lower)*	Fish, historic and cultural (prehistory), recreational			4.9
Russian River (upper)*	Fish, historic and cultural (prehistory), recreational	12.4		
Sixmile Creek*	Recreational, scenic			5.7
Snow River (lower)*	Scenic		5.1	
Snow River (upper)*	Scenic	18.7		
Twentymile River*	Ecologic, fish, wildlife, recreational		14.2	

*River was found suitable to be recommended for inclusion in the National Wild and Scenic River System.

Analysis of Changed Circumstances

To determine whether changes occurred affecting the 28 rivers previously found eligible, resource specialists, program managers, special use permit administrators, and other knowledgeable Forest Service personnel were consulted. A summary of consultations is available in the planning record.

The 2002 land management plan, along with the associated final environmental impact statement, record of decision, and appeal documents were reviewed for background information. The data sheets from the original eligibility analyses and the data sheets for the suitability analysis were reviewed. Alaska Department of Fish and Game reports, State of Alaska websites, scientific literature, and internal Forest Service reports and databases were also used.

Findings of Change

This section reviews changes that occurred on rivers found eligible in the 2002 evaluation, and Child's Glacier, which was determined eligible during the 2004 plan appeal process (table 34). This review includes previously recommended (suitable) rivers. The period of change started in 2002 when the record of decision was signed and ended with publication of the 2015 evaluation.

Table 34. Changed circumstances identified for eligible rivers identified in the 2002 plan and 2004 plan appeal process

River Name	Outstandingly Remarkable Values	Changed Circumstances
Alaganik Slough	Historic and cultural	An application is pending for conveyance of historic Native Alaskan sites under ANCSA 14(h)(1).
Bear Creek	Geologic	No changes identified.
Bering River and Lake	Scenic, recreational, fish	No changes identified.
Canyon Creek	Geologic	No changes identified.
Cascade Creek	Scenic	No changes identified.
Childs Glacier	Scenic, recreational, geologic	Recreational use reduced by failure of a state highway bridge along the Copper River Highway, limiting access. Scenic and geologic values not affected.
Coghill River	Fish, recreational, scenic	The 2002 plan documented low sockeye salmon returns in the early 1990s and sportfishing was curtailed. Historical data suggests the run is highly variable. Commercial harvests have increased and sportfishing was not prohibited under 2014 regulations.
Columbia Glacier	Geologic	No changes identified.
Copper River (lower)	Scenic, historic and cultural, fish, wildlife	No changes identified.
Copper River (upper)	Scenic, recreational, fish	Bridge at milepost 36 of the Copper River Highway has washed out. Replacement is uncertain. Currently no road access to Childs Glacier campground and Million Dollar Bridge, the two main recreational attractions.
East Fork Sixmile Creek*	Recreational, scenic	No changes identified.
Katalla River	Fish	Exploratory gas and oil drilling rights on National Forest System lands under the Chugach Natives, Incorporated, agreement have expired.

River Name	Outstandingly Remarkable Values	Changed Circumstances
Kenai River	Fish	No significant changes identified. Small parcel of land across the highway from Russian River campground was transferred to Cook Inlet Region, Incorporated.
Martin Glacier	Geologic	No changes identified.
Martin River and Lake	Scenic, geologic, fish, recreational	No changes identified.
Nellie Juan River*	Recreational, scenic	No changes identified.
Nellie Martin River	Fish	No changes identified.
Number One River	Recreational	No changes identified.
Palmer Creek	Scenic	No changes identified.
Portage Creek*	Scenic, recreational	No changes identified.
Portage Glacier	Scenic, recreational	No changes identified.
Portage Lake	Scenic, recreational	No changes identified.
Russian River (lower)*	Fish, historic and cultural (prehistory), recreational	No changes identified.
Russian River (upper)*	Fish, historic and cultural (prehistory), recreational	No changes identified.
Sixmile Creek*	Recreational, scenic	Parking lot was constructed at an access point, but did not affect the outstandingly remarkable values of the river. A powerline was constructed, but is not visible from the river and would not affect the visual experience for river users.
Snow River (lower)*	Scenic	No changes identified.
Snow River (upper)*	Scenic	No changes identified.
Twentymile River*	Ecologic, fish, wildlife, recreational	Guiding activity on this river has increased but is not affecting the outstandingly remarkable values.

*River was found suitable to be recommended for inclusion in the National Wild and Scenic River System.

No further changes have been noted since publication of the 2015 evaluation. During the consultation process, Forest Service resource specialists noted changes in the levels of recreational use at Childs Glacier and Twentymile River. While a few other minor changes were also noted, no changes with the potential to affect outstandingly remarkable values were identified. Discussion of the effects of these changes on the outstandingly remarkable values of these rivers follows.

Childs Glacier

Childs Glacier was determined to be eligible based on the outstandingly remarkable scenic, recreational, and geologic feature values. The geologic feature is the glacier, which terminates at the Copper River. As the river erodes the glacier base, large slabs of ice calve into the water. Recreational visitors view the calving from a Forest Service campground across the river, and rafters can get a closer view of the glacier from the river itself. A Forest Service trail on the other side of the Million Dollar Bridge leads to the glacier, where hikers can walk on the ice.

There are several changes that affect recreational use. The main change is the 2011 failure of the bridge at milepost 36 of the Copper River Highway. Several local businesses have Forest Service permits to provide boat access to the area. The Cordova Ranger District recreation planner estimates seasonal use has decreased from 8,000 to 1,000 visitor use days (D. Zastrow pers. comm. 2016[1]).

The Alaska Department of Transportation and Public Facilities (2014) estimated the delta bridge replacement would cost $51 million and take 4 years to complete (see appendix G). At present, the website for the Alaska Department of Transportation and Public Facilities (2019) states, "There has been a decision to close the project due to the lack of funding for design or construction" (see appendix G). Based on this statement, it can be reasonably assumed that bridge replacement will not occur in the foreseeable future.

Other changes might reverse on their own. Based on site visits and information from Alaska Department of Fish and Game employees at a nearby fish counting station, the Cordova Ranger District recreation planner reported Childs Glacier did not calve into the Copper River during 2014, though water levels were normal (D. Zastrow pers. comm. 2016). A sandbar built up in front of the glacier may be preventing the river from eroding the base. Another change is the hiking trail to the glacier has been flooded by beaver activity. Viewing large slabs of ice splash into the water and send large waves across the river, potentially washing salmon onto shore, is a large part of the recreational attraction.

Although recreational use has diminished, the scenery and glacier remain. For some visitors, access by boat may add to the recreational experience. These changed circumstances are not substantial enough to warrant a change in eligibility status. Forest Service staff is evaluating potential changes to existing facilities at the site, given reduction of use and current condition of the facilities.

Twentymile River

Twentymile River was determined to be suitable based on the outstandingly remarkable ecologic, fish, wildlife, and recreational values. There is some perception that recreational use has increased in the Twentymile River area. An internal Forest Service report (Chugach National Forest, Forest Plan Review 2002–2012[2]) states motor vehicle use has increased, but it does not cite a data source for this statement. Authorized guided recreation use reported from 101–146 user days from 2000 to 2002. User days increased to 1,221 in 2007 and decreased to 859 in 2013. No recorded information is available for general public use of this area; however, the internal report states the ecologic, fish, wildlife, and recreation outstandingly remarkable values associated with the unique wetland ecosystem have not been affected.

Another change is guided use for this area has diversified, with more winter and spring activities, such as helicopter or ski-plane trips to Carmen Glacier at the head of the valley (U.S. Forest Service Outfitter Guide Use database). Thus, use is not concentrated only in summer or on the river, as it appears to have been in the past.

[1] Zastrow, D. 2016. Personal communication. Public services staff officer, Cordova Ranger District, Chugach National Forest, 612 Second Street, Cordova, Alaska, 99574.

[2] U.S. Department of Agriculture, Forest Service. 2012. Chugach National Forest, Forest Plan Review 2002–2012: Chugach National Forest Land and Resource Management Plan. Unpublished report. On file with: U.S. Department of Agriculture, Forest Service, Alaska Region, Chugach National Forest, 161 East 1st Ave., Door 8, Anchorage, AK 99501.

Additional information on wildlife was provided by the wildlife biologist for the Kenai Peninsula zone. Cook Inlet beluga whales, listed as endangered in compliance with the Endangered Species Act, forage regularly in Twentymile River. The whales move up river from the marine waters of Turnagain Arm, following schools of fish, primarily eulachon and salmon. Unlike other rivers in the area, Twentymile River is not constricted by roads or structures, allowing the river to meander naturally. As the river shifts, new vegetation grows in the abandoned channels and floodplains, providing more and better forage for moose than in neighboring systems. The emergent vegetation in the shallow braided channels provides crucial nutrient-dense forage for moose in the spring, which is particularly important after the winter (J. Ilse pers. comm. 2015[3]). Wildlife values and habitat appear to be intact, and the wildlife outstandingly remarkable value has not been impacted.

Summary

Extensive consultation with Forest Service staff indicates there have been no substantial changes to the water quality, free-flowing status, preliminary classification, or outstandingly remarkable values of the rivers recommended for inclusion in the National Wild and Scenic River System in the 2002 Revised Land and Resource Management Plan Record of Decision. Childs Glacier, found to be eligible, has experienced a decline in recreational use because of a state highway bridge failure, however the scenic and geologic values remain largely unchanged. Twentymile River has experienced an increase in recreational use that includes expansion of guided recreation use into the winter and spring seasons, but the wetlands, wildlife habitat, and recreation values remain unchanged.

Current Status

Based on analysis of changed circumstances documented in the 2015 Wild and Scenic Rivers Evaluation, the nine rivers determined suitable and recommended for inclusion in the National Wild and Scenic River System during the 2002 land management plan revision retain their outstandingly remarkable values and suitable status (table 35 and map 3). Childs Glacier, determined eligible during the appeal of the 2002 plan, also retains its outstandingly remarkable values and eligible status. (Maps 4 through 12 show the location of eligible and suitable river segments.)

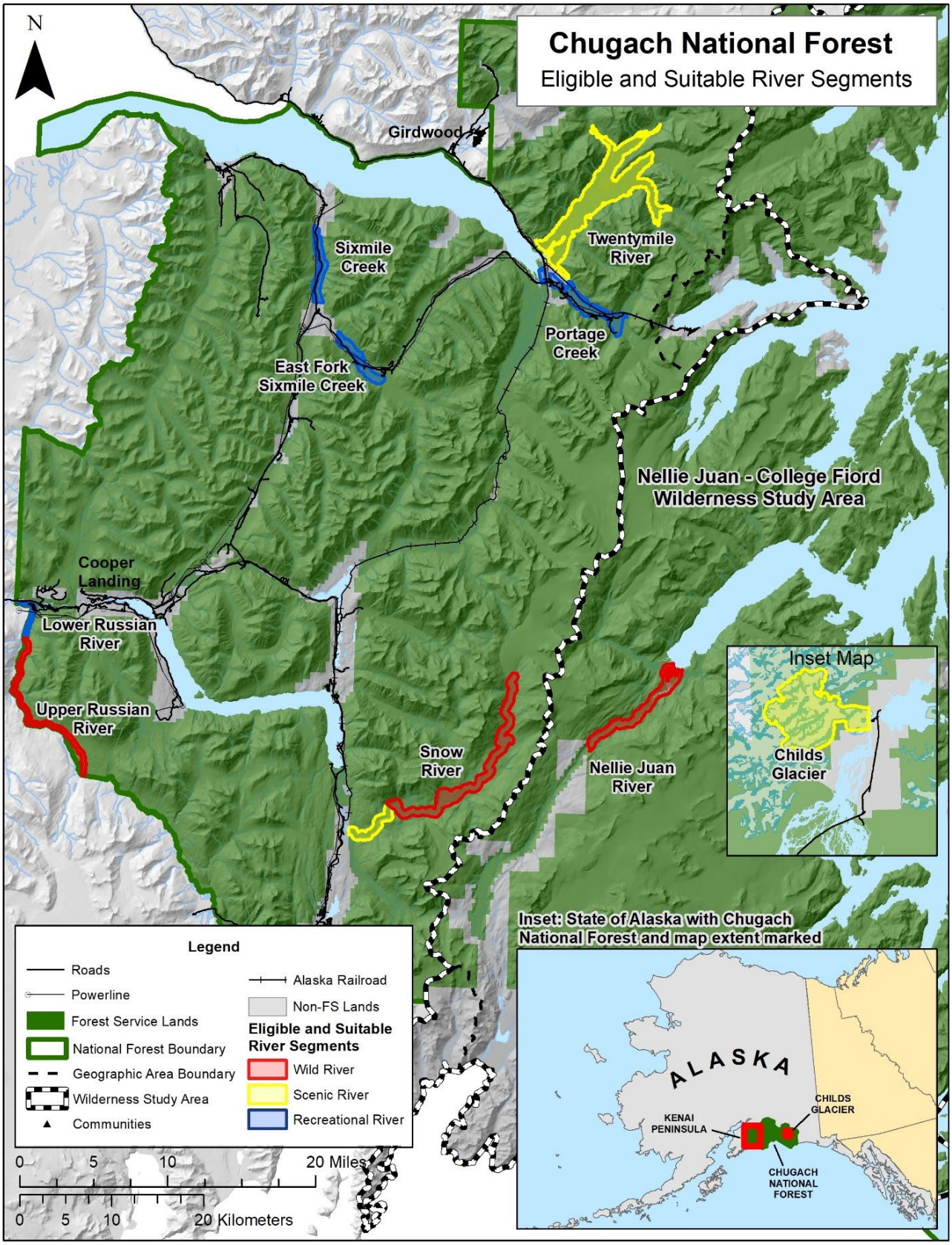
Table 35. Eligible and suitable river segments based on the 2015 Wild and Scenic Rivers Evaluation

River Name	Outstandingly Remarkable Values	Status
Childs Glacier	Recreational, geologic, scenic	Eligible
East Fork Sixmile Creek	Recreational, scenic	Suitable
Nellie Juan River	Recreational, scenic	Suitable
Portage Creek	Recreational, scenic	Suitable
Russian River (lower)	Fish, historic and cultural values (prehistory), recreational	Suitable
Russian River (upper)	Fish, historic and cultural values (prehistory), recreational	Suitable
Sixmile Creek	Recreational, scenic	Suitable
Snow River (lower)	Scenic	Suitable
Snow River (upper)	Scenic	Suitable
Twentymile River	Ecologic, fish, wildlife, recreational	Suitable

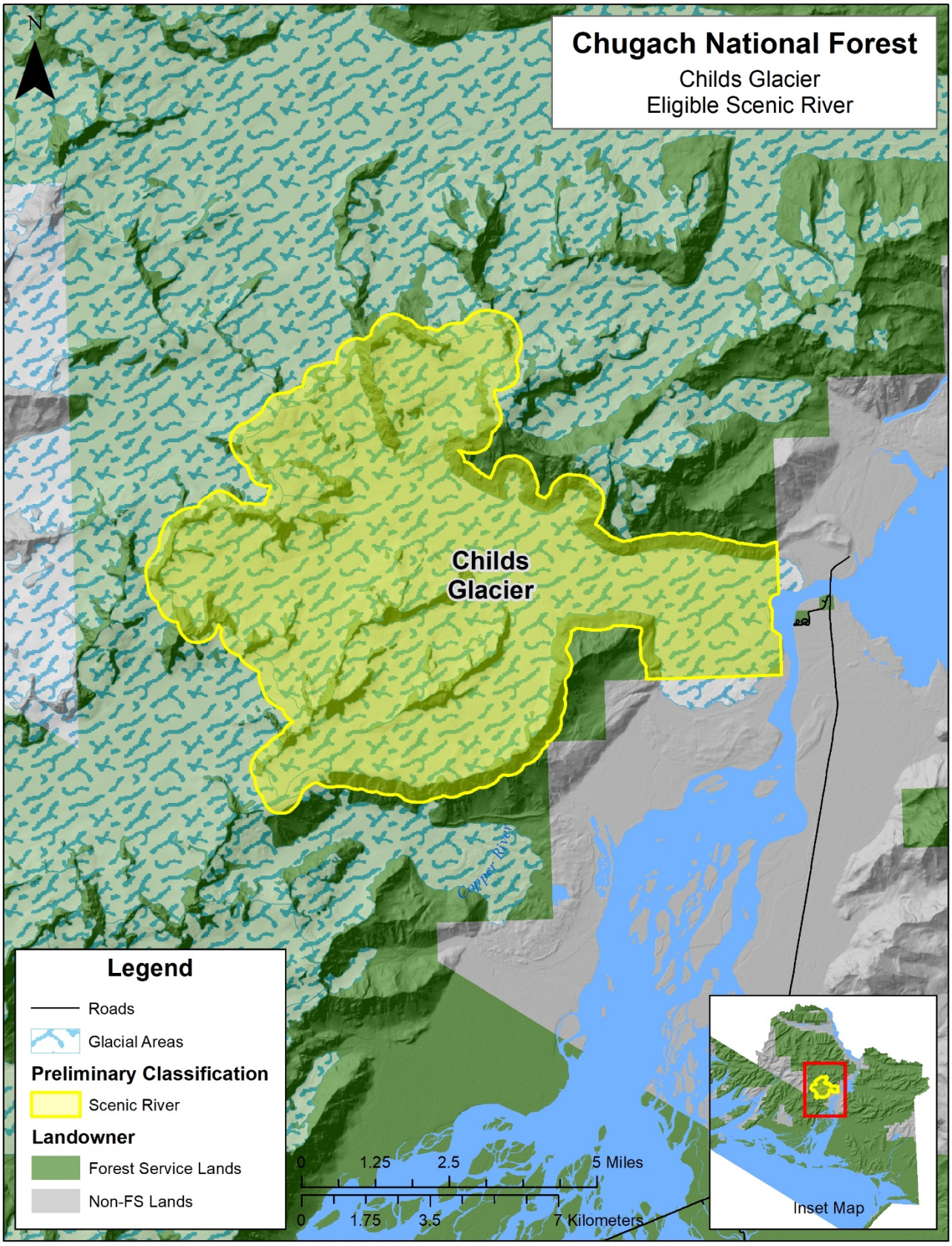
[3] Ilse, J. 2015. Personal communication. Wildlife biologist (former), Kenai Peninsula Zone, Chugach National Forest, 161 East 1st Ave., Door 8, Anchorage, AK 99501.

