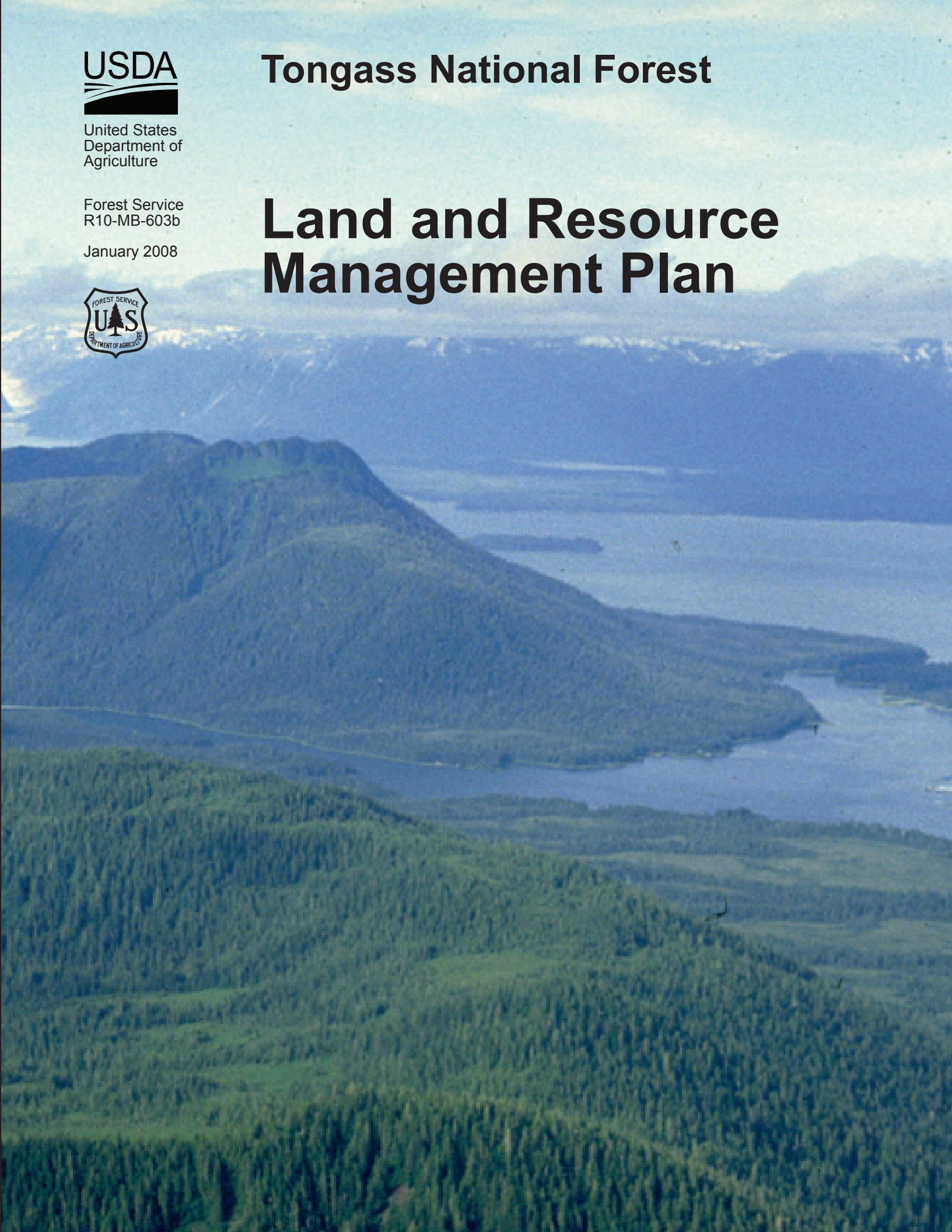

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Tongass National Forest

Land and Resource Management Plan

Tongass National Forest

Land and Resource Management Plan

2008

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CHAPTER 1
INTRODUCTION

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Chapter 1
Introduction

Purpose

This Land and Resource Management Plan (Forest Plan) guides all natural resource management activities and establishes management standards and guidelines for the Tongass National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for different kinds of resource management.

This Forest Plan embodies the provisions of the National Forest Management Act, the implementing regulations, and other guiding documents. The multiple-use goals and objectives, and the land use prescriptions and standards and guidelines, constitute a statement of the Forest Plan's management direction. However, the projected outputs and rates of implementation are dependent on the annual budget process and other factors.

This Forest Plan amends the current Tongass Land Management Plan, which was approved in 1997 and incorporates the 2003 Supplemental Environmental Impact Statement for Roadless Area Evaluation for Wilderness Recommendations and 26 non-significant amendments. It entirely replaces the 1997 Plan, as of the effective date of this revised Plan.

Relationship to Other Documents

This Forest Plan sets forth in detail the direction for managing the land and resources of the Tongass National Forest. This Forest Plan is a result of extensive analysis, which is addressed in the accompanying Tongass Land and Resource Management Plan Final Environmental Impact Statement (FEIS). The FEIS discusses the planning process and the analysis procedures used to amend the Forest Plan, describes and analyzes the alternatives considered in detail, and discusses how the public issues identified during the process helped shape these alternatives.

Specific activities and projects will be planned and implemented to carry out the direction in this Forest Plan. Environmental analyses will be performed on most of these projects and activities prior to implementation. This subsequent environmental analysis will use the data and analysis in the Forest Plan and FEIS. Environmental analysis of projects will be tiered to the FEIS.

All future plans and administrative activities will be based on the Forest Plan (or the Plan may be amended—see Chapter 5). Most existing resource management plans for the Tongass National Forest are already a part of, and consistent with, this revised Forest Plan. Travel Management Plans and other site-specific plans will be used to designate appropriate roads, trails, and areas for off-highway vehicles in accordance with 36 Code of Federal Regulations (CFR) 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use.

Plan Organization

What is Forest planning? Let us compare it to something that is familiar: land use zoning for a community. In a community, certain areas are zoned for commercial uses (stores), industrial uses (factories), and residential areas (where homes may be built). Each of these "zones" has certain uses that may occur there, and others

that may not. Many different uses may apply to the same zone. Some zoning requirements may apply only to specific areas of a zone.

In Forest planning, we call the zoning process *allocation* or *land allocation.* Certain areas of the Forest are allocated (zoned) to *Land Use Designations (LUDs)* for different uses. Most areas of the Forest are allocated to various LUDs as part of the Forest planning process. However, allocations that were congressionally designated, such as Wilderness or LUD II areas, must be managed in accordance to the direction provided through their enabling legislation. The description of the uses to which the land may be put and the activities that may occur there is called a *management prescription*. Each management prescription gives general direction on what may occur within the area allocated to the corresponding LUD, the standards for accomplishing each activity, and the guidelines on how to go about accomplishing the standards. These are called the *Land Use Designation Standards and Guidelines*. Some of these standards and guidelines may be common to many areas of the Forest. These are called *Forest-wide Standards and Guidelines*.

Standards and guidelines are designed so that all activities are integrated to meet land allocation objectives. Standards and guidelines represent minimum achievement levels, but do not limit achievements: higher objectives may always be attained. For instance, if a land use prescription allows activities to visually dominate the landscape (*Scenic Integrity Objective: Low*), then activities that do not visually dominate are always acceptable (*Scenic Integrity Objectives: High and Moderate*). Standards and guidelines are also intended to be used in conjunction with national and regional policies, and standards and guidelines contained in Forest Service manuals and handbooks.

The locations of LUD boundaries (as indicated on the Forest Plan map) are approximate due to the map scale used and the programmatic nature of the allocations. Some boundary adjustments may be necessary because specific projects are implemented under the Forest Plan. These adjustments will normally be made through non-significant Forest Plan amendments.

This Forest Plan is organized into several chapters. Following this introduction, Chapter 1 explains the components of Forest Plan management direction, lists the priority amongst this direction, and provides a brief description of the Tongass National Forest. Chapters 2, 3, and 4 present the major components of management direction for the Forest. These are described below.

Chapter 5 discusses Forest Plan implementation and the process used to amend or revise a Forest Plan. Chapter 6 is the monitoring and evaluation plan. Chapter 7 is a glossary.

Twelve appendices are also included, including the timber suitability determination (Appendix A) and a discussion of research and information needs (Appendix B).

A discussion of how the Forest Plan revision process addressed the public issues, and the management concerns ("need for change"), is included in Chapter 2 of the FEIS.

Forest Plan Management Direction

Chapters 2, 3, and 4 of the Forest Plan present the majority of the direction for managing the Tongass National Forest. The management direction of this Plan conforms to applicable laws, regulations, and policies. The Monitoring and Evaluation Plan (Chapter 6), and the determination of Timber Resource Land Suitability (Appendix A), also provide important direction.

The primary management direction for the Forest consists of the following integrated components:

Forest Multiple-Use Goals (Chapter 2). Forest multiple-use goals are the multiple-use and other goals established during the planning process to guide Forest management.

Forest Management Objectives (Chapter 2). Forest management objectives include narrative objectives for specific resources and the levels of goods and services (resource outputs) that are anticipated during the first decade of Forest Plan implementation.

Management Prescriptions (Chapter 3). Each LUD has a management prescription. Each prescription includes goals, objectives, and a desired future condition, as well as management practices, standards, and guidelines by resource. The geographic areas allocated to each LUD for the Forest Plan are displayed on the Forest Plan map.

Forest-wide Standards and Guidelines (Chapter 4). Forest-wide Standards and Guidelines are the standards and guidelines that apply to all, or most, areas of the Forest. Each management prescription includes a list of those that apply to that LUD.