Interim Management of Eligible and Suitable Rivers

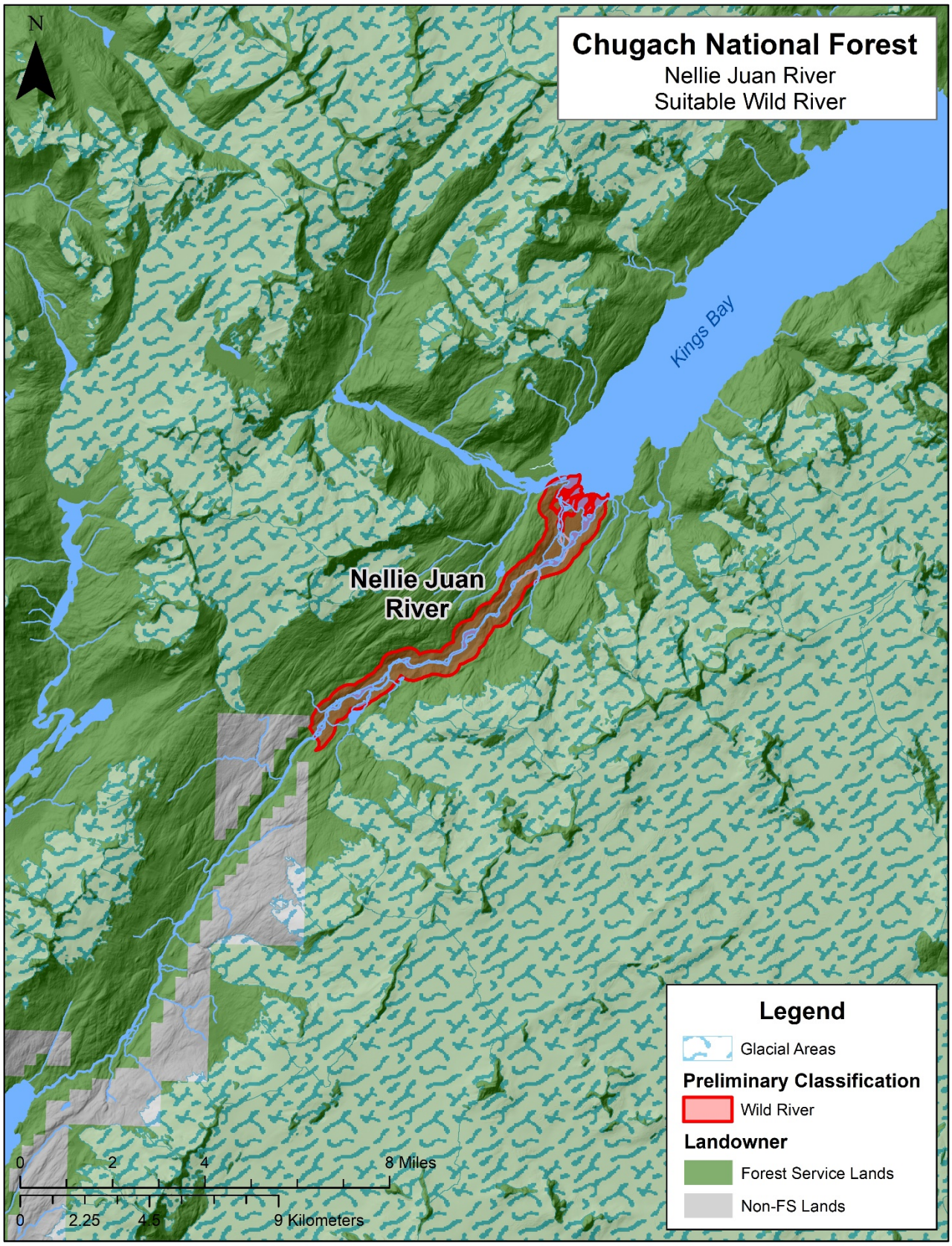
As of 2017, Congress has not decided on the designation of recommended wild, scenic, or recreational rivers within the Chugach National Forest. Interim protection measures must be applied to maintain preliminary classification, water quality, free-flowing characteristics, and outstandingly remarkable values until a decision is made by Congress, or until the river is determined no longer suitable. Eligible and suitable rivers are assigned to Management Area 2 Wild, Scenic, and Recreational Rivers. Plan components for this management area include standards and guidelines designed to maintain free-flow and protect water quality and outstandingly remarkable values. These include a standard requiring all projects and activities within the river corridors be consistent with the interim protection measures listed in Forest Service Handbook 1909.12 section 84.3.



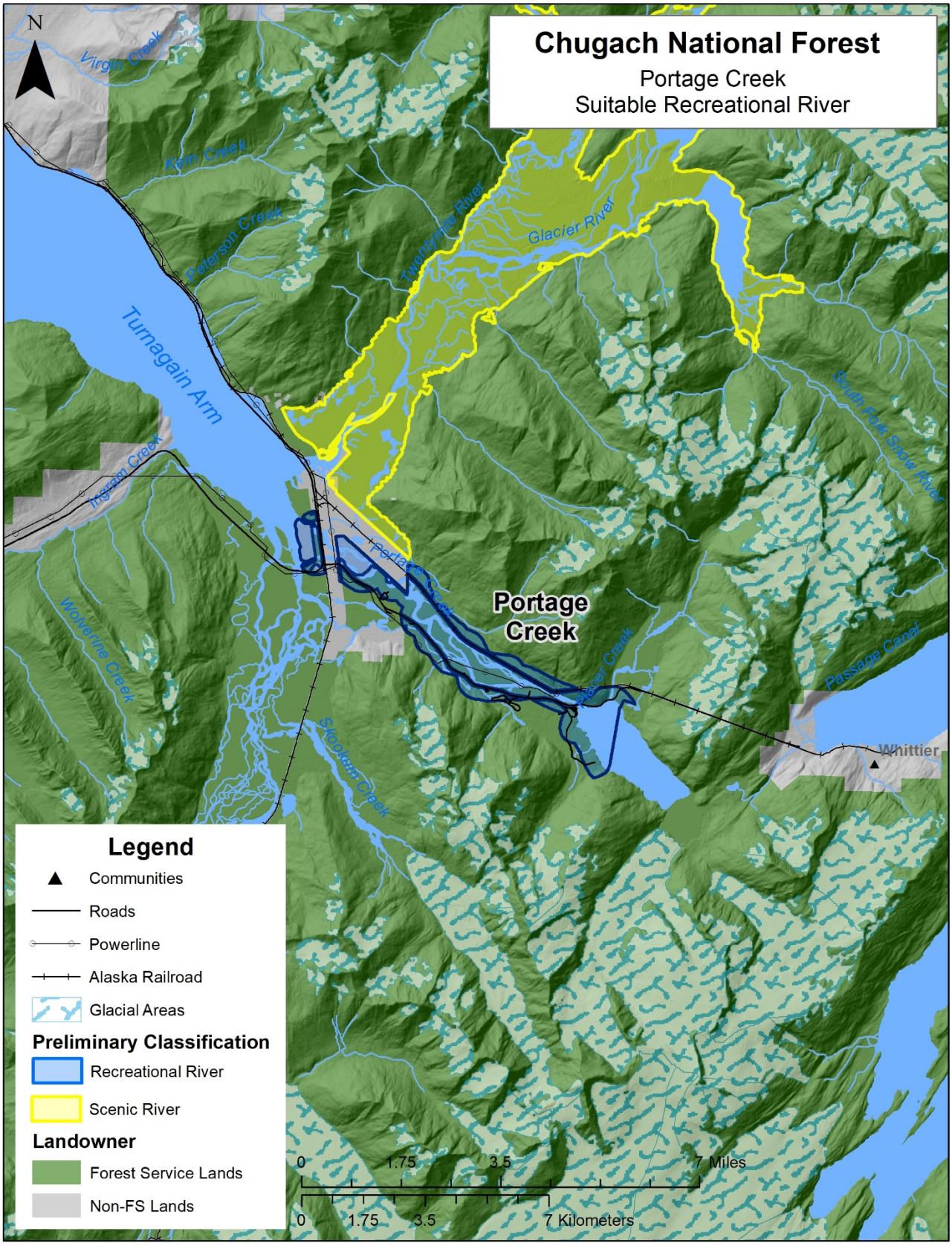
Map 3. River segments of the Chugach National Forest deemed suitable and recommended for inclusion in the National Wild and Scenic River System. Childs Glacier is deemed eligible for inclusion but has not received a suitability determination.



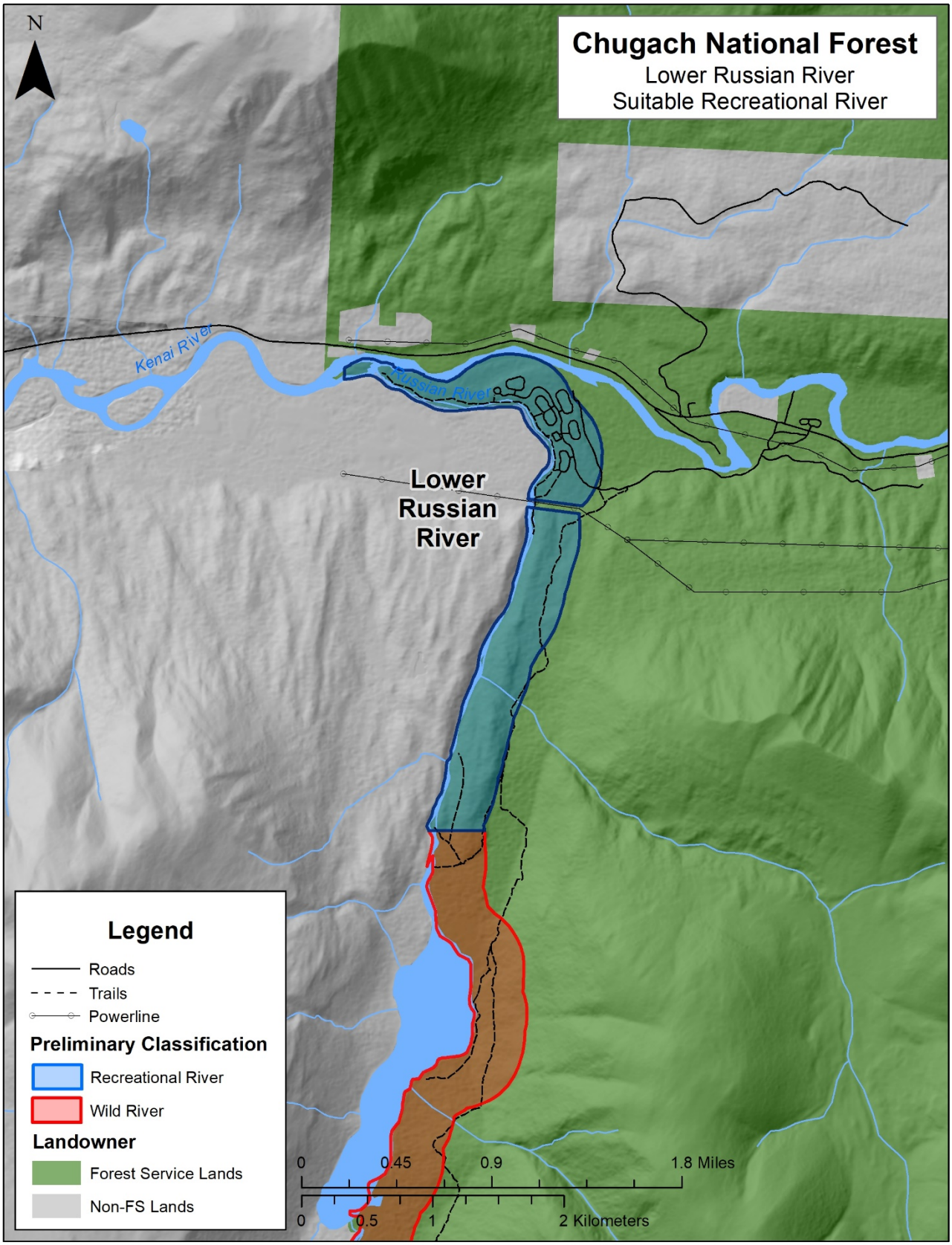
Map 4. Child's Glacier eligible scenic river



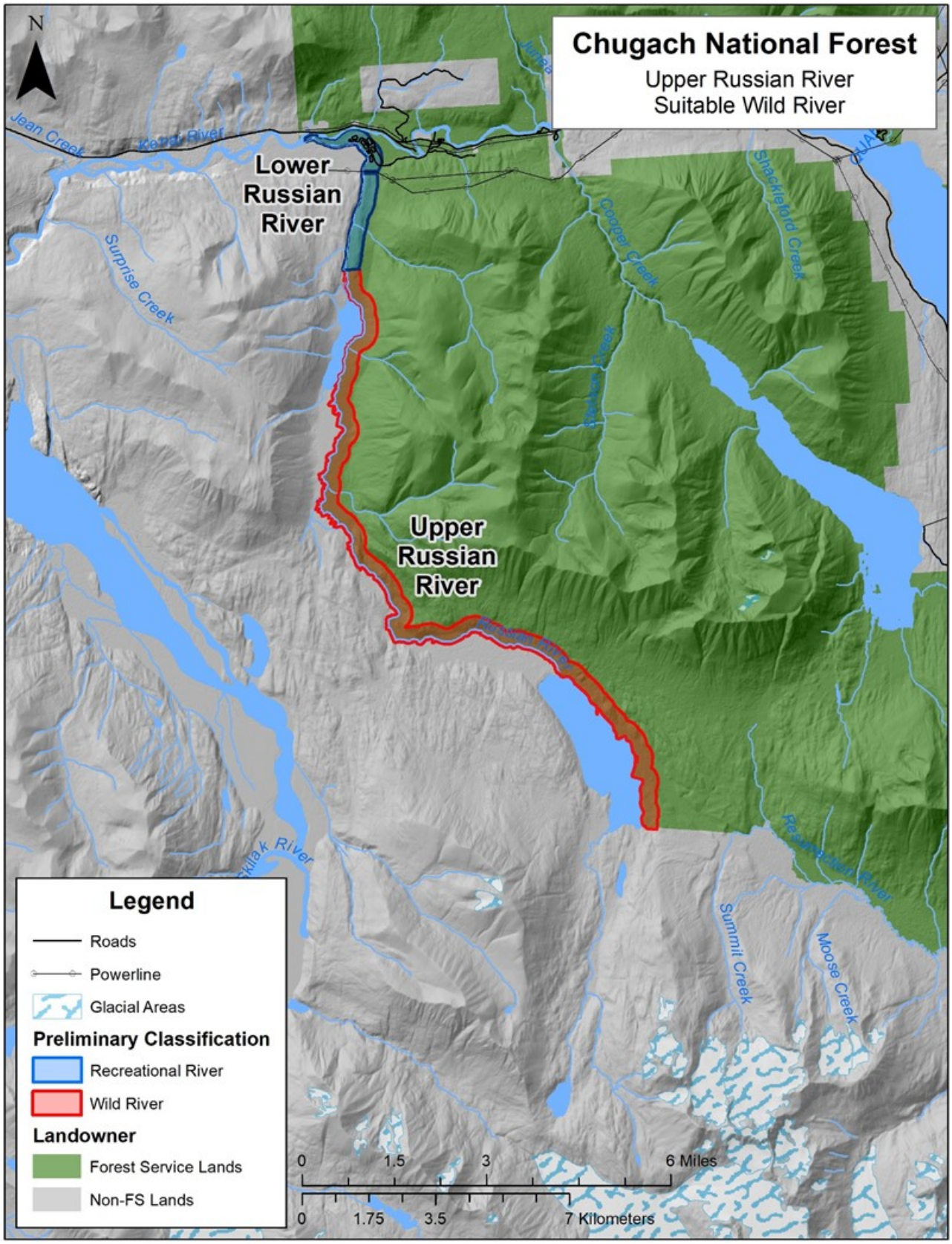
Map 5. Nellie Juan River suitable wild river