Together, these components of Forest direction, along with the LUD map, establish a management framework that governs the location, design, and scheduling of all Forest management activities. Within the management framework, project-level planning is undertaken to achieve Forest Plan implementation.

Priority of Direction

Every effort has been made to achieve consistency between the components of management direction just described, and between Forest Plan direction and higher-level direction (e.g., law). However, conflicting or contradictory direction is still possible. Should conflict or discrepancy between direction occur, the following priority among direction will apply:

1. Higher-level direction.
2. Within the components of Forest Plan management direction, the management prescription standards and guidelines for each LUD take precedence over the Forest-wide Standards and Guidelines applied to that same designation, should any conflicts occur. Any summaries of these standards and guidelines (such as in the map legends) are not considered direction.
3. For all projects and activities considered, the standards and guidelines for each management prescription will be used, regardless of the levels of outputs or numbers of projects achieved, and regardless of actual budget allocations. Standards, which can usually be identified by words such as "must" or "will," are mandatory requirements or minimums that must be met. Project-level analysis may determine that additional requirements beyond these minimum are necessary. Guidelines, the majority of the direction, are not absolute requirements, but ways of achieving the standards or meeting other needs of the resource.

One purpose of monitoring and evaluation (see Chapter 6) is to ensure that management direction is being carried out, and that the outputs and schedules are

being achieved. If monitoring shows continued conflicts or problems in implementing the management direction, a Forest Plan amendment may be necessary.

Forest Location and Description

The 16.8-million-acre Tongass National Forest is located in Southeast Alaska, a part of the Alexander Archipelago, and encompasses about 7 percent of Alaska's total land area. The Tongass extends from Dixon Entrance in the south to Yakutat in the North, and is bordered on the east by Canada and on the west by the Gulf of Alaska. It extends approximately 500 miles north to south, and approximately 120 miles east to west at its widest point. Figure 1-1 is a vicinity map of the Tongass.

The Tongass includes a narrow mainland strip of steep, rugged mountains and icefields, and over 1,000 offshore islands. Together, the islands and mainland equal nearly 11,000 miles of meandering shoreline, with numerous bays and coves. A system of seaways separate the many islands and provides a protected waterway called the Inside Passage. Federal lands comprise about 95 percent of Southeast Alaska, with about 80 percent in the Tongass National Forest (and most of the rest in Glacier Bay National Park and Preserve). The remaining land is held in state, Native, and local community private ownerships.

Most of the area of the Tongass is wild and undeveloped. Approximately 73,000 people live in the towns, communities, and villages of Southeast Alaska, most of which are located on islands or along the mainland coasts. Only four of Southeast Alaska's 32 communities met the U.S. Census Bureau's definition of urban (population greater than 2,500) in 2005 and only eight had populations greater than 1,000 persons. Most of these communities are surrounded by, or adjacent to, National Forest System land. Just three towns are connected to other parts of the mainland by road: Haines and Skagway to the north and Hyder to the south.

Ecosystem services refer to goods and services vital to human health and livelihood provided by the Forest. A more detailed description of ecosystem services and their role on the Tongass is included in Chapter 2.

The communities of Southeast Alaska depend on the Tongass National Forest ecosystem services, including employment in wood products, commercial fishing and fish processing, recreation, tourism, and mining and mineral development. Many residents also depend on subsistence hunting and fishing to meet their basic needs. In addition, natural amenities, subsistence resources, and recreation activities associated with the Tongass National Forest form an important part of the quality of life for many residents of Southeast Alaska. There is very little private land in the region to provide these resources. Appropriate management of the Tongass' ecosystem services is, therefore, extremely important for local communities and the overall regional economy.

The Tongass National Forest is managed as one Administrative Area. There are nine Ranger Districts, with offices in Yakutat, Juneau, Hoonah, Sitka, Petersburg, Wrangell, Thorne Bay, Craig and Ketchikan. There are two National Monuments on the Tongass National Forest. The Admiralty National Monument is managed through a Monument Ranger co-located at the Juneau Ranger District. The Misty Fjords National Monument is managed by the District Ranger who also oversees the Ranger District in Ketchikan.