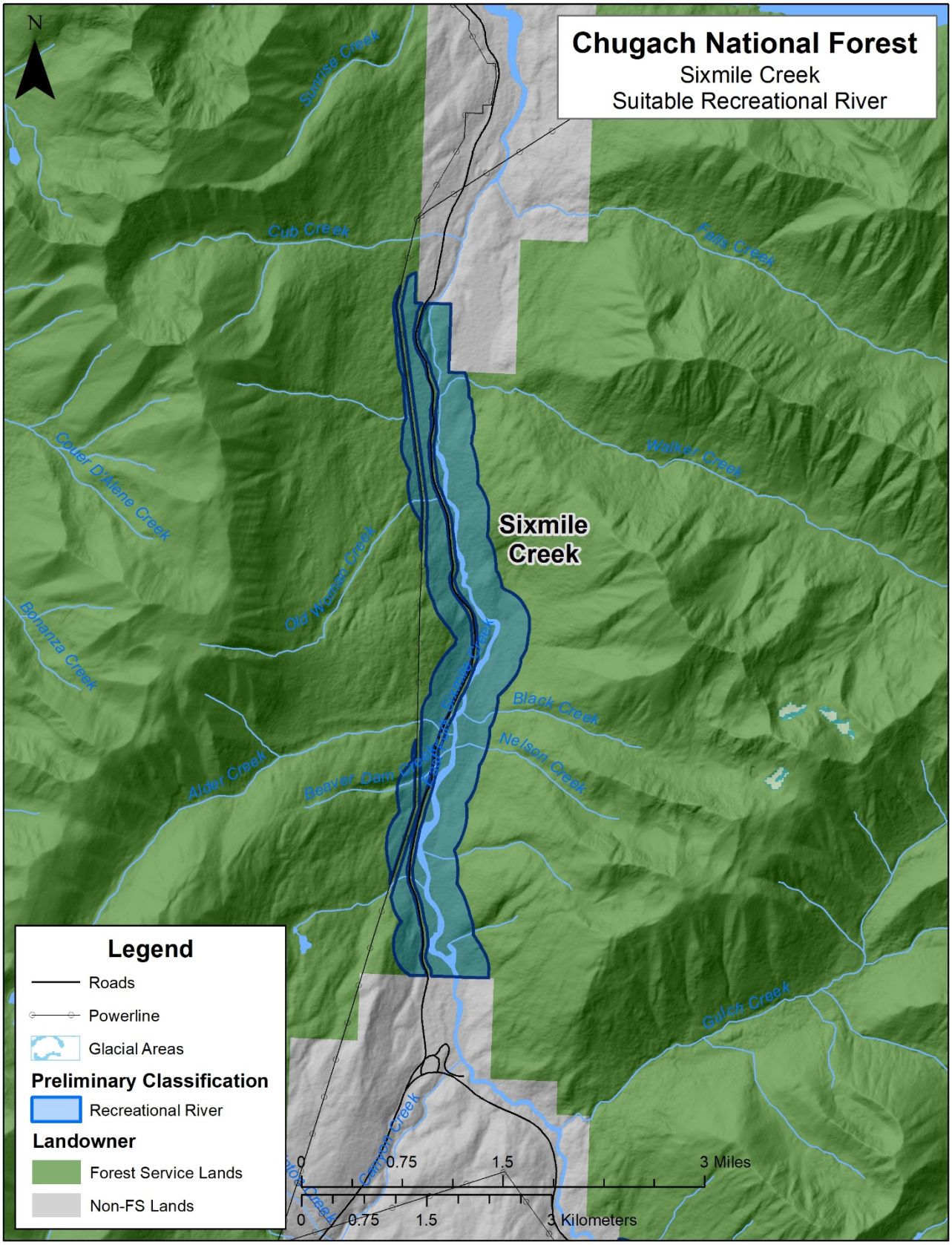
Map 6. Portage Creek suitable recreational river



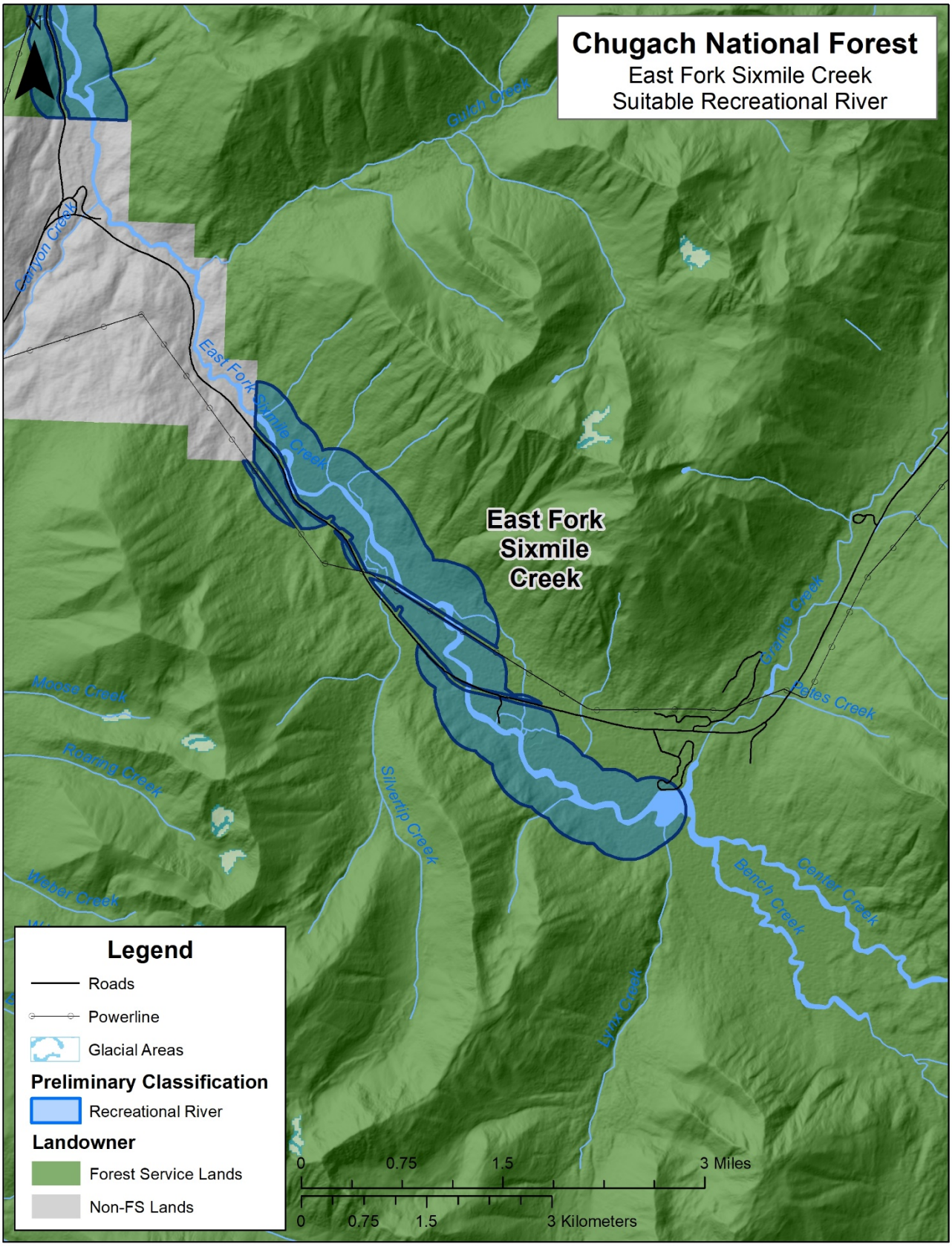
Map 7. Lower Russian River suitable recreational river



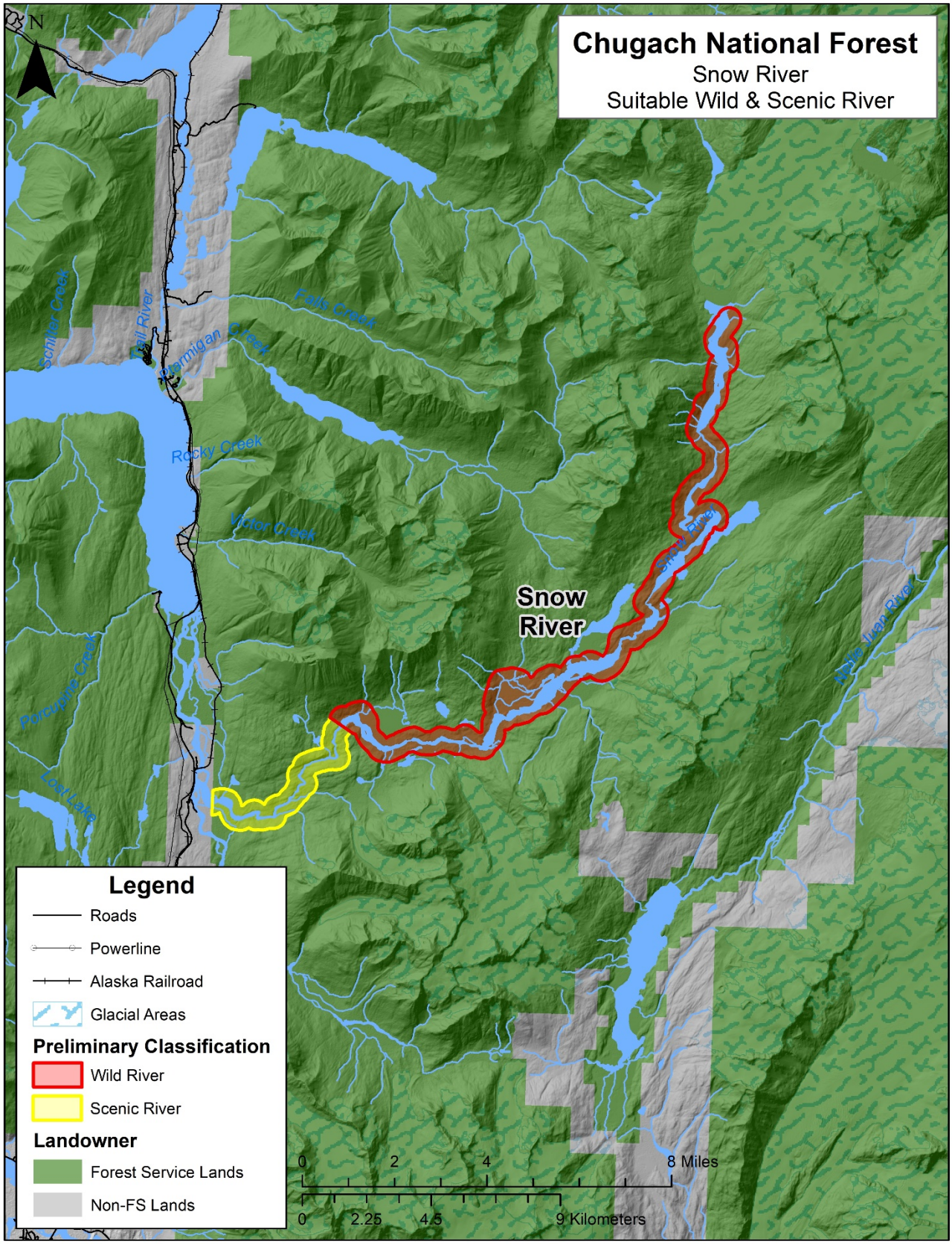
Map 8. Upper Russian River suitable wild river



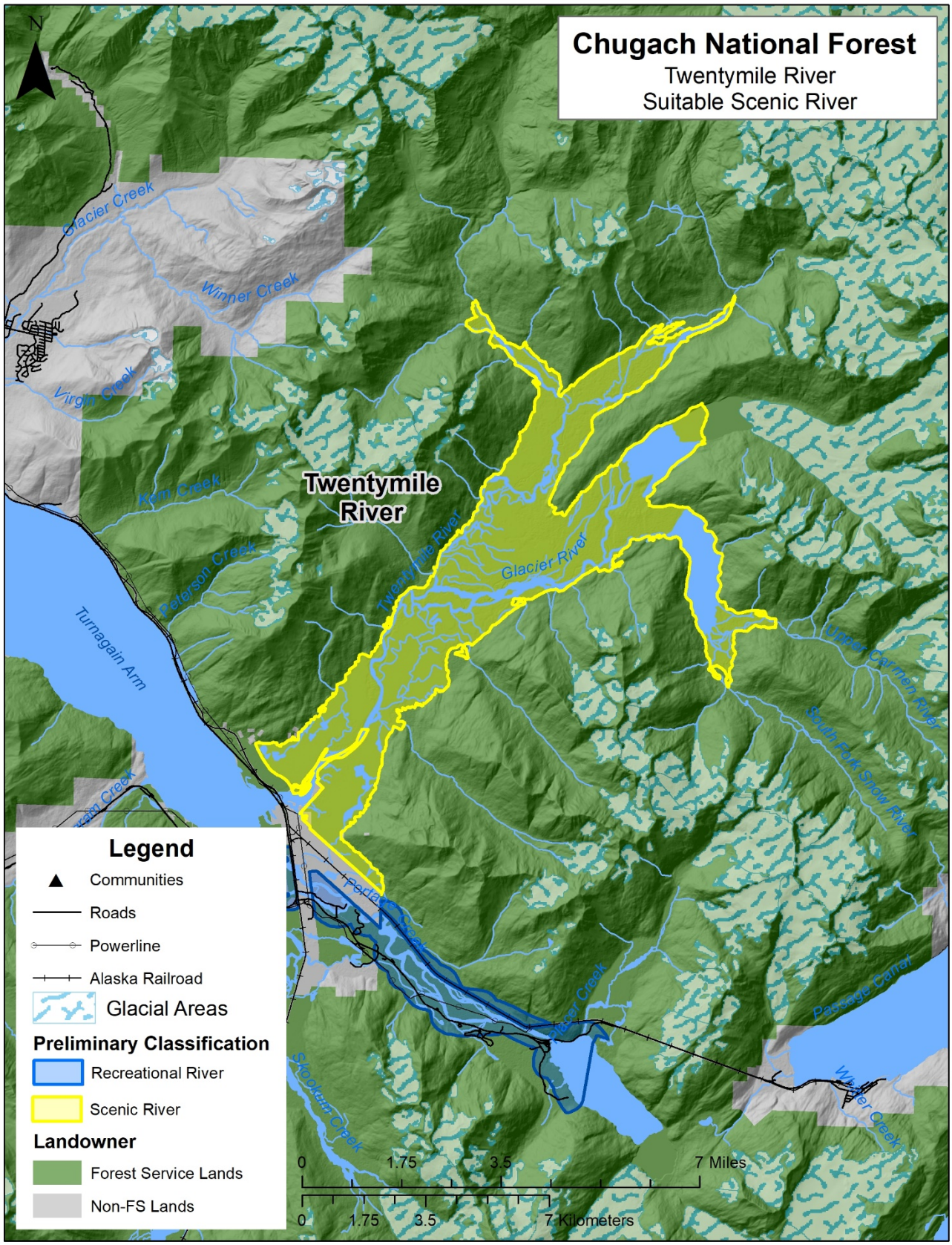
Map 9. Sixmile Creek suitable recreational river



Map 10. East Fork Sixmile Creek suitable recreational river



Map 11. Snow River suitable wild and scenic river



Map 12. Twentymile River suitable scenic river

Appendix F. Suitability

The "Suitability of Lands" section of the land management plan identifies lands as either "suitable," "conditionally suitable," or "not suitable." For "conditionally suitable" lands, it says:

> A use or activity may be, in specific cases, consistent with the desired condition of the land. The use or activity is restricted based on specific circumstances (a recommended wild river vs. scenic river, for example) that are described in law, designation, policy or specific management area components.