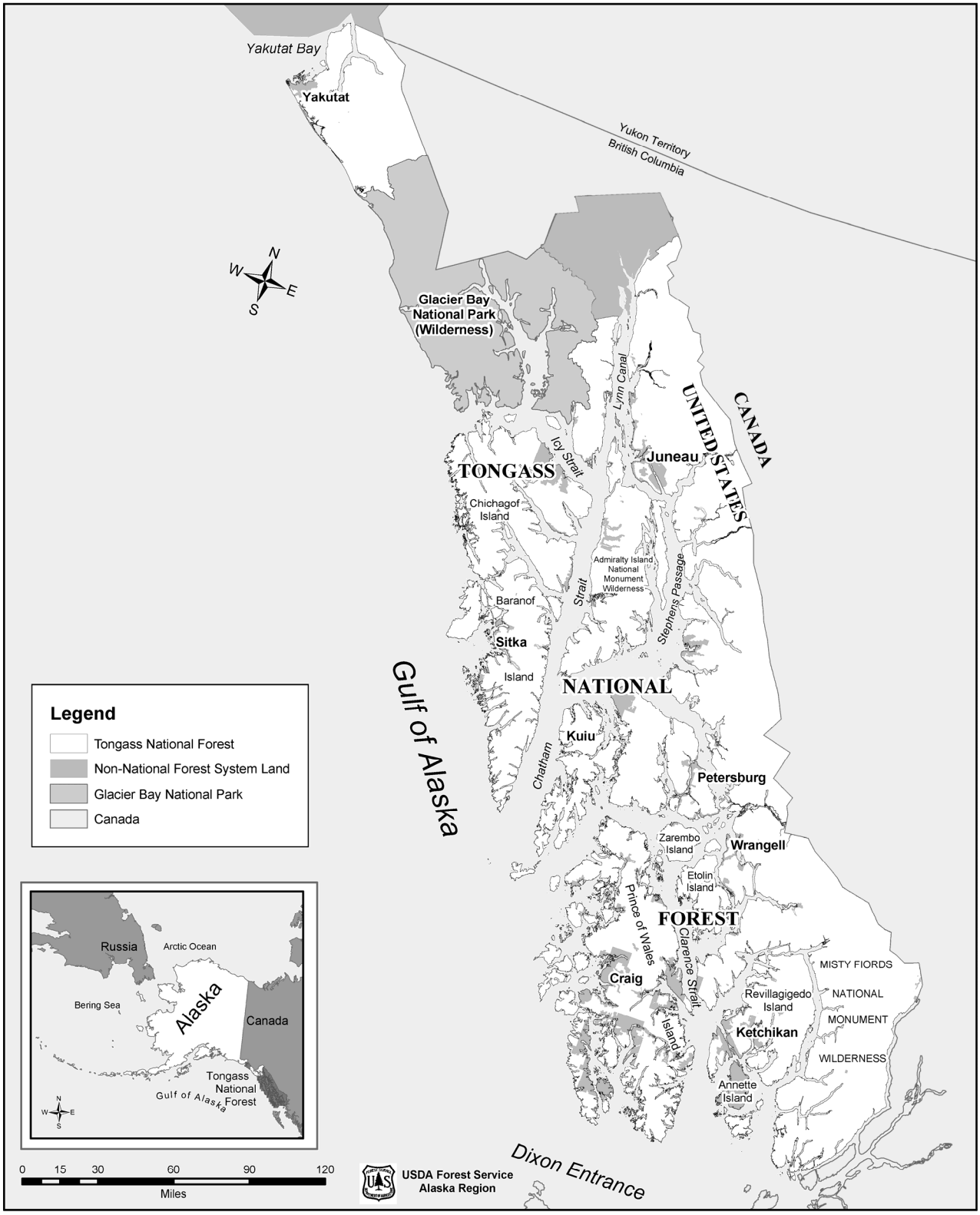

Figure 1-1
Tongass National Forest Vicinity Map

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CHAPTER 2
GOALS AND OBJECTIVES

CONTENTS

Chapter 2

Goals and Objectives

Introduction

The management direction for the Forest is described under the section titled "Forest Plan Management Direction" in Chapter 1. This chapter presents the Plan's desired conditions for the Forest and the Forest-wide goals and objectives. Achievement of the goals and objectives is subject to all applicable management standards and guidelines, as are presented in Chapters 3 and 4, and will be strongly influenced by annual budget direction and fiscal limitations.

Forest Desired Conditions

Desired landscape attributes describe the mosaic of land and resource conditions envisioned for the Forest in the future. They are attained through Forest-wide multiple-use goals and objectives, and through the cumulative achievement of the goals, objectives, and desired conditions for each of the 18 individual Land Use Designations (LUDs) described in Chapter 3. The Forest's desired landscape attributes are described below.

- The Forest is managed to produce desired resource values, products, services, and conditions in ways that also sustain the diversity and productivity of ecosystems.
- The Forest is characterized by extensive, unmodified natural environments. Old growth is the predominant vegetative structure on the Tongass. Large areas of previously harvested stands now support young growth that are trending towards mature, old-growth forest conditions. Connections between patches of old growth are evident. On those portions of the Forest available for harvest activities, stands contain a variety of tree ages ranging from 0 to 300+ years. Some stands contain trees of uniform height and size, while other stands contain trees with a variety of sizes and heights. Endemic levels of insect and disease perform their natural role in the ecosystem.
- Viable populations of native and desired non-native species and their habitat are maintained and are not threatened by invasive species. Viable populations of sensitive and rare species and their habitats are considered and maintained as to preclude the need for listing species as threatened or endangered. There are no threatened or endangered species on the Forest.
- Fish and wildlife habitat is maintained and improved to ensure sustainable fish and wildlife and their uses.
- A range of recreation opportunities is maintained on the Forest from primitive to more urban settings. Recreation opportunities will allow for a different type of experience in visual quality, access, remoteness, visitor management, on-site recreation development, social encounters, and visitor impacts.
- Opportunities for hunting, trapping, and viewing game species are being provided. World-class wildlife resources such as brown bears and wolves, considered threatened or endangered in the lower 48 states, are relatively abundant and available for human use and enjoyment in perpetuity.
- Overall aquatic habitat quality is considered good to excellent. Fish thrive in the Forest's lakes and streams due to good water quality and other habitat features, and provide world-class fisheries.