This reference tool is designed to help users of the land management plan determine how to evaluate a specific project proposal or activity when it is listed as "conditionally suitable" in the suitability table. If an activity is listed as conditionally suitable in table 11 (page 68), use the information below—references to land management plan standards and guidelines or other resources—to help determine whether your specific proposed activity is appropriate in a specific management area. This list is not all inclusive but provides some useful sources to help assess project-specific suitability. Use these references, along with other law, policy, forestwide guidance, and plan components to make your assessment. To be consistent with the land management plan, projects must be consistent with all applicable plan components (see page 10 for information on assessing your project for plan consistency).

Conditional in Management Area 1 Wilderness Study Area

Soil and watershed projects:

- Changes to existing permitted facilities for existing air and water navigation aids; communications sites and related facilities; weather, climate, and fisheries research; and monitoring should maintain the wilderness study area's presently existing character without unreasonably limiting the access, operations, and maintenance of permitted facilities. [MA1-NONFS-G-4, Guideline]
- When evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    - Availability of suitable opportunities outside of the wilderness study area;
    - Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed;
    - Proposed use of motorized equipment or mechanical forms of transport. [MA1-ADM-G-6c, Guideline]
- R10 Supplement 2300-2008-2

Wildlife and fish – management and research:

- When evaluating a proposal for use of motorized equipment, landing of aircraft, other forms of mechanical transport, structures, and installations, the authorizing officer should weigh the effects to the social and ecological characteristics of the wilderness study area with the need for area management. If the decision is to authorize the activity, the decision and rationale should be documented and the authorization should include provisions that maintain presently existing character and potential for inclusion in the National Wilderness Preservation System. [MA1-ADM-G-1, Guideline]

- Changes to existing permitted facilities for existing air and water navigation aids; communications sites and related facilities; weather, climate, and fisheries research; and monitoring should maintain the wilderness study area's presently existing character without unreasonably limiting the access, operations, and maintenance of permitted facilities. [MA1-NONFS-G-4, Guideline]
- When evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    - Availability of suitable opportunities outside of the wilderness study area;
    - Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed;
    - Proposed use of motorized equipment or mechanical forms of transport. [MA1-ADM-G-6c, Guideline]
- R10 Supplement 2300-2008-2, Forest Service Manual 2323.35(b)

Wildlife habitat projects:

- When evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    - Availability of suitable opportunities outside of the wilderness study area;
    - Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed;
    - Proposed use of motorized equipment or mechanical forms of transport. [MA1-ADM-G-6c, Guideline]
- R10 Supplement 2300-2008-2

Fish habitat projects:

- When evaluating the need for aquaculture projects, fish habitat improvements, or wildlife habitat improvements, the following should be considered:
    - Availability of suitable opportunities outside of the wilderness study area;
    - Impacts on the area's presently existing character and potential for inclusion in the National Wilderness Preservation System, including the introduction of species not indigenous to the watershed;
    - Proposed use of motorized equipment or mechanical forms of transport. [MA1-ADM-G-6c, Guideline]
- R10 Supplement 2300-2008-2

Personal use sawtimber (Alaska free use):

- Code of Federal Regulations 36 section 223.10—free use to Alaskan settlers, miners, residents, and prospectors: bona fide settlers, miners, residents, and prospectors for minerals in Alaska may take free of charge green or dried timber from the national forests in Alaska for personal use but not for sale. Permits will be required for green sawtimber. Other material may be taken without

permit. The amount of material granted to any one person in 1 year shall not exceed 10,000 board feet of sawtimber and 25 cords of wood, or an equivalent volume in other forms. Persons obtaining materials shall, on demand, forward to the forest supervisor a statement of the quantity taken and the location from which it was removed.

Personal use fuelwood (Alaska free use):

- Code of Federal Regulations 36 section 223.10—free use to Alaskan settlers, miners, residents, and prospectors (see above).

Communication sites:

- New land uses should not be authorized, except as provided for by ANILCA (sections 1303, 1314, 1315(b), 1316, 1323), regulations, Forest Service policy, or otherwise allowed in management area 1 standards and guidelines or described in the management approach section. [MA1-NONFS-G-1, Guideline]
- No new permanent structures or installations should be authorized, except as provided for in ANILCA (sections 1303, 1315(b), and 1316) or as described in other management area 1 standards and guidelines or management approaches. [MA1-NONFS-G-2, Guideline]
- Changes to existing permitted facilities for existing air and water navigation aids; communications sites and related facilities; weather, climate, and fisheries research; and monitoring should maintain the wilderness study area's presently existing character without unreasonably limiting the access, operations, and maintenance of permitted facilities. [MA1-NONFS-G-4, Guideline]
- Radio repeaters should be installed only when necessary for providing essential communications for the health and safety of employees involved in the administration of the area. [MA1-ADM-G-4, Guideline]

Energy-related infrastructure and utilities:

- New land uses should not be authorized, except as provided for by ANILCA (sections 1303, 1314, 1315(b), 1316, 1323), regulations, Forest Service policy, or otherwise allowed in management area 1 standards and guidelines or described in the management approach section. [MA1-NONFS-G-1, Guideline]
- No new permanent structures or installations should be authorized, except as provided for in ANILCA (sections 1303, 1315(b), and 1316) or as described in other management area 1 standards and guidelines or management approaches. [MA1-NONFS-G-2, Guideline]

Forest Service recreational cabins:

- New public recreation use cabins may be constructed subject to restrictions necessary to maintain the wilderness study area's presently existing character and potential inclusion in the National Wilderness Preservation System. Existing public recreation use cabins may be operated, maintained, or replaced in a manner that maintains the wilderness study area's presently existing character. [MA1-ADM-G-7, Guideline]

Hardened dispersed camping sites:

- Must be consistent with desired recreation opportunity spectrum
- R10 Supplement 2300-2008-2

Conditional in Management Area 2 Wild, Scenic, and Recreational Rivers

NOTE: The first standard for management area 2 states that all projects and activities must be consistent with interim protection measures in Forest Service Handbook 1909.12 section 84.3. Relevant pieces of Forest Service Handbook 1909.12 section 84.3 are referenced below for specific uses and activities in support of this standard and the conditional status.

Soil and watershed projects:

- Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [MA2-S-2, Standard]
- Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects, upon completion, should maintain the free-flowing character, preserve water quality, and protect the river segment's preliminary classification and outstandingly remarkable values. [MA2-G-1, Guideline]
- "Wildlife and Fish Projects" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Wildlife and fish – management and research:

- Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [MA2-S-2, Standard]
- Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects, upon completion, should maintain the free-flowing character, preserve water quality, and protect the river segment's preliminary classification and outstandingly remarkable values. [MA2-G-1, Guideline]
- "Wildlife and Fish Projects" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Wildlife habitat projects:

- Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [MA2-S-2, Standard]
- Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects, upon completion, should maintain the free-flowing character, preserve water quality, and protect the river segment's preliminary classification and outstandingly remarkable values. [MA2-G-1, Guideline]
- "Wildlife and Fish Projects" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Fish habitat projects:

- Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [MA2-S-2, Standard]

- Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects, upon completion, should maintain the free-flowing character, preserve water quality, and protect the river segment's preliminary classification and outstandingly remarkable values. [MA2-G-1, Guideline]
- "Wildlife and Fish Projects" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Commercial wood products:

- Within eligible or suitable wild and scenic river corridors, vegetation, fish, and wildlife habitat projects shall be restricted to those with a primary purpose of protection and restoration of resources. [MA2-S-2, Standard]
- Within eligible or suitable wild, scenic, and recreational river corridors, vegetation, fish, and wildlife habitat projects, upon completion, should maintain the free-flowing character, preserve water quality, and protect the river segment's preliminary classification and outstandingly remarkable values. [MA2-G-1, Guideline]
- "Vegetation Management" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Commercial special forest products:

- "Vegetation Management" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Personal use special forest products (excluding fuelwood):

- "Vegetation Management" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Personal use sawtimber (Alaska free use):

- "Vegetation Management" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Personal use fuelwood (Alaska free use):

- "Vegetation Management" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Day use facilities:

- "Recreation Development" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Communication sites:

- "Utility Proposals" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Energy-related infrastructure and utilities:

- The development of hydroelectric facilities and water and flood control dams that create impoundments must protect the free-flowing condition, water quality, and outstandingly

remarkable values of eligible or suitable wild and scenic river corridors to the extent possible under existing agency authorities. [MA2-S-5, Standard]

- When water resource development projects are authorized on eligible or suitable rivers, prevent adverse impacts to the extent possible under existing agency authorities. [MA2-G-2, Guideline]
- "Water Resources Projects," "Hydroelectric Power Facilities," and "Utility Proposals" sections in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Forest Service recreational cabins:

- "Recreation Development" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Campgrounds:

- "Recreation Development" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Hardened dispersed camping sites:

- "Recreation Development" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Recreation events:

- Recreation events shall not be authorized within eligible or suitable wild river corridors. [MA2-S-4, Standard]

Assigned sites for outfitters and guides:

- "Recreation Development" section in Forest Service Handbook 1909.12 section 84.3 provides additional provisions.

Conditional in Management Area 3 Research Natural Areas

NOTE: Refer to each research natural area's establishment record for specific information pertaining to the conditions for which the research natural area was established.

Soil and watershed projects:

- Soil and watershed restoration projects and wildlife and fish habitat manipulation should be allowed only for the protection of threatened or endangered species and species of conservation concern or where it is necessary to perpetuate or restore natural conditions for which the research natural area was established. [MA3-G-1, Guideline]

Wildlife and fish – management and research:

- Soil and watershed restoration projects and wildlife and fish habitat manipulation should be allowed only for the protection of threatened or endangered species and species of conservation concern or where it is necessary to perpetuate or restore natural conditions for which the research natural area was established. [MA3-G-1, Guideline]

Wildlife habitat projects:

- Soil and watershed restoration projects and wildlife and fish habitat manipulation should be allowed only for the protection of threatened or endangered species and species of conservation concern or where it is necessary to perpetuate or restore natural conditions for which the research natural area was established. [MA3-G-1, Guideline]

Fish habitat projects:

- Soil and watershed restoration projects and wildlife and fish habitat manipulation should be allowed only for the protection of threatened or endangered species and species of conservation concern or where it is necessary to perpetuate or restore natural conditions for which the research natural area was established. [MA3-G-1, Guideline]

Personal use sawtimber (Alaska Free Use):

- Timber harvest and wood gathering of any kind are not permitted unless required for restoration of an area to natural conditions. [MA3-S-2, Standard]

Conditional in Management Area 4 Backcountry Areas

Commercial wood products:

- Any proposed activities must be consistent with the desired conditions for this management area.

Energy-related infrastructure and utilities:

- Any proposed infrastructure/utilities must be consistent with the desired conditions for this management area.

Campgrounds:

- Campgrounds should not be developed in backcountry areas except for campground facilities associated with the Whistle Stop recreation area. [MA4-G-1 Guideline]

Commercial helicopter landings:

- Must be consistent with desired recreation opportunity spectrum.

Conditional in Management Area 5 ANILCA Section 501(b) Areas

All direction in this management area originates with ANILCA Section 501(b) and must be consistent with that direction and related policy.

Day use facilities:

- Developments and amenities for larger groups should be concentrated along road corridors to minimize the effects on the overall management area. [MA5-REC-G-1, Guideline]
- Fish and wildlife viewing sites should be constructed only if the design is consistent with conservation efforts and the natural character of the area. [MA5-REC-S-3, Standard]

Communication sites:

- Communication sites should be authorized only when necessary for health and safety reasons or when no reasonable alternative exists. Facilities should be designed and located to minimize effects on the natural character of the area. [MA5-SU-G-1, Guideline]
- Permanent structures or facilities should be located to minimize effects on habitat for fish and wildlife. [MA5-SU-G-1, Guideline]

Energy-related infrastructure and utilities:

- Power generation facilities, transmission systems, and utility corridors should be authorized only when no reasonable alternative is available. [MA5-SU-S-2, Standard]
- Permanent structures or facilities should be located to minimize effects on habitat for fish and wildlife. [MA5-SU-G-1, Guideline]

Forest Service recreational cabins:

- Public recreation use cabins should be constructed only if construction and use do not adversely impact fish and wildlife populations. [MA5-REC-S-1, Standard]
- Developments and amenities for larger groups should be concentrated along road corridors to minimize the effects on the overall management area. [MA5-REC-G-1, Guideline]

Campgrounds:

- Developments and amenities for larger groups should be concentrated along road corridors to minimize the effects on the overall management area. [MA5-REC-G-1, Guideline]

Commercial helicopter landings:

- Must be consistent with desired recreation opportunity spectrum.

Assigned sites for outfitters and guides:

- Special use permitted assigned sites should be authorized only when necessary for effective management of fish and wildlife resources or for health and safety reasons. [MA5-REC-S-2, Standard]

Conditional in Management Area 6 EVOS-Acquired Lands

NOTE: The first standard for Management Area 6 EVOS-Acquired Lands states: All lands shall be managed consistent with the rights acquired, recognizing the rights reserved in the conveyance documents and consistent with the conservation easements. [MA6-S-1, Standard]. These easements are the primary reason why many uses are “conditional.” For those uses that have easements, additional constraints are listed below. Check site-specific easement covenants before proposing projects in this management area.

Communication sites:

- Alaska Native village corporations shall retain the authority to control all commercial access on Alaska Native village corporation conservation easement lands consistent with conservation easement covenants. Construction of power generation/transmission lines, communication sites, and utility corridors shall not be authorized unless specifically needed to reasonably develop the subsurface estate. [MA6-S-6, Standard]

Energy-related infrastructure and utilities:

- Alaska Native village corporations shall retain the authority to control all commercial access on Alaska Native village corporation conservation easement lands consistent with conservation easement covenants. Construction of power generation/transmission lines, communication sites, and utility corridors shall not be authorized unless specifically needed to reasonably develop the subsurface estate. [MA6-S-6, Standard]

Conditional in Management Area 7 Municipal Watersheds

All uses listed as "conditional" must protect the municipal watershed and be consistent with the guidelines for management area 7:

- Do not authorize activities that create or maintain a condition that would cause or allow the pollution or contamination of the municipal watershed. [MA7-G-1, Guideline]
- Limit ground disturbance, restrict public access (in consultation with the municipality), and restrict use of hazardous materials and disposal of hazardous waste for any authorized activity that may affect water quality. [MA7-G-2, Guideline]
- Restrict access as needed to protect water quality. [MA7-ACC-G-1, Guideline]
- Motorized access for administrative and non-recreational permitted special uses must be consistent with protection of the municipal water supply and must be approved by the responsible line officer. [MA7-ACC-G-2, Guideline]

Hardened dispersed camping sites:

- Must be consistent with the recreational opportunity spectrum.

Conditional in Management Area 8 Front Country

- No uses listed in the suitability table are "conditional" in this management area.

Appendix G. Other Sources of Information

Introduction

This appendix includes some important sources of information for specific resource areas. It is not all inclusive and does not include Forest Service or region-specific handbooks or manuals. It is a guide to assist specialists in locating other useful information related to their resource area.

Subsistence

- ANILCA Title 8, 1110.
- Alaska Hunting Regulations.
- Southcentral Alaska Sport Fishing Regulations.
- Federal Subsistence Management Regulations for the Harvest of Wildlife on Federal Public Lands in Alaska.
- Federal Subsistence Management Regulations for the Harvest of Fish and Shellfish on Federal Public Lands and Waters in Alaska.
- Forest Service Handbook 2090.23 – Subsistence uses and Management Handbook.
- 36 Code of Federal Regulations 242.
- 50 Code of Federal Regulations 100.

Access and Travel Management

- U.S. Department of Transportation, Federal Highway Administration. Standard Specifications for Construction of Roads and Bridges. FHWA FP-14 (or updated version if applicable).
- Forest Service Supplemental Specifications to FHWA FP-14 (or updated version if applicable).
- Forest Service Standard Specifications for Construction of Trails.
- U.S. Department of Agriculture, Forest Service. 2008. Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings. 0877 1801-SDTDC. San Dimas Technology and Development Center. National Technology and Development Program.
- U.S. Department of Transportation, Federal Highway Administration. 2010. Culvert Design for Aquatic Organism Passage. FHWA-HIF-11-008.
- Forest Service Manual on Uniform Traffic Control Devices: Sign Installation Guide. 1071-2812P-MUTDC.
- Forest Service Manual on Uniform Traffic Control Devices: Accessibility Guidebook for Outdoor Recreation and Trails. 1223-2806P-MUTDC.
- U.S. Department of Agriculture, Forest Service. 2001. The Built Environment Image Guide for the National Forests and Grasslands. FS-710.
- Alaska Administrative Code at 18 AAC 80, State of Alaska Drinking Water Regulations.
- Alaska Administrative Code at 18 AAC 70, State of Alaska Water Quality Standards.
- Alaska Administrative Code at 18 AAC 72, State of Alaska Wastewater Disposal Regulations.