- Rural residents have opportunities to participate in subsistence activities and to harvest subsistence resources in accordance with the direction in the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).
- The outstanding scenery of the Forest is a major attraction for resident and non-resident recreation users; a full range of recreation opportunities is present. In some cases, scenic values from certain travel routes, trails, high vista points, or aerial observations are affected by timber harvest or mining activities. Users have the opportunity to experience independence, closeness to nature, solitude, and remoteness.
- Occasional natural catastrophic events occur; however, the condition of watersheds and riparian areas, and careful design and location of roads, minimize resource degradation due to such events.
- Areas congressionally designated as either Wilderness or LUD II will be managed consistent with their legislative intent. The desired conditions for Wilderness are as specified in Section 2 of the 1964 Wilderness Act. The desired conditions for LUD II areas are as specified in Section 508 of the 1990 Tongass Timber Reform Act (TTRA).
- The Forest is actively engaged in collaborative discussions with interested parties to resolve issues and build partnerships. Data collection, monitoring and other plan implementation work is coordinated with the State of Alaska, other federal agencies and organizations.
- The Forest is managed to sustain desired provisioning ecosystem services while preserving valuable cultural, supporting, and regulating ecosystem services.

Ecosystem Services

What are ecosystem services? Ecosystem services include the full suite of goods and services that are vital to human health and livelihood provided by ecosystems—in this case, ecosystems on the Tongass National Forest. Ecosystem services based in the Tongass benefit communities from the local to global scale: salmon from waters of Southeast Alaska are a prized food item locally and across the nation; carbon stored in forests can contribute to adding or removing atmospheric carbon dioxide; fiber from trees provides materials for traditional customs; and trees provide timber for homes. Generally, ecosystem services on the Tongass may be divided into four categories:

1. **Provisioning services** provide society with food, fresh water, fuel, and fiber.
2. **Regulating services** refer to processes affecting climate, water, disease regulation, and pollination.
3. **Supporting services** include those processes necessary for proper functioning of other services, such as soil formation and nutrient cycling.
4. **Cultural services** refer to educational, aesthetic, and cultural heritage values as well as recreation and tourism.

These categories provide a holistic framework for establishing monitoring and management operations, and encourage integration across disciplines and agencies to determine the best management decisions while moving toward the more desired conditions.

Forest-wide Multiple-use Goals and Objectives

Forest Plan goals are responsive to identified public issues and ecosystem service related opportunities, and collectively describe the desired conditions sought to be attained in the long run. Consistent with the National Forest Management Act of 1976 (NFMA) planning regulations, goals are expressed in broad, general terms and specify no date by which they are to be accomplished. Complementary goals are listed under the Management Prescriptions in Chapter 3 for each LUD. Taken and considered together, goals represent management from an "ecosystem" perspective, where ecosystems are considered from the "site" to the "Forest" level.

Goals are achieved through the allocations of lands to the set of LUDs, implementation of the standards and guidelines specified for the LUDs, and other activities conducted on the Forest. The management objectives are expected to be achieved during the 10- to 15-year life of this Plan to help accomplish Plan goals. Additional objectives to help accomplish the goals are listed under the Management Prescriptions presented in Chapter 3, and in the Resource Schedules contained in Appendix J.

Resources in this Plan fall into one of three groups of ecosystem services: natural capital, built capital, and human capital.

1. **Natural capital** includes ecosystem services and other goods derived from the Forest.
2. **Built capital** includes structures and functions provided by the Forest Service in administering and managing the Tongass.
3. **Human capital** refers to functions and activities employed by people, for people, who have direct contact with the Forest.

The natural capital group comprises the largest subset of resources described in this document, but the Forest does prioritize certain built and human capital resources in this Plan, and these are highlighted here as well.

Category	*Goal*	*Objective*
Air	Maintain the current air resource condition to protect the Forest's ecosystems from on- and off-Forest air emission sources.	Attain national and state ambient air quality standards Forest-wide.
Biodiversity	Maintain ecosystems capable of supporting the full range of native and desired non-native species and ecological processes. Maintain a mix of representative habitats at different spatial and temporal scales.	Maintain a Forest-wide system of old-growth and other Forest habitats (includes reserves, non-development LUDs, and beach, estuary, and riparian corridors) to sustain old-growth associated species and resources. a) Ensure that the reserve system meets the minimum size, spacing, and composition criteria described in Appendix K. b) Provide sufficient habitat to preclude the need for listing species under the Endangered Species Act, or from becoming listed as Sensitive due to National Forest habitat conditions. c) Manage the Forest in order to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species. d) Develop a baseline estimate of current habitat types, patterns and structural components on the Tongass National Forest. e) Restore watersheds to provide healthy, diverse terrestrial and aquatic habitat.
Fish	Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.	Use baseline fish habitat objectives (identified in Fish Forest-wide Standards and Guidelines) to evaluate the relative health or condition of riparian and aquatic habitat. Design and implement fish habitat improvement projects annually across the Forest.
Heritage Resources	Identify, evaluate, preserve, and protect heritage resources.	Protect heritage resources (as described in the Heritage Resources Forest-wide Standards and Guidelines). Provide public outreach about heritage stewardship.

Category	Goal	Objective
Karst and Cave Resources	Maintain, to the extent practical, the natural karst processes and the productivity of the karst landscape while providing for other land uses where appropriate.	Allow for the continuation of natural karst processes. Maintain the productivity of the karst landscape while providing for other land uses, where appropriate. Manage lands in a manner that protects significant caves and their associated resources.
Local and Regional Economies	Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.	Work with local communities to identify rural community assistance opportunities and provide technical assistance in their implementation. Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.
Minerals and Geology	Provide for environmentally sound mineral exploration, development, and reclamation in areas open to mineral entry and in areas with valid existing rights that are otherwise closed to mineral entry. Seek withdrawal of specific locations where mineral development may not meet LUD objectives. Maintain inventory of surficial geology, geomorphic features, geologic hazards, and paleontological resources.	Implement the Minerals and Geology Forest-wide Standards and Guidelines.
Plants	Maintain viable plant communities and populations; maintain a mixture of habitats that are capable of supporting the full range of naturally occurring flora, including a variety of vegetation types, botanical life forms, patterns, structural components, and the consideration of rare species.	Prevent species from becoming listed as threatened, endangered, or sensitive.

Category	Goal	Objective
Recreation and Tourism	Provide a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry.	Manage the Forest's recreation settings in accordance with the Recreation Opportunity Spectrum Standards and Guidelines for each LUD. Maintain existing Forest Service system trails to a standard that provides for the health and safety of all users. Construct or reconstruct trails to encourage a healthier lifestyle for the public. Emphasize projects that facilitate community use or community connections. Maintain existing recreation sites and facilities to provide for the health and safety of all users. Construct or reconstruct facilities in locations where the need for the facilities are supported by either known use, partnerships for long-term maintenance, or repeated safety concerns. Remove facilities that are no longer needed or are not affordable.
Research	Continue to seek out and promote research opportunities that are consistent with identified information needs.	Cooperate with the Pacific Northwest Research Station and the State of Alaska in pursuing the high priority information needs.
Sacred Sites	Consult with tribes to protect and maintain sacred sites Forest-wide.	Manage and protect sacred sites as an integral part of the landscape and land management planning (as described in the Heritage and Sacred Sites Forest-wide Standards and Guidelines).
Scenery	Provide Forest visitors with visually appealing scenery, with emphasis on areas seen along the Alaska Marine Highway, tour ship and small boat routes, state highways, major Forest roads, and from popular recreation places; recognize that in other areas where landscapes are altered by management activities, the activity may visually dominate the characteristic landscape.	Manage the scenery of the Forest in order to achieve the adopted Scenic Integrity Objectives.

Category	Goal	Objective
Soil and Water	Maintain soil productivity Forest-wide and minimize soil erosion resulting from land-disturbing activities.	Meet Alaska Regional soil quality standards.
		Attain State of Alaska water quality standards Forest-wide.
	Minimize sediment transported to streams from land-disturbing activities.	Complete Hydrologic Condition Assessments and Restoration Plans for priority watersheds.
	Maintain and restore the biological, physical, and chemical integrity of Tongass National Forest waters.	Complete watershed restoration projects in conjunction with Integrated Resource Program (see Appendix J).
Subsistence	Provide for the continuation of subsistence uses and resources by all rural Alaskan residents.	Evaluate and consider the needs of subsistence users in making project land management decisions.
Timber	Provide for the continuation of timber uses and resources by the timber industry and Alaska residents.	Pre-commercial thin previously harvested suitable forest land.
		Evaluate non-clearcutting silvicultural systems.
	Manage the timber resource for production of saw timber and other wood products from suitable forest lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.	Seek to provide an economic timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle, up to a ceiling of this Plan's allowable sale quantity, which is 2.67 billion board feet in the first decade.
		Manage young growth to improve habitat for wildlife and commercial timber products. Review standards and guidelines for applicability to young-growth stands.
		Provide 2 to 3 years supply of volume under contract to local mills and then establish shelf volume to maintain flexibility and stability in the sale program.
		Review the timber sale program and work with the state and other partners to implement changes that will keep an "economic timber" perspective throughout the process and monitor the implementation of these reforms to ensure they are consistently employed across the Forest.