- U.S. Department of Agriculture, Forest Service. 2012. National Best Management Practices for Water Quality Management on National Forest System lands.
- International Building Code.
- Engineering Management EM-7100-15 – Sign and Poster Guidelines for the Forest Service.
- Alaska Department of Transportation and Public Facilities. 2014. Copper River Hwy Copper Delta Bridge #339. Constructability Analysis Report. AKSAS # 60555. 2014. http://dot.alaska.gov/nreg/bridge339/files/b339-march2014.pdf.
- Alaska Department of Transportation and Public Facilities. 2019. Northern Region. Copper River Highway Copper Delta Bridge #339. http://dot.alaska.gov/nreg/bridge339/.
- U.S. Department of Agriculture, Chugach Forest Service. 2019 Motor Vehicle Use Maps. Located online at https://www.fs.usda.gov/detail/chugach/maps-pubs/?cid=stelprdb5346707.

Recreation

- Leaders' Intent: Recreation, Wilderness and Heritage Program Management in the Alaska Region (February 2014).
- National Strategy for a Sustainable Trail System (November 2017).
- Kenai Winter Access Final Environmental Impact Statement and Record of Decision (July 2007).

Air Quality

- Clean Air Act.
- Regional Haze Rule.
- 18 AAC 50, Air Quality Control Regulations, Alaska Department of Environmental Conservation.
- Alaska State Regional Haze Strategy, Alaska Department of Environmental Conservation.

Watersheds and Aquatic Ecosystems

- Framework for Stream Assessment and Restoration Projects (Harman et al. 2012).
- Watershed Condition Classification Framework on the Chugach National Forest (MacFarlane et al. 2011).
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Management Area 1 Wilderness Study Area

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Glossary

A

active channel: As defined for the purposes of the Riparian Standards and Guidelines, includes stream channels*, secondary channels*, and braided channels*. (Words marked by an * have further definitions within the glossary).

active management: Planned, intentional actions in an area, specifically designed to obtain a desired objective or result.

activity: A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain a desired resource management condition or objective.

adaptive management: Adaptive management is the general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 CFR 219.5). This framework supports decisionmaking that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decisionmaking in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

adfluvial: Fish that spawn in tributary streams where the young rear from 1 to 4 years before migrating to a lake system, where they grow to maturity.

administrative site: Areas such as work centers, fire lookouts, permitted ranch headquarters, seed orchards, communication sites, utility corridors, developed campgrounds, and other areas occupied or used by the Forest Service during the administration of work associated with national forest lands.

administrative unit: All the Chugach National Forest System lands where one forest supervisor has responsibility. The basic geographic management area within a Forest Service Region, station, or area.

adverse effect: An action that has an apparent direct or indirect adverse effect on the conservation and recovery of a species listed as threatened or endangered. Such actions include, but are not limited to:

- Any action that directly alters, modifies, or destroys critical or essential habitats or renders occupied habitat unsuitable for use by a listed species, or that otherwise affects its productivity, survival, or mortality.
- Any action that directly results in the taking of a listed species. See Title 50 Code of Federal Regulations, section 17.3 for an explanation of what constitutes a taking.
- Any action involving the disposal of land that is essential to achieving recovery objectives.

air quality: The composition of air with respect to quantities of pollution therein, used most frequently in connection with standards of maximum acceptable pollutant concentrations.

Alaska Native Corporation: One of the regional, urban, and village Native corporations formed under the Alaska Native Claims Settlement Act of 1971 (36 CFR 219.19).

alluvial fan: A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.

alternative: In forest planning, a mix of resource outputs designed to achieve a desired management emphasis as expressed in goals and objectives, and in response to public issues or management concerns.

amendment: A formal alteration of the land management plan by modification, addition, or deletion. Land management plan amendment requires an environmental analysis. Significant findings require an environmental impact statement and the amendment will follow the same procedure used for plan preparation. Insignificant findings allow the changes to be implemented following public notification. Amendments can take place at any time following plan approval.

anadromous fish: Fish that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce; for example, salmon and steelhead.

aquatic: Pertaining to water.

aquatic ecosystem: Waters that serve as habitat for interrelated and interacting communities and populations of plants and animals. The stream channel, lake or estuary bed, water, biotic communities and the habitat features that occur therein.

aquatic habitat types: The classification of instream habitat based on location within channel, patterns of water flow, and nature of flow controlling structures. Habitat is classified into a number of types according to location within the channel, patterns of water flow, and nature of flow controlling structure. Riffles are divided into three habitat types: low gradient riffles, rapids, and cascades. Pools are divided into seven types: secondary channel pools, backward pools, trench pools, plunge pools, lateral scour pools, dammed pools, and beaver ponds. Glides, the third habitat type, are intermediate in many characteristics between riffles and pools. It is recognized that as aquatic habitat types occur in various parts of the country, additional habitat types may have to be described. If necessary, the regional fishery biologist will describe and define the additional habitat types.

assessment: For the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219, an assessment is the identification and evaluation of existing information to support land management planning. Assessments are not decision making documents, but provide current information on select topics relevant to the plan area, in the context of the broader landscape (36 CFR 219.19).

at-risk species: A term used in land management planning to refer to, collectively, the federally recognized threatened, endangered, proposed, and candidate species and species of conservation concern within a plan area.

authorized activity: Any activity specifically authorized by the forest service under a permit, contract, or agreement which is conducted by federal or state agencies, organizations or individuals other than the Chugach National Forest.

authorized use: Specific activity or occupancy, including a ski area, historical marker, or oil and gas lease, for which a special authorization is issued.

avulsed: to pull off or tear away forcibly

B

background: The area after the middleground in a picture or landscape; generally over 4 miles distance from the viewer.

bankfull width: Distance from bank to bank at the elevation of bankfull streamflow. Bankfull streamflow occurs just before the streamflow spills out of the channel into the floodplain.

basin (river): In general, the area of land that drains water, sediment, and dissolved materials to a common point along a stream channel. River basins are composed of large river systems.

bedload: Sand, silt, gravel, or soil and rock debris rolled along the bottom of the stream by moving water. The particles of this material have a density or grain size that prevents movement far above or for a long distance out of contact with the stream bed under natural flow conditions.

beneficial uses: Any of the various uses which may be made of the water, including, but not limited to, domestic water supplies, fisheries and other aquatic life, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics.

best management practices (BMPs): Methods, measures, or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 CFR 219.19).

biophysical: The combination or grouping of biological and physical components in an ecosystem.

boreal: Pertaining to cool or cold temperature regions of the northern hemisphere; the northern coniferous zone. The boreal bioclimatic zone is framed in the north by the arctic and in the south by the temperate bioclimatic zones. The southern region of the boreal forest is described as the sub-boreal or subcontinental boreal; the sub-boreal zone generally lacks permafrost and has a longer fire return interval than the continental or interior boreal bioclimatic zone.

braided streams or channels: A stream flowing in several dividing and reuniting channels resembling the strands of a braid, the cause of division being the obstruction of sediment deposited by the stream.

browse: That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption.

Bureau of Land Management (BLM): An agency within the U.S. Department of the Interior with land management responsibility for public domain lands.

C

capability: The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease.

channel (stream): A natural waterway of perceptible extent that periodically or continuously contains moving water. It has a definite bed and banks that serve to confine the water.

channel incision: The process of downcutting into a stream channel leading to a decrease in the channel bed elevation. Incision is often caused by a decrease in sediment supply and/or an increase in sediment transport capacity.

channel migration: Movement of a stream of river channel within the flood plain area (or an alluvial fan) usually over an extended period of time.

channel morphology: The dimension (width, depth), shape and pattern (sinuous, meandering, straight) of a stream channel.

channel sideslope*: The area from the stream channel to the side-slope break. See also side-slope break.

channel type: A means of distinguishing parts of a stream system into segments that have fairly consistent physical and biological characteristics. For descriptions, see “Channel Type Field Guide,” Forest Service publication R10-MB-6.

classification: Identification of the class (wild, scenic, or recreational) that appropriately describes an eligible river or river segment, based on the criteria established in section 2(b) of the Wild and Scenic Rivers Act.

Clean Air Act of 1970: A congressional act, along with the amendments passed in 1977 and 1990, which provides authority for the Environmental Protection Agency to develop specific regulations controlling air pollution.

Code of Federal Regulations (CFR): A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

collaboration or collaborative process: A structured manner in which a collection of people, with diverse interests share knowledge, ideas, and resources, while working together in an inclusive and cooperative manner toward a common purpose. Collaboration, in the context of land management planning, falls within the full spectrum of public engagement described in the Council on Environmental Quality’s publication of October, 2007: Collaboration in NEPA—A Handbook for NEPA Practitioners (36 CFR 219.19).

commercial use or activity: Any use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity in intended to produce a profit (36 CFR 251.51).

communication sites: Areas designated for the operation of equipment that transmits and receives radio signals.

compaction: Making soil hard and dense and decreasing its ability to support vegetation because the soil can hold less water and air and because roots have trouble penetrating the soil.

compatible: Capable of existing together in harmony.

connectivity: Ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 CFR 219.19).

conservation: The protection, preservation, management, or restoration of natural environments, ecological communities, and species (36 CFR 219.19).

conserve: For the purpose of meeting the requirements of 36 CFR 219.9, to protect, preserve, manage, or restore natural environments and ecological communities to potentially avoid federally listing of proposed and candidate species (36 CFR 219.19).

constraint: A restriction or limit that must be met.

consumptive use of fish and wildlife resources: Hunting, fishing, or trapping for subsistence, food, sport, recreation, or as a source of products for personal or commercial purposes.

corridor: A tract of land forming a passageway. Can refer to areas of wildlife movement, boundaries along rivers, or the present or future location of transportation or utility rights-of-way within its boundaries.

corridor (wild and scenic rivers): Wild, scenic, and recreational river corridors are generally comprised of the area within 0.25 mile either side of the ordinary high water mark of the river. River corridor boundaries may be changed as a result of specific river designation upon inclusion of the River in the National Wild and Scenic Rivers system.

cover: (1) Trees, shrubs, rocks, or other landscape features that allow an animal to conceal itself partly or fully for protection from predators, or to ameliorate conditions of weather, or in which to reproduce; (2) the area of ground covered by plants of one or more species.

cover type: A vegetation classification depicting a genus, species, group of species, or life form of tree, shrub, grass, or sedge of an area.

culture: The ideals, values, and beliefs that members of a society share to interpret experience and generate behavior that is reflected by their work and thought (Haviland 1999).

cultural resources: An object or definite location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, places, or objects and traditional cultural properties. Cultural resources include the entire spectrum of resources for which the Heritage Program is responsible, from artifacts to cultural landscapes, without regard to eligibility for listing on the National Register of Historic Places.

cumulative impacts: Cumulative impacts or effects are the impacts on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Effects and impact are synonymous (40 CFR 1508.7).

D

decommission (building): Demolition, dismantling, removal, obliteration and/or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Portions of an asset or component may remain if they do not cause problems nor require maintenance.

decommission (road): Permanently closing a road to vehicular use and left in a hydrological maintenance free condition. Decommissioning will include activities, such as water barring, out sloping, recontouring, decompaction of road surface, removal of drainage structures, and road barricades, as needed.

deferred maintenance: Maintenance that was not performed when it should have been or when it was scheduled and that, therefore, was put off or delayed for a future period. When allowed to accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decreased asset value. Deferred maintenance needs may be categorized as critical or noncritical at any point in time. Continued deferral of noncritical maintenance will normally result in an increase in critical deferred maintenance. Code compliance (such as safety, Americans with Disabilities Act, Occupational Safety and Health Administration, or environmental), plan direction, best management practices, biological evaluations, other regulatory or executive order compliance requirements, or applicable standards not met on schedule are considered deferred maintenance.

departure: The difference between an existing condition and the desired condition.

designated area: An area or feature identified and managed to maintain its unique special character or purpose. Some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the federal executive branch. Examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas. Examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves (36 CFR 219.19).

designated right-of-way (ROW) corridor: A parcel of land with specific boundaries identified by law, Secretarial order, the land use planning process, or by some other management decision as being a preferred location for existing and future right-of-way facilities. The corridor may be suitable to accommodate more than one type of right-of-way use or facility or one or more right-of-way uses or facilities that are similar, identical, or compatible. A designated corridor may already be occupied by existing utility facilities. It has been adequately analyzed to provide for a high degree of assurance that in being identified as a "designated corridor," it can accommodate at least one new additional utility facility.

designed use: The managed use of a trail that requires the most demanding design, construction, and maintenance parameters and that determines which design, construction, and maintenance parameters will apply to a trail.

desirable nonnative species: A nonnative species that the Chugach National Forest considers beneficial for meeting specific resource management goals or objectives.

desired conditions: For the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219, a description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Desired conditions must be described in terms that are specific enough to allow progress toward their achievement to be determined, but do not include completion dates (36 CFR 219.7(e)(1)(i)). Desired conditions are achievable, and may reflect social, economic, or ecological attributes, including ecosystem processes and functions.

developed recreation: Recreation that requires facilities that in turn result in concentrated use of an area; for example, a campground. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.

developed site: Facility provided for developed recreation use. See facilities.

development level: An indication of site modification based on classes in the recreation opportunity spectrum. Development level 1 equates to primitive, with minimum site modification; level 2 equates to semi-primitive motorized and semi-primitive non-motorized, with little site modification; level 3 equates to roaded natural, with moderate modification; level 4 equates to rural, with heavy site modification; and level 5 relates to urban, with a high degree of site modification.

diameter at breast height (DBH): A tree's diameter measured at 4.5 feet (1.37 m) above the forest floor on the uphill side of the tree. For the purposes of determining breast height, the forest floor includes the duff layer that may be present, but does not include unincorporated woody debris that may rise above the ground line.

disease: A harmful deviation from normal functioning of physiological processes, usually pathogenic or abiotic in origin.

dispersed (recreation): Recreation that does not occur in a developed recreation site; for example, hunting or backpacking.

dispersed campsites: Primitive sites typically used for overnight, dispersed recreation. Usually includes a hardened area around a fire pit, a barren area, and/or user-constructed facility.

displacement: Recreation visits are considered "displaced" or no longer consumed at a site or area when practical maximum capacity thresholds of the site or area are exceeded. Visitors are assumed to completely leave the national forest rather than seek an alternative location for their activity.

disturbance: Any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment (36 CFR 219.19).

disturbance regime: A description of the characteristic types of disturbance on a given landscape; the frequency, severity, and size distribution of these characteristic disturbance types; and their interactions (36 CFR 219.19).

diversity: The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan (36 CFR 219.16).

drainage: The natural or artificial removal of surface and subsurface water from an area.

E

ecological conditions: The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems. Ecological conditions include habitat and other influences on species and the environment. Examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species (36 CFR 219.19).

ecological function: Refer to ecological processes.

ecological integrity: The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 CFR 219.19).

ecological processes: The flow and cycling of energy, materials, and organisms in an ecosystem. Examples of ecosystem processes include the carbon and hydrologic cycles, terrestrial and aquatic food webs, and plant succession, among others.

ecological status: The degree of departure of current vegetation from the potential natural vegetation, or potential natural community. Often synonymous with seral stage.

economics: A social science concerned primarily with description, distribution, and consumption of goods and services.

economic well-being: A condition that enables people to work, provide income for their families, and generate economic wealth to local communities, the region, and the nation.

economy: System of production, distribution, and consumption of economic goods.

ecosystem: A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. An ecosystem is commonly described in terms of its:

- **composition:** The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems
- **structure:** The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity
- **function:** Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods
- **connectivity:** (see connectivity) (36 CFR 219.19)

ecosystem diversity: The variety and relative extent of ecosystems (36 CFR 219.19).

ecosystem management: The use of an ecological approach to achieve multiple-use management of public lands by blending the needs of people and environmental values in such a way that lands represent diverse, healthy, productive, and sustainable ecosystems.

ecosystem services: Benefits people obtain from ecosystems, including:

- Provisioning services, such as clean air and fresh water, energy, food, fuel, forage, wood products or fiber, and minerals;
- Regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood and drought control; and disease regulation;
- Supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and
- Cultural services, such as educational, aesthetic, spiritual, and cultural heritage values, recreational experiences, and tourism opportunities. (36 CFR 219.19)

ecosystem sustainability: The ability to sustain diversity, productivity, resilience to stress, health, renewability and/or yield of desired values, resource uses, products, or services from an ecosystem, while maintaining the integrity of the ecosystem over time.

edge: An area where plant communities meet or where successional stages or vegetation conditions within the plant communities come together.

effects: Environmental changes resulting from an action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or healthy effects, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects even if on balance the agency believes that the effects will be beneficial (40 CFR 1508.8, 2).

endangered species: Any species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 224.101.