Economic timber is defined as a sale of timber wherein the average purchaser can meet all contractual obligations, harvest and transport the timber to the purchaser's site, and have a reasonable certainty of realizing a profit from the sale.

Category	Goal	Objective
Transportation	Develop and manage roads and utility systems to support resource management activities; recognize the potential for future development of major Transportation and Utility Systems.	Provide access for Forest users. Design and construct roads in support of Forest resource management activities. Decommission roads that are no longer needed or are not affordable. Manage and maintain roads to protect water, soil, fish, and wildlife resources.
Wetlands	Minimize the destruction, loss, or degradation of wetlands, and preserve and enhance wetland functions and values.	Avoid alteration of, or new construction on wetlands, wherever there is a practicable, environmentally preferred alternative. Implement Best Management Practices and Estuary, Riparian, Soil, and Water Standards and Guidelines specific to wetlands.
Wild and Scenic Rivers	Maintain the outstandingly remarkable values and the free flowing conditions of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.	Manage the 31 rivers (or segments) recommended for designation as Wild, Scenic, and Recreational, pending designation by Congress, to maintain the eligibility of the total miles of river for the following recommended classifications: Wild 359.5 miles Scenic 87.5 miles Recreational 89.0 miles
Wilderness	Manage designated Wilderness to maintain an enduring wilderness resource while providing for the public purposes of recreational, scenic, scientific, educational, conservation, and historical use, as provided in the Wilderness Act of 1964 and ANILCA.	Provide for public use of the Wilderness in accordance with ANILCA provisions for motorized and non-motorized access and travel, including reasonable traditional subsistence use by rural residents. Provide trails and primitive facilities that are in harmony with the natural environment and that promote primitive recreation opportunities. Feature facilities designed primarily to provide resource protection and encourage smaller group size. Facilities and trails tend to allow for challenge and risk instead of convenience. Maintain the wilderness to provide information on natural ecological processes. Preserve and perpetuate biodiversity. Inventory and reduce or eliminate invasive species in Wilderness. Manage Wilderness as a place where self reliance and primitive skills are needed and can be honed by the general public.

Category	Goal	Objective
Wildlife	Maintain the abundance and distribution of habitats, especially old-growth forests, to sustain viable populations in the planning area.	See biodiversity objectives. Design and implement structural and non-structural wildlife habitat improvement projects.
	Maintain habitat capability sufficient to produce wildlife populations that support the use of wildlife resources for sport, subsistence, and recreational activities.	Include a young-growth management program to maintain, prolong, and/or improve understory forage production, and to improve habitat distribution, including future old-growth characteristics in young-growth timber stands for wildlife (e.g., deer, moose, black bear, and other species) on both suitable and unsuitable lands.

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CHAPTER 3
MANAGEMENT PRESCRIPTIONS

CONTENTS

Chapter 3

Management Prescriptions

Introduction

Chapters 2, 3, and 4 of the Forest Plan present the direction for managing the Tongass National Forest. The components and priority of this direction are explained in Chapter 1. This chapter includes the complete management prescription for each of the 19 Land Use Designations (LUDs) used in the Forest Plan. The areas allocated to each LUD are shown on the Forest Plan map. These prescriptions only apply to NFS lands within the areas allocated to each LUD.

To use this management prescription section, first find the area of the Forest you are interested in on the map. The map legend shows the name and corresponding color of each LUD. Then locate the management prescription for that designation (they have the same name) in the table of contents of this Plan.

Each management prescription has the following components:

1. Goals, objectives, and desired condition.

2. A table that refers, by resource, to the Forest-wide Standards and Guidelines that apply. The Forest-wide Standards and Guidelines are included in Chapter 4. If a reference is not made in this table to a specific Forest-wide Standard and Guideline, that Standard and Guideline is not applicable.

3. The specific direction, called LUD Standards and Guidelines. The LUD Standards and Guidelines are grouped by resource, following the order established for the Forest-wide Standards and Guidelines. Resource codes are the same for both sets of standards and guidelines. For example, FIRE1 in Chapter 4 refers to direction for fire suppression; therefore, specific direction for fire suppression in the Wilderness LUD is also labeled FIRE1. Some resources are not included in the LUD Standards and Guidelines. In that case, resource direction entirely defaults to the Forest-wide Standards and Guidelines listed in the table described above in 2.