Endangered Species Act of 1973: An act that enables endangered and threatened species to be conserved. It provides a program for the conservation of such species, and takes appropriate steps to achieve the purposes of the (relevant) treaties and conventions.

environment: All the conditions, circumstances, and influences surrounding and affecting the development of an organism, or group of organisms.

environmental impact: Used interchangeably with environmental consequence or effect.

environmental impact statement (EIS): A detailed written statement as required by section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969 (40 CFR 1508.11; 36 CFR 220, 36 CFR 219.62).

erosion: The wearing away of the land surface by the action of wind, water, or gravity.

essential fish habitat (EFH): Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle (50 CFR 600.10).

estuary: An ecological system at the mouth of a stream where fresh water and salt water mix, and where salt marshes and intertidal mudflats are present. The landward extent of the estuary is the limit of salt-intolerant vegetation, and the seaward extent is the stream’s delta at mean low water.

evaluation: An essential companion activity to monitoring; the tool for translating data gathered by monitoring into useful information that could result in change or adaptive management.

F

facility: A single or contiguous group of improvements that exists to shelter or to support Forest Service programs. The term may be used in either a broad or narrow context; for example, a facility may be a ranger station compound, lookout tower, leased office, work center, separate housing area, visitor center, research laboratory, recreation complex, utility system, or telecommunications site.

facilities maintenance: Work performed to maintain serviceability or repair failures.

facilities maintenance (deferred): Work that was not performed when it should have been or when it was scheduled and has been delayed to a future period. Deferred maintenance includes actions not taken to comply with codes for health and safety, accessibility, environmental factors and other compliance requirements or applicable standards. To reduce or eliminate deferred maintenance, rehabilitation or replacement may be necessary.

- **rehabilitation:** Renovation or restoration of an existing fixed asset or any of its components to restore the functionality or life of the asset. Because there is no significant expansion or change of purpose for the fixed asset, the work primarily addresses deferred maintenance.
- **replacement:** Substitution or exchange of an existing fixed asset or component with one having essentially the same capacity and purpose.
- **custodial:** Replacement of nonfunctional site elements or facilities with in–kind materials or structures. Location, design, and configuration remain constant. Accessibility standards, where possible, are compatible with desired recreation opportunity spectrum settings.
- **decommission:** Demolition, dismantling, removal, obliteration, and/or disposal of a deteriorated or otherwise unneeded asset or component, including necessary cleanup work. This action eliminates the deferred maintenance needs for the fixed asset. Portions of an asset or component may remain if they do not cause problems nor require maintenance.

fire management: All activities for the management of wildland fires to meet land management objectives. Fire management includes the entire scope of activities from planning, prevention, fuels or vegetation modification, prescribed fire, hazard mitigation, fire response, rehabilitation, monitoring and evaluation.

fire severity: Degree to which a site has been altered or disrupted by fire; loosely, a product of fire intensity and residence time.

floodplain: The level or nearly level land with alluvial soils on either or both sides of a stream or river that is subject to overflow during periods of high water.

focal species: A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 CFR 219.19).

forage: All browse and herbaceous foods available to grazing animals; may be grazed or harvested for feeding.

forb: Broad-leafed, herbaceous, nongrass-like plant species other than true grasses, sedges, and non–woody plants; fleshy leafed plants; having little or no woody material.

forest: An area managed for the production of timber and other forest products, or maintained under woody vegetation for indirect benefits as protection of a watershed, recreation, or wildlife habitat.

Forest and Rangeland Renewable Resources Planning Act of 1974: An act of Congress requiring the preparation of a program for the management of the national forests' renewable resources, and of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of all National Forest System lands and renewable resources.

forest health: The perceived condition of a forest derived from concerns about such factors as its age, structure, composition, function, vigor, presence of unusual levels of insects and disease and resilience to disturbance.

forest land: Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative areas, improved roads of any width and adjoining road clearing, and power line clearings of any width (36 CFR 219.19).

forest products: Special forest products include, but are not limited to, mushrooms, boughs, Christmas trees, bark, ferns (also known as fiddleheads), moss, burls, berries, cones, conks, herbs, roots, and wildflower. More traditional woody materials, such as shrub cuttings, fire wood, seedlings, transplants, and rooted saplings, are also considered special forest products. Forest botanicals products, a subset of forest products, include a wide variety of herbaceous plants and plant parts (36 CFR 223.216; 36 CFR 223.277).

Forest Service Handbook (FSH): Directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.

Forest Service Manual (FSM): A system of manuals that provides direction for Forest Service activities.

forest trail: A trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 CFR 212.1).

fragmentation (habitat): The break-up of a large continuous land area by reducing and dividing into smaller patches isolated by areas converted to a different land type. Habitat can be fragmented by natural events or development activities.

free-flowing: A river or stream that exists or flows in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway (16 U.S.C. section 1286).

fuel: Plants, both living and dead, and woody vegetative materials capable of burning.

fuel loading: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight.

fuel management: Act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire, in support of land management objectives.

G

game species: Any species of wildlife or fish for which seasons and bag limits have been prescribed, and which are normally harvested by hunters, trappers, and fishermen under state or federal laws, codes, and regulations.

geographic area: A spatially contiguous land area identified within the planning area. A geographic area may overlap with a management area (36 CFR 219.19).

geographic information system (GIS): An information processing technology to input, store, manipulate, analyze, and display data; a system of computer maps with corresponding site-specific information that can be combined electronically to provide reports and maps.

geologic: Based on geology, the study of the structure, processes, and chronology of the earth.

geologic features: Landforms or other features of significant geologic interest that may require special management to protect the special qualities, or provide interpretation to the public.

goals: An optional plan component. Goals are broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Goals are expressed in broad, general terms, but do not include completion dates (36 CFR part 219.7(e)(2)).

goods and services: The various outputs, including on-site uses, produced from forest and rangeland resources.

groundwater: Water in a saturated zone in a geologic stratum. Water stored below the water table where the soil (or other geologic material) is saturated.

guideline: A guideline is a constraint on project and activity decision making that allows for departure from its terms, so long as the intent of the guideline is met (section 219.15(d)(3)). Guidelines are established to help achieve a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

guiding: Providing services or assistance (such as supervision, protection, education, training, packing, touring, transporting people, or interpretation) for pecuniary remuneration or other gain to individuals or groups on National Forest System lands (36 CFR 251.51).

H

habitat: A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

habitat type: A land or aquatic unit, consisting of an aggregation of habitats having equivalent structure, function, and responses to disturbance.

harvest: (1) Felling and removal of trees from the forest; and (2) removal of game animals or fish from a population, typically by hunting or fishing.

historic properties: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

hydroelectric: Of or relating to the production of electricity by waterpower.

hydrologic: Refers to the properties, distribution, and effects of water. Hydrology refers to the broad science of the waters of the earth, their occurrence, circulation, distribution, chemical and physical properties, and their reaction with the environment.

hydrologic function: The behavioral characteristics of a watershed described in terms of ability to sustain favorable conditions of water flow. Favorable conditions of water flow are defined in terms of water quality, quantity, and timing.

hydrologic unit code (HUC): The levels of subdivision, used for collection, management and organization of water resources data and their associated numeric identifiers. The hydrologic units are arranged in a nested, hierarchical system with each hydrologic unit in the system identified using a unique code. Hydrologic unit codes (HUCs) are developed using a progressive two-digit system where each successively smaller areal unit is identified by adding two digits to the identifying code the smaller unit is nested within.

I

impacts: Refer to effects.

implement: To carry out.

indicator: A measure or measurement of an aspect of a sustainability criterion. A quantitative or qualitative variable that can be measured or described and, when observed periodically, shows trends. Indicators are quantifiable performance measures of outcomes or objectives for attaining criteria designed to assess progress toward desired conditions.

Infestation: The attack by macroscopic organisms in considerable concentration. Examples are infestations of tree crowns by budworm, timber by termites, soil or other substrates by nematodes or weeds.

infrastructure: The basic facilities, equipment, and installation needed for the functioning of a system; commonly refers to items such as roads, bridges, power facilities, buildings, utilities, and the like.

inherent capability of the plan area: The ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances (36 CFR 219.19).

installation: A structure built by humans but not intended for human occupation (examples include snow gauging stations, communication site buildings, mining structures, wood sheds)

instream flow: Flow of water in its natural setting (as opposed to waters diverted for off-stream uses, such as industry or agriculture). Instream flow levels provided for environmental reasons enhance or maintain the habitat for riparian and aquatic life, with timing and quantities of flow characteristic of the natural setting.

instream flow reservation: A water right that protects specific instream water uses such as fish spawning and recreation. Water can be reserved for one or more permissible uses on a particular part of a stream or lake during a certain period of time. Permissible instream uses include: protection of fish and wildlife habitat, migration, and propagation; recreation and parks; navigation and transportation; and sanitation and water quality (AS 46.15.145).

interagency: Involving the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Environmental Protection Agency, Bureau of Indian Affairs, and other federal agencies.

interdisciplinary team: A group of specialists assembled as a cohesive team with frequent interactions to solve a problem or perform a task.

interpretive services: Visitor information services designed to present inspirational, educational, and recreational values to forest visitors in an effort to promote understanding, appreciation, and enjoyment of their forest experience.

invasive species: An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

inventoried roadless areas (IRAs): Areas identified on a set of inventoried roadless area maps contained in the Forest Service Roadless Area Conservation Final Environmental Impact Statement Volume 2 (published in 2000), which are held at the Washington Office of the Forest Service—or any subsequent update or revision of those maps.

issue: A point, matter of controversy, dispute, question of public discussion, or general concern over resource management activities or land uses to be addressed or decided through the planning process. To be considered a significant environmental impact statement issue, it must be well defined, relevant to the proposed action, and within the ability of the agency to address through alternative management strategies.

K

key ecosystem characteristics:

- Are important specific elements of an ecosystem that sustain the long-term integrity of the ecosystems (FSH 1909, chapter 10, section 12.14)
- Include dominant ecological characteristics of composition, structure, function, and connectivity of terrestrial, aquatic, and riparian ecosystems
- May be stressors and possible effects of stressors

L

land exchange: The conveyance of non-federal land or interests in the land in exchange for National Forest System land or interests in land.

land management planning: A formal process of management planning involving four interactive steps: monitoring, assessment, decision making, and implementation as described in the Federal Code of Regulations.

landform: One of the attributes or features that make up the Earth's surface, such as a plain, mountain, or valley, as defined by its particular combination of bedrock and soils, erosion processes, and climatic influences.

landscape: A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 CFR 219.19).

landscape character: Identifiable image made by particular attributes, qualities, and traits of a landscape.

landtype: An intermediate level in the ecological classification system hierarchy that addresses land areas ranging in size from hundreds of acres up to ten thousands of acres. These units typically have similarities in landform, natural vegetative communities, and soils.

landtype association: A group of landtypes. The landtypes in the association are sufficiently homogeneous to be considered as a whole for modeling the future outputs and effects of planned management activities. Landtype associations may not follow watershed boundaries, and are defined on the basis of general similarities in climate, geology, landform, and vegetation.

large wood: Any piece of relatively stable woody material, having a diameter of 4 inches or greater and a length greater than 3 feet, that intrudes into a stream channel and influences the flow and shape of the stream channel. Formerly called large woody debris.

leave tree: A tree (marked to be) left standing for wildlife, seed production, etc., in an area where it might otherwise be felled.

lichens: Organisms made up of specific algae and fungi, forming identifiable crusts or leafy or branched structures on soil, rocks, tree bark, and other surfaces. Lichens are primary producers in ecosystems; they contribute living material and nutrients, enrich the soil and increase soil moisture-holding capacity, and serve as food sources for certain animals. Lichens are slow growing and sensitive to chemical and physical disturbances.

litter: The uppermost layer of organic debris on the soil surface, which is essentially the freshly fallen or slightly decomposed vegetation material such as stems, leaves, twigs, and fruits.

line officer: A Forest Service official who serves in a direct line of command from the Chief (36 CFR 219.62).

listed species: A species, subspecies, or distinct vertebrate population segment that has been added to the federal lists of endangered and threatened wildlife and plants as they appear in sections 17.11 and 17.12 of Title 50 of the Code of Federal Regulations (50 CFR 17.11 and 17.12)

local population: A group of individuals that spawn or breed in a particular area; the smallest group of individuals that is known to represent an interacting reproductive unit.

long term: Generally refers to a period longer than 10 years up to 100 years.

M

maintain: In reference to an ecological condition: To keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both (36 CFR 219.19).

management action: Activities conducted by the Chugach National Forest to achieve specific resource management outcomes.

management approach: Not a plan component; optional plan content that describes the principal strategies and program priorities the Responsible Official intends to employ to carry out projects and activities developed under the plan (FSH 1909.12, section 22.4).

management area: A land area identified within the planning area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 CFR 219.19).

management direction: A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

management practice: A specific activity, measure, course of action, or treatment.

mineral exploration: The search for valuable locatable, leasable, or salable minerals.

minerals – locatable: Valuable minerals subject to location under the 1872 Mining Law. Typically, these are minerals that are mined and processed for the recovery of precious and base metals. They also may include certain nonmetallic minerals and certain varieties of mineral materials, which are not classified as common variety due to characteristics that give them a distinct and special value, such as valuable and distinctive deposits of limestone or silica.

minerals – leasable: Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur, and geothermal resources. All hard-rock minerals that occur on acquired lands, as opposed to public domain lands, are leasable.

minerals – salable (mineral materials): A collective term to describe common varieties of sand, gravel, stone, pumice, pumicite, cinders, clay, and other similar materials. Common varieties do not include deposits of those materials that may be locatable.

mineral occurrence: Presence of a concentration of one or more mineral resources. A mineral occurrence does indicate that potential for development or extraction of minerals is feasible or economic.

Minimum Impact Suppression Techniques (MIST): The application of strategy and tactics that effectively meet suppression and resource objectives with the least environmental, cultural and social impacts.

mining: To excavate for and extract mineral deposits or building stone.

mitigation: Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

mitigation actions (fire): Actions that are implemented to reduce or eliminate (mitigate) risks to persons, property, or natural resources. These actions can include mechanical and physical tasks, specific fire applications, and limited suppression actions. Mitigation actions may include fireline construction, fuel treatments and reductions, fuel breaks or barriers around critical or sensitive sites or resources, and creating "black lines" through the use of controlled burnouts to limit fire spread and behavior.

monitoring: A systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships (36 CFR 219.19).

monitoring program: See **plan monitoring program.**

mosaic: A pattern of vegetation in which two or more kinds of communities are interspersed in patches, such as clumps of shrubs with grassland between.

motorized equipment: Machines that use a motor, engine, or other non-living power source. This includes, but is not limited to such machines as chain saws, aircraft, snowmobiles, generators, motor boats, and motor vehicles. It does not include small battery or gas powered hand carried devices that include shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

motor vehicle: Any vehicle that is self-propelled, other than 1) a vehicle operated on rails; and 2) any wheelchair or mobility device, including one that is battery-powered, that is designed solely for use by a mobility impaired person for locomotion, and that is suitable for use in an indoor pedestrian area (36 CFR 212.1).

multiple use: The management of all the various renewable surface resources of the National Forest System so that they are used in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531) (36 CFR 219.19).

municipal watersheds (public supply watersheds): A watershed that serves a public water system as defined in the Safe Drinking Water Act of 1974, as amended (42 U.S.C. section 300f, et seq.); or as defined in state safe drinking water statutes or regulations (FSM 2542.05).

National Ambient Air Quality Standards (NAAQSs): Standards set by the federal Environmental Protection Agency for the maximum levels of air pollutants that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

National Environmental Policy Act (NEPA) of 1969: An act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the nation, and to establish a Council on Environmental Quality.

National Forest Management Act (NFMA) of 1976: A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of land management plans and the preparation of regulations to guide that development.

National Forest System (NFS): All national forest lands reserved or withdrawn from the public domain of the United States; all national forest lands acquired through purchase, exchange, donation, or other means; the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 U.S.C. 1010-1012); and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system.

National Forest System trail: A forest trail other than a trail which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (36 CFR 212.1).

National Historic Trail: National historic trails recognize original trails or routes of travel of national historic significance including past routes of exploration, migration, and military action. These trails can only be designated by an Act of Congress.

National Recreation Trail: Trails designated by the Secretary of the Interior or the Secretary of Agriculture as part of the national system of trails authorized by the National Trails System Act. National recreation trails provide a variety of outdoor recreation uses.

National Register of Historic Places: The Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. Properties listed in the Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.

National Trails System: A network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These nationally recognized trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement. Trails that are part of the National Trails System fall into three categories: National Scenic Trails, National Historic Trails and National Recreation Trails. National Scenic Trails and National Historic Trails are designated by Congress, and National Recreation Trails are designated by the Secretary of Agriculture or the Secretary of the Interior.

National Wild and Scenic River System: Rivers and river segments with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural or other similar values designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition. Refer to Wild and Scenic River.

National Wilderness Preservation System: All lands covered by the Wilderness Act and subsequent wilderness designations, irrespective of the department or agency having jurisdiction.

native species: An organism that was historically or is present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate introduction into that ecosystem. An organism's presence and evolution (adaptation) in an area are determined by climate, soil, and other biotic and abiotic factors (36 CFR 219.19).

natural disturbance: Periodic impact of natural events such as: fire, severe drought, insect or disease attack, or wind.

niche: A place or activity for which an organism is best fitted.

nodal development: Concentrated centers or districts of business and commerce. Nodal development areas provide services in close proximity to one another (ideally walking distance) where parking and access to the highway are shared or linked to one another.

non-native species: An organism that was not historically present in a particular ecosystem as a result of natural migratory or evolutionary process, but is now present due to an accidental or deliberate introduction into that ecosystem.

nunataks: an exposed, often rocky element of a ridge, mountain, or peak not covered with ice or snow within (or at the edge of) an ice field or glacier.

O

objective: An objective is a concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives should be based on reasonably foreseeable budgets.

old growth forests: An ecosystem distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics including tree size, accumulation of large dead woody material, number of canopy layers, species composition, and ecosystem function.

on-site: A term referring to species normally found on a site under natural conditions. The same or contiguous property that may be divided by a public or private right-of-way, provided that the entrance and exit between the properties is at a crossroads intersection, and that access is by crossing, as opposed to going along the right-of-way.

optional plan component: A plan may include goals as plan components. Goals are broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Goals are expressed in broad, general terms, but do not include completion dates.

outcome: The long-term results of a program activity compared to its intended purpose (Government Performance and Results Act of 1993 (5 U.S.C. 306)). Outcome is a state of being similar to long-term ecological, social, or economic condition or goal (such as the maintenance of an ecosystem's biodiversity, jobs and income, or the quality of a regions' surface water as measured by indicators).

outdoor recreation activities: Activities such as camping, picnicking, rafting, boating, hiking, rock climbing, fishing, hunting, horseback riding, and the viewing of wildlife or scenery.

outfitting: Providing through rental or livery any saddle or pack animal, vehicle or boat, tents or camping gear, or similar supplies or equipment, for pecuniary remuneration or other gain. The term guide includes the holder's employees, agents, and instructors. Pecuniary remuneration means monetary reward (Washington Office Amendment 2709.11-95-11, 41-53C).

outstanding mineral rights: Those rights owned by a party other than the surface owner at the time the surface was acquired by the United States. Removal or extraction of these minerals must be allowed in accordance with the instrument severing the minerals from the surface and under applicable state and local laws and regulations.

outstandingly remarkable values: Term used in the Wild and Scenic Rivers Act of 1968; to qualify as outstandingly remarkable, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.

overstory: Portion of the trees, in a forest or in a forested stand of more than one story, forming the upper or uppermost canopy.

P

paleontological sites: Areas that contain any remains, trace, or imprint of a plant or animal that has been preserved in the earth's crust before the Holocene epoch.

palustrine: Pertaining to low velocity, ponded environments. Examples are backwater sloughs, swamps, bogs, and muskeg ponds, as well as their outlet streams or any ponded environment. "Ponded" describes the condition in which free water covers the soil surface and is removed only by percolation, evaporation, or transpiration.

parcel: Contiguous tax lots under one ownership. For the purposes of the Private LURs, rights-of-way do not divide parcels into smaller units.

participation: Activities that include a wide range of public involvement tools and processes, such as collaboration, public meetings, open houses, workshops, and comment periods (36 CFR 219.19).

partnership: Voluntary, mutually beneficial and desired arrangement between the Forest Service and another or others to accomplish mutually agreed-on objectives consistent with the agency's mission and serving the public's interest.

patch: An area of vegetation that is relatively homogeneous internally and differs from surrounding elements.

pathogen: An agent such as a fungus, virus, or bacterium that causes disease.

pattern: The spatial arrangement of landscape elements (patches, corridors, matrix) that determines the function of a landscape as an ecological system.

peak flow: The highest discharge of water recorded over a specified period of time at a given stream location. Often thought of in terms of spring snowmelt, summer, fall or winter rainy season flows. Also called maximum flow.

perennial stream: A stream or reach of a channel that flows continuously or nearly so throughout the year and whose upper surface is generally lower than the top of the zone of saturation in areas adjacent to the stream.

plan or land management plan: A document or set of documents that provide management direction for an administrative unit of the National Forest System developed under the requirements of the land management planning regulation at 36 Code of Federal Regulations part 219 or a prior planning rule (36 CFR 219.19).

plan (planning) area: The National Forest System lands covered by a plan (36 CFR 219.19).

plan components: The parts of a land management plan that guide future project and activity decision making. Specific plan components may apply to the entire plan area, to specific management areas or geographic areas, or to other areas as identified in the plan. Every plan must include the following plan components: Desired conditions; Objectives; Standards; Guidelines; Suitability of Lands. A plan may also include Goals as an optional component.

plan monitoring program: An essential part of the land management plan that sets out the plan monitoring questions and associated indicators, based on plan components. The plan monitoring program informs management of resources on the plan area and enables the responsible official to determine if a change in plan components or other plan content that guide management of resources on the plan area may be needed.

plan (planning) record: The documents and materials considered in the making of a land management plan, plan revision, or plan amendment.

plant and animal community: A naturally occurring assemblage of plant and animal species living within a defined area or habitat (36 CFR 219.19).

plant association: a vegetation classification unit defined on the basis of a characteristic range of species composition, diagnostic species occurrence, habitat conditions, and physiognomy.

plant community: a group of plant species living together and linked together by their effects on one another and their responses to the environment they share.

point source pollution: Pollution that comes from a single identifiable source such as a smokestack, a sewer, or a pipe.

pool: The portion of a stream with reduced current, often with deeper water than surrounding areas and a smooth surface.

prehistoric site: An area that contains important evidence and remains of the life and activities of early societies that did not record their history.

prescribed fire: Any fire intentionally ignited by management actions in accordance with applicable laws, policies, and regulations to meet specific objectives.

prescription: A management pathway to achieve a desired objective(s).

primitive recreation: Those types of recreation activities associated with unroaded land, for example: hiking, backpacking, and cross-country travel.

priority heritage assets: Heritage assets of distinct public value that are or should be actively maintained and meet one or more of the following criteria:

- The significance and management priority of the property is recognized through an official designation such as listing on the National Register of Historic Places or on a state register.
- The significance and management priority of the property is recognized through prior investment in preservation, interpretation, and use.
- The significance and management priority of the property is recognized in an agency–approved management plan.
- The property exhibits critical deferred maintenance needs and those needs have been documented. Critical deferred maintenance is defined as a potential health or safety risk or imminent threat of loss of significant resource values.

private land: Land not in federal, state, or local government ownership.

private water system: A potable water system that is not a public water system (18 AAC 80.1190).

productivity: The capacity of National Forest System lands and their ecological systems to provide the various renewable resources in certain amounts in perpetuity. For the purposes of land management planning, productivity is an ecological term, not an economic term (36 CFR 219.19).

program: Sets of activities or projects with specific objectives, defined in terms of specific results and responsibilities for accomplishments.

project: An organized effort to achieve an objective identified by location, timing, activities, outputs, effects, and time period and responsibilities for executions (36 CFR 219.19).

public participation activities: Meetings, conferences, seminars, workshops, tours, written comments, survey questionnaires, and similar activities designed or held to obtain comments from the general public and specific publics.

public roads: Any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 U.S.C. section 101(a)).

public water supply or system (PWS): Public water supply or systems, include only state designated community water or non-community water systems that provide water for human consumption through pipes or other constructed conveyances with at least 15 service connections or regularly serves an average of at least 25 individuals daily for at least 60 days out of the year (18 AAC 80.1190).

Q

quality of life: Refers to the satisfaction people feel for the places where they live (or may visit) and for the places they occupy as part of that experience.

R

ranger district: Administrative subdivisions of a national forest supervised by a district ranger who reports to the forest supervisor.

rare species: Any native or once-native species which exists in small numbers.

reasonable assurance: A judgment made by the responsible official based on best available scientific information and local professional experience that practices based on existing technology and knowledge are likely to deliver the intended results. Reasonable assurance applies to average and foreseeable conditions for the area and does not constitute a guarantee to achieve the intended results.

reasonable assurance of windfirmness (RAW) buffer: A managed area designed to contain windthrow within an area where timber harvest is allowed. It is used to protect riparian management zones* and adjacent stands.

reclamation: Those actions performed during or after mineral activities to shape, stabilize, revegetate, or otherwise treat the affected lands in order to achieve a safe and ecologically stable condition and land use that is consistent with long-term forest land and resource management plans and local environmental conditions.

reconstruction: Work that includes, but is not limited to, widening of roads, improving alignment, providing additional turnouts, and improving sight distance that improve the standard to which the road was originally constructed. Also undertaken to increase the capacity of the road or to provide greater traffic safety.

recovery: With respect to threatened or endangered species: The improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 CFR 219.19).

recreation: Leisure time activity, such as swimming, picnicking, boating, hunting, and fishing.

- **developed recreation:** Recreation that requires facilities that, in turn, result in concentrated use of an area. Examples of developed recreation areas are campgrounds and ski areas; facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, ski lifts, and buildings.
- **dispersed recreation:** A general term referring to recreation use outside developed recreation sites; this includes activities in primitive environments, such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation.

recreation event: a recreational activity conducted on National Forest System lands for which an entry or participation fee is charged, such as a fishing contest, running race, or dog trial.

recreation opportunity: An opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include non-motorized, motorized, developed, and dispersed recreation on land, water, and in the air (36 CFR 219.19).

recreation opportunity spectrum: A recreation opportunity setting is the combination of physical, biological, social, and managerial conditions that give value to a place. Thus, an opportunity includes qualities provided by-nature (vegetation; landscape, topography, scenery), qualities associated with recreational use (levels and types of use), and conditions provided by management (developments, roads, regulations). By combining variations of these qualities and conditions, management can provide a variety of opportunities for recreationists. The settings, activities, and opportunities for obtaining experiences have been arranged along a continuum or spectrum divided into six classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban (40 CFR 1505.2).

- **primitive:** area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted, except as provided for in ANILCA (Section 811, 1110(a)).
- **semi-primitive non-motorized**: area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, except as provided for in ANILCA (Section 811). Use of roads for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.
- **semi-primitive non-motorized (winter motorized allowed):** area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation use is allowed in winter months. Motorized use may be permitted other times of the year as provided for in ANILCA (Section 811). Use of roads for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.
- **semi-primitive motorized:** area is characterized by a predominantly natural or natural appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motor bikes is permitted.
- **roaded natural:** area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.
- **rural:** Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities is designed for use by a large number of people Facilities are often provided for special activities. Moderate densities are provided far away from developed sites Facilities for intensified motorized use and parking are available.
- **urban:** area is characterized by a substantially urbanized environment, although the background may have natural appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans, on-site, are predominant. Large numbers of users can be expected, both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

recreation site: Specific places in the national forest other than roads and trails that are used for recreational activities. These sites include a wide range of recreational activities and associated development. These sites include highly developed facilities, such as ski areas, resorts, and campgrounds. It also includes dispersed recreation sites that have few or no improvements but show the effects of repeated recreation use.

recreational facilities: Refers to facilities associated with or required for outdoor recreational activities and includes, but is not limited to, parks, campgrounds, hunting and fishing lodges, and interpretive displays.

recreational river: Refer to wild and scenic river.

refugia: Areas that have not been exposed to great environmental changes and disturbances undergone by the region as a whole; refugia provide conditions suitable for survival of species that may be declining elsewhere.

regeneration: The process of establishing new plant seedlings, whether by natural means or artificial measures (planting).

regulations: Generally refers to Code of Federal Regulations, Title 36, chapter II, which covers management of the Forest Service.

rehabilitate: To repair and protect certain aspects of a system so that essential structures and functions are recovered, even though the overall system may not be exactly as it was before.

renewable energy: Energy derived from natural sources, such as sunlight, wind, rain, tides, or geothermal resources, which do not consume the resource when used.

research natural area (RNA): An area set aside by a public or private agency specifically to preserve a representative sample of an ecological community, primarily for scientific and educational purposes. In Forest Service usage, research natural areas are areas designated to ensure representative samples of as many of the major naturally occurring plant communities as possible.

reserved mineral rights: Those rights held by the surface owner at the time the surface was acquired by the United States. Removal or extraction of these minerals must be allowed in accordance with the instrument severing the minerals from the surface and under applicable state and local laws and regulations.

resilience: The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape.

resource: Anything that is beneficial or useful, be it animal, vegetable, mineral, a location, a labor force, a view, an experience, etc. Resources, in the context of land use planning, thus vary from such commodities as timber and minerals to such amenities as scenery, scenic viewpoints, or recreation opportunities.

responsible official: The official with the authority and responsibility to oversee the planning process and to approve a plan, plan amendment, and plan revision (36 CFR 219.62).

restore: To renew by the process of restoration. See restoration (36 CFR 219.19).

resource allocation: The action of apportioning the supply of a resource to specific uses or to particular persons or organizations.

retention: A visual quality objective in which man's activities are not evident to the casual national forest visitor.

revegetation: The reestablishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of humans (for example, afforestation and range reseeding).

revision: To make the plan new or up-to-date. Plan revision must be considered and approved in accordance with the requirements for the development and approval of a land management plan. Revisions take place every 10 to 15 years, but may occur more frequently if conditions or public demands change significantly.

right-of-way (ROW): Public or National Forest System lands authorized to be used or occupied pursuant to a right-of-way grant or special use authorization.

riparian areas: Three-dimensional ecotones [the transition zone between two adjoining communities] of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths (36 CFR 219.19).

riparian management zone (RMZ): Portions of a watershed where riparian-dependent resources receive primary emphasis, and for which plans include plan components to maintain or restore riparian functions and ecological functions (36 CFR 219.19).

risk: A combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences (36 CFR 219.19).

risk management: The continuous process of evaluating exposure and mitigating hazards. Risk management is a dynamic process exercised by employees engaged in wildfire response. It provides employees a way to evaluate risk and benefit relative to the overall incident objectives and course of action based on leader's intent.

road: A motor vehicle route over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).

- **classified roads:** Roads wholly or partially within or adjacent to national forest lands that are determined to be needed for long-term motor vehicle access, including state roads, county roads, privately owned roads, forest roads, and other roads authorized by the Forest Service (36 CFR 212.1).
- **closed road:** A road with all use suspended yearlong by an active form of facility management utilizing regulations and appropriate enforcement to secure and ensure user compliance with closure.
- **open road:** A road that has no use restrictions or regulations imposed and is available for use by vehicles at any time during the year.
- **temporary roads:** Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be a part of the forest transportation system and not necessary for long-term resource management (36 CFR 212.1).
- **unclassified roads:** Roads on national forest lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).

road construction: Activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1). New construction activities may include vegetation clearing and grubbing, earthwork, drainage installation, instream activities, pit development or expansion, surfacing (including paving), and aggregate placement.

road management objectives: Road management objectives define the level of service provided by a National Forest System road consistent with the surrounding desired recreation opportunity spectrum (ROS) class.

semi-primitive non-motorized (SPNM): Most semi-primitive non-motorized areas do not have developed roads. All motorized traffic is prohibited. Semi-primitive non-motorized roads provide hiking or equestrian trails on closed or decommissioned roads.

semi-primitive motorized (SPM): Semi-primitive motorized roads are generally used for four-wheel drive, logging, or ranching activities. Passenger-car use is discouraged by entrance conditions or signage. Users can expect SPM roads where there are no attractions such as viewpoints or trailheads.

roaded natural (RN): Roaded natural roads provide safe access for passenger cars. Maintenance activities generally occur annually or every 2 years, depending on funding and need. Forest Service clears these roads of brush and logs. Surface maintenance increases at higher levels. Because of increased speeds, turnouts are needed more frequently. Open local roads and some collector roads within RN are managed for high-clearance vehicles. In such cases, road-maintenance standards defined for SPM would be used.

rural (R): Rural is generally the highest standard of road. These arterial roads provide the main access to the national forest lands but generally lack the speeds and alignment provided by state highways. Roads are double–lane with a road-surface treatment and generally 24-feet wide. The road has center striping and often stripes marking the shoulders. Corresponds to ML 5 and Traffic Service Level A (abbreviated: 5-A).

road reconstruction: Activity that results in improvement or realignment of an existing classified road as defined below. Reconstruction activities may include vegetation clearing and grubbing, earthwork, drainage installation, instream activities, surfacing (including paving), and aggregate placement.

roundwood: Timber and fuelwood prepared in the round state—from felled trees to material trimmed, barked, and crosscut (for example, logs and transmission poles).

runoff: The total stream discharge of water from a watershed including surface and subsurface flow, but not groundwater. Usually expressed in acre-feet.

runoff (surface): Fresh water from precipitation and melting ice that flows on the earth's surface into nearby streams, lakes, wetlands, or reservoirs.

rural: (as applies to federal subsistence uses) Any community or area of Alaska determined by the Federal Subsistence Board to qualify as such. Only residents of communities or areas that the Board has determined to be rural are eligible for the subsistence priority.

S

sacred site: Executive Order 13007 defines an Indian sacred site as "any specific, discrete, narrowly delineated location on federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

scale: (1) The level of resolution under consideration (for example, broad-scale or fine-scale); (2) the ratio of length on a map to true length.

scenic character: A combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place. Scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity (36 CFR 219.19).

scenic integrity objectives (SIOs) and landscape character goals: These are developed for land management plan management areas. Scenic integrity objectives are very high-unaltered, high-appears unaltered, moderate-slightly altered, and low-moderately altered. A desired level of excellence based on physical and sociological characteristics of an area. Refers to the degree of acceptable changes of the characteristic landscape. Objectives include Very High, High, Moderate, and Low.

- **Very High (VH)** - Generally provides for only ecological changes in natural landscapes and complete intactness of landscape character in cultural landscapes.
- **High (H)** - Human activities are not visually evident to the casual observer. Activities may only repeat attributes of form, line, color, and texture found in the existing landscape character.
- **Moderate (M)** - Landscapes appear slightly altered. Noticeable human created deviations must remain visually subordinate to the landscape character being viewed.
- **Low (L)** - Landscapes appear moderately altered. Human created deviations begin to dominate the valued landscape character being viewed but borrow from valued attributes such as size, shape, edge effect, and pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed.
- **Very Low (VL)** – Landscapes appear heavily altered. Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, share, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

scenic river areas: Refer to wild and scenic river.

scenic river: Refer to wild and scenic river.

secondary channel: Lateral channel with an axis of flow roughly parallel to the main stream channel and fed by the main stream channel.

sediment: Solid materials, both mineral and organic, in suspension or transported by water, gravity, ice, or air; may be moved and deposited away from their original position and eventually will settle to the bottom.

seep: A wet area where a seasonal high water table intersects with the ground surface. Seeps that meet the definition of a wetland are included in the riparian corridor.

self-reliance: Reliance on one's own capabilities, judgment, or resources through application of outdoor skills in an environment that offers a high degree of risk and challenge.

self-sustaining populations: Populations that are sufficiently abundant, interacting, and well-distributed in the planning area, within the bounds of their life history and distribution of the species and the capability of the landscape, to provide for their long-term persistence, resilience, and adaptability over multiple generations.

sense of place: A reference for the physical, emotional, cultural, symbolic, and spiritual aspects of people's tangible and intangible relationships with the land and the meanings associated with them.

shelterwood: The cutting of most trees, leaving those needed to produce sufficient shade to produce a new age class in a moderated microenvironment.

short term: Generally refers to a period of 10 years or less.

side-slope break: The abrupt change (usually decreases) in slope gradient defining the upper limit of channel incision.

silvicultural system: A management process whereby forests are tended, harvested, and replaced, resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the fellings that remove the mature crop and provide for regeneration and according to the type of forest thereby produced.

silviculture: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands. Silviculture entails the manipulation of forest and woodland vegetation in stands and on landscapes to meet the diverse needs and values of landowners and society on a sustainable basis.

site: (1) A specific location of an activity or project, such as a campground, a lake, or a stand of trees to be harvested; (2) The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined or vanished, where the location itself maintains historic or archaeological value regardless of the value of any existing structure [36CFR65] (historic or archaeological definition).

site-potential tree: The average height of a given species of tree when mature on a given site.

slash: The residue (for example, treetops and branches) left on the ground after vegetation management or accumulating as a result of storm, fire, thinning or limbing.

snag: A standing dead tree usually greater than five feet in height and 6 inches in diameter at breast height (DBH).

society: A group of people who have a common homeland, are interdependent, and share a common culture.

soil: The earth material that has been so modified and acted upon by physical, chemical, and biological agents that it will support rooted plants.

soil productivity: The inherent capacity of a soil to produce plant growth, due to the soil's chemical, physical, and biological properties (such as depth, temperature, water-holding capacity, and mineral, nutrient, and organic matter content). It is often expressed +by some measure of biomass accumulation.

soil quality: The capacity of a soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

soil stability: (1) Mass stability of the soil profile or resistance to mass failure; (2) stability of the soil surface with respect to accelerated sheet, rill, and gully erosion processes.

solifluction: the gradual movement of wet soil or other material down a slope, especially where frozen subsoil acts as a barrier to the percolation of water.

source water protection areas: The area delineated by a state or tribe for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of a state or tribal source water assessment and protection program (SWAP) approved by the Environmental Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h–3(e)) (36 CFR 219.19).

spatial: Related to or having the nature of space.

special use authorization: A permit, term permit, lease, or easement which allows occupancy, use, rights, or privileges of National Forest System lands (36 CFR 251.51).

species: A population or series of populations of organisms that can interbreed freely with each other but not with members of other species.

species composition: The species that occur on a site or in a successional stage of a plant community.

species diversity: The number of species occurring in a given area.

species groups: A group of species that are associated with the same habitat conditions. Groupings are made based on the ecological conditions necessary to maintain or, in the case of federally listed threatened or endangered species, recover each group member.

species of conservation concern: A species of conservation concern is a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 CFR 219.9(c)).

spring: A water source located where water begins to flow from the ground due to the intersection of the water table with the ground surface. Generally flows throughout the year. Springs that are the source of perennial or intermittent streams are included in the riparian corridor.

stand: A group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition so as to be distinguishable from the forest in adjoining areas.

standard: A mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

stream bank: The portion of the channel cross section that restricts lateral movement of water at normal water levels. The bank often has a gradient steeper than 45 degrees and exhibits a distinct slope break from the stream bottom. An obvious change in substrate may be a reliable delineation of the bank.

stream bed: The substrate plain bounded by the streams banks, over which the water column moves. Also called the stream bottom.

stream channel: Refer to channel.

stream class: A means to categorize stream channels based on their fish production values. These are outlined in Forest Service Handbook 2090.21, chapter 10, section 12. The classes are the following:

- **Class I:** Streams and lakes with anadromous or adfluvial fish or fish habitat, or high quality resident fish waters or habitat above fish migration barriers know to provide reasonable enhancement opportunities for anadromous fish.
- **Class II:** Streams and lakes with resident fish or fish habitat – generally steep channels 6 to 25 percent or higher gradient – where no anadromous fish occur, and otherwise do not meet Class I criteria.
- **Class III:** Perennial and intermittent streams with no fish populations but which have sufficient flow, or transport sufficient sediment and debris, to have an immediate influence on downstream water quality or fish habitat capability. For streams less than 30 percent gradient, special care is needed to determine if resident fish are present. A stream segment is designated Class III if the following conditions are met **for the majority of its length:** Bankfull stream width greater than 1.5 meters (5 feet) **and** channel incision (or entrenchment) greater than 5 meters (5 feet).

  Streams that do not meet both the width and incision criteria may be classified as Class III streams based on professional interpretation of stream characteristics for the stream segment being assessed. The following characteristics **could** indicate a Class III stream:

  a. Steep side-slopes containing fine sediments, sand deposits, or deep soils that can provide an abundant source area of sedimentation.

  b. Very steep gradient channels (greater than 35 percent slope).

  c. Recently transported bedload or large wood wedges (especially if deposited outside ordinary high water mark).

  d. High water indicators (scour lines, drift lines, etc.) that generally exceed observed wetted stream width.

  e. Large sediment deposits stored amongst debris that could be readily transported if debris shifts.

- **Class IV**: Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capability to directly influence downstream water quality or fish habitat capability. Class IV streams do not meet the criterion used to define Class I, II or III streams. For perennial streams, with average gradients less than 30 percent, special care is needed to determine if fish are present.

stream process group: A combination of similar channel types based on major differences in landform, gradient, and channel shapes.

stressors: Actors that may directly or indirectly degrade or impair ecosystem composition, structure, or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime (36 CFR 219.19).

structure: (1) Any permanent building or facility, or part thereof, such as barns, outhouses, residences, and storage sheds, including transmission line systems, substations, commercial radio transmitters, relays or repeater stations, antennas, and other electronic sites and associated structures; or (2) the size and arrangement of vegetation, both vertically and horizontally.

sub-boreal: The southern portion of the boreal bioclimatic zone. The sub-boreal or subcontinental boreal bioclimatic zone generally lacks permafrost and has a longer fire return interval than the continental or interior boreal bioclimatic zone.

subbasin: A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th-field HUC watershed.

subsistence: Rural Alaska residents live lifestyles that depend in whole or in part on the customary and traditional uses of wild renewable resources (plants and animals) for food, shelter, fuel, clothing, tools, etc.

- **subsistence uses:** The customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade (ANILCA section 803).
- **Federal Subsistence Program:** The Forest Service manages a subset of wild renewable resources on National Forest System lands, inclusive of fish and wildlife, for federally qualified rural residents of Alaska. The Forest Service manages these fish and wildlife resources in partnership with other federal and state agencies and in consultation with Alaska Native Tribes and Alaska Native Corporations to foster cooperative management, monitoring and stewardship of fish and wildlife resources consistent with the decisions of the Federal Subsistence Board and the goals of ANILCA Title VIII.

subwatershed: A drainage area of approximately 20,000 acres, equivalent to a 6th-field HUC (12 digit). Hierarchically, subwatersheds (6th-field HUC) are contained within watersheds (5th-field HUC, which in turn are contained within a subbasin (4th-field HUC).

succession: The sequential replacement over time of one plant community by another, in the absence of major disturbance. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages of succession are often referred to as seral stages. Developmental stages are as follows:

- **early seral:** Communities that occur early in the successional path and generally have less complex structural developmental than other successional communities. Seedling and sapling size classes are an example of early seral forests.
- **mid-seral:** Communities that occur in the middle of the successional path. For forests, this usually corresponds to the pole or medium sawtimber growth stages.
- **late-seral:** Communities that occur in the later stage of the successional path with mature, generally larger individuals, such as mature forests.

suitability of lands: A determination that specific lands within a plan area may be used, or not, for various multiple uses or activities, based on the desired conditions applicable to those lands. The suitability of lands determinations need not be made for every use or activity, but every plan must identify those lands that are not suitable for timber production.

suitable uses: Uses that are compatible with the desired conditions and objectives for a given area that are identified as guidance for project and activity decision making and do not represent a commitment or final decision approving projects or activities.

suppression: All the work of extinguishing a fire or confining fire spread.

sustainability: The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For the purposes of this plan ‘‘ecological sustainability’’ refers to the capability of ecosystems to maintain ecological integrity; ‘‘economic sustainability’’ refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and ‘‘social sustainability’’ refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 CFR 219.19).

sustainable recreation: The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 CFR 219.19).

T

terrestrial: Pertaining to the land.

threatened species: Any species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 223.102.

timber: Wood retaining many of the recognizable characteristics of a tree: round, bark covered, and tapering, but without the limbs and leaves. In wood-industry usage, it may be standing timber (that portion of living trees with characteristics of value to the wood-using industry), or cut trees not yet processed beyond removing limbs and tops.

timber harvest: The removal of trees for wood fiber utilization and other multiple-use purposes (36 CFR 219.19).

timber production: The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR 219.19).

tolerance: The ability of a tree to grow satisfactorily in the shade of, and in competition with, other trees.

topography: The configuration of a land surface including its relief, elevation, and the position of its natural and human-made features.

traditional activities: Traditional activities include, but are not limited to, recreation activities such as fishing, hunting, boating, sightseeing, and hiking. Such uses are subject to reasonable regulation to protect natural and other values of wilderness from damage (ANILCA Section 1110(a), R10 Supplement 2300-2008-2)

traditional uses: See “subsistence uses.”

trailhead: The transfer point between a trail and a road, waterbody, or airfield, which may have developments that facilitate transfer from one mode of transportation to another. For purposes of the FSTAG (FSM 2353.27), a trailhead is a site designed and developed to provide staging for trail use and does not include:

- Junctions between trails where there is no other access.
- Intersections where a trail crosses a road or users have developed an access point, but no improvements have been provided beyond minimal signage for public safety.

travel route: A route, such as a county or national forest road or river or trail, that is open for use by members of the public.

trend: As used to define range conditions, the direction of change in range or forage condition or in ecological status.

U

upland: The portion of the landscape above the valley floor or stream.

utility corridor: A parcel of land, without fixed limits or boundaries, which is being used as the location for one or more transportation or utility rights-of-way.

urban: An area characterized by a substantially urbanized environment. The background may have natural-appearing elements.

V

values to be protected (related to fire or fuel management): Include property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values.

vegetation management: Activities designed primarily to promote the health of forest vegetation to achieve desired results. Vegetation management is the practice of manipulating the species mix, age, fuel load, and distribution of wildland plant communities within a prescribed or designated area to achieve desired results. It includes prescribed burning, grazing, chemical applications, biomass harvesting, and any other economically feasible method of enhancing, retarding, modifying, transplanting, or removing the aboveground parts of plants.

viability: In general, viability means the ability of a population of a plant or animal species to persist for some specified time into the future.

viable population: A population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments (36 CFR 219.19).

viewshed: The total landscape seen, or potentially seen from all or a logical part of a travel route, use area, or waterbody.

v-notch: A deeply incised valley along some waterways that would look like a “V” in cross section.

W

water quality: A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

water right: A right to use surface water or ground water evidenced by a court decree or by a permit or certificate approved by the state water resources department. Statutory exempt uses of surface water and ground water are not water rights, nor are time-limited licenses. A perfected water right is defined by applicant name, source, purpose, amount (quantity, rate and duty), season of use, priority date, point of diversion, place of use, and certificate number.

watershed: A region or land area drained by a single stream, river, or drainage network; a drainage basin (36 CFR 219.19).

watershed condition: The state of a watershed based on physical and biogeochemical characteristics and processes (36 CFR 219.19).

watershed condition classification: The process of describing watershed condition in terms of discrete categories (or classes) that reflect the level of watershed integrity.

watershed function: The processes acting on hillslopes and stream channel within a drainage basin that control the movement of water, wood, sediment, and nutrients.

weed: A plant considered undesirable, unattractive, or troublesome, usually introduced and growing without intentional cultivation.

wetlands: Those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances do or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds (Executive Order 11990, section 7c).

wild and scenic river (WSR): A river designated by Congress as part of the National Wild and Scenic Rivers System that was established in the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 (note), 1271–1287). (36 CFR 219.19) for possessing outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.

Wilderness Act of 1964: Act which gave Congress authority to designate certain areas of public land as wilderness. It established the National Wilderness Preservation System to secure an enduring resource of wilderness.

wilderness: Any area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 U.S.C. 1131–1136) (36 CFR 219.19).

wildfire: Unplanned ignitions or prescribed fires that are declared wildfires.

wildland: An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

wildland fire: A general term describing any non-structure fire that occurs in the wildland. Wildland fire includes prescribed fire and wildfire.

Wildland-urban interface (WUI): The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.

wildlife: All non-domesticated mammals, birds, reptiles, and amphibians living in a natural environment, including game species and non-game species. Animals, or their progeny (such as, feral animals, including horses, burros, and hogs), that once were domesticated, but escaped captivity, are not considered wildlife.

wildlife habitat improvement: The manipulation or maintenance of vegetation to yield desired results in terms of habitat suitable for designated wildlife species or groups of species.

withdrawal: Water removed from the ground or diverted from a surface water source for use.

Maps (13–22)

The following maps are sized 11 inches by 17 inches and located in a separate folder.

Map 13. Management areas

Map 14. Geographic areas

Map 15. Inventoried roadless areas

Map 16. Desired recreation opportunity spectrum

Map 17. Recreation facilities Kenai Peninsula Geographic Area

Map 18. Recreation facilities Prince William Sound Geographic Area

Map 19. Recreation facilities Copper River Delta Geographic Area

Map 20. Scenic integrity objectives

Map 21. Land type associations

Map 22. Watersheds