Land Use Designation Acreage

The following table shows the number of acres allocated to each LUD. The first column of numbers presents the total number of acres allocated to each LUD; summing these acres will exceed the National Forest acreage because more than one LUD can be applied to the same area (e.g., a Special Interest Area within Wilderness). Therefore, the second column of numbers counts each acre of the Tongass only once and associates each acre with only one LUD (see the table footnotes). For LUDs that allow timber harvest (e.g., Timber Production), many of the acres are unsuitable for commercial timber production. Table A-1 in Appendix A shows the actual number of suitable acres on the Forest.

Land Use Designation Allocations

Land Use Designation	Total Acres Allocated to Each LUD[1]	Total Acres Allocated to Each LUD without Overlays[2]
Wilderness LUD Group		
Wilderness	2,637,292	2,637,292
Wilderness National Monument	3,111,792	3,111,792
Nonwilderness National Monument	166,942	166,942
Total for Wilderness LUD Group		**5,916,026**
Natural Setting LUD Group		
LUD II	721,002	721,002
Remote Recreation	2,033,665	2,033,665
Semi-Remote Recreation[3]	3,023,152	3,023,152
Old-Growth Habitat	1,221,173	1,221,173
Enacted Municipal Watershed	45,226	45,226
Research Natural Area	58,788	26,093
Special Interest Area	342,137	221,176
Wild River	192,463	62,799
Scenic River	27,133	27,133
Recreational River	27,387	27,387
Total for Natural Setting LUD Group		**7,408,806**
Development LUD Group		
Experimental Forest[4]	31,405	31,405
Scenic Viewshed	307,402	307,402
Modified Landscape	728,679	728,679
Timber Production	2,381,486	2,381,486
Total for Development LUD Group		**3,448,972**
Overlay LUD Group[5]		
Minerals	249,570	0
Transportation and Utility Systems	--	0
TOTAL NATIONAL FOREST SYSTEM LAND		**16,773,804**

[1] This column includes the total acreage allocated to each LUD. However, in some cases, more than one LUD can be applied to the same area (such as a Special Interest Area within Wilderness); therefore, totaling the acres of this column will exceed the total National Forest acreage.

[2] This column counts each acre of the Tongass only once. It includes the total areas allocated to each LUD, except for five LUDs that sometimes overlay other LUDs. The Research Natural Area, Special Interest Area, and Wild River LUDs sometimes overlay Wilderness, Wilderness National Monument, or LUD II; when this occurs, the acreage is included under these other LUDs (so as not to double count). Also, the Minerals and Transportation and Utility Systems LUDs always function as overlays and do not have acreage in this column.

[3] The acreage figure for this LUD includes 6,544 acres currently allocated to Experimental Forest, but proposed to be converted to Semi-Remote Recreation.

[4] The acreage figure for this LUD includes 20,853 acres currently allocated to Scenic Viewshed, but proposed to be converted to Experimental Forest.

[5] The two LUDs in this group are always overlay LUDs. Areas allocated to these LUDs are managed according to the underlying LUD until such time that mineral or transportation/utility development is approved, if at all. The Minerals overlay LUD has an area (249,570 acres) associated with it; no acreages are calculated for the Transportation and Utility Systems LUD because it is defined as a series of corridors of undefined width and imprecise locations.

Special Designations or Classifications

The following listing shows, by name, the areas of the Forest identified as Congressionally designated Wilderness and LUD IIs; Wild, Scenic, and Recreational Rivers (recommended); Research Natural Areas; Special Interest Areas; and Experimental Forests.

Congressionally Designated Wilderness and LUD IIs
Wilderness established December 2, 1980, by the Alaska National Interest Lands Conservation Act (ANILCA)

Kootznoowoo Wilderness (Admiralty Island Nat. Monument)
Coronation Island Wilderness
Endicott River Wilderness
Maurelle Islands Wilderness
Misty Fiords National Monument Wilderness
Petersburg Creek-Duncan Salt Chuck Wilderness
Russell Fiord Wilderness
South Baranof Wilderness
South Prince of Wales Wilderness
Stikine-LeConte Wilderness
Tebenkof Bay Wilderness
Tracy Arm-Fords Terror Wilderness
Warren Island Wilderness
West Chichagof-Yakobi Wilderness

Wilderness established November 28, 1990, by the Tongass Timber Reform Act, which amended ANILCA to include these Wilderness areas

Chuck River Wilderness
Karta Wilderness
Kuiu Wilderness
Pleasant-Lemesurier-Inian Islands Wilderness
South Etolin Wilderness
Young Lake Addition to Kootznoowoo Wilderness

LUD IIs established November 28, 1990, by the Tongass Timber Reform Act

Anan Creek
Berners Bay
Kadashan
Lisianski River/Upper Hoonah Sound
Mt. Calder/Mt. Holbrook
Naha
Nutkwa
Outside Islands
Point Adolphus/Mud Bay
Salmon Bay
Trap Bay
Yakutat Forelands

Wild, Scenic, and Recreational Rivers
The following rivers or river segments, as described in Appendix A of the 1997 Record of Decision (ROD), including the segment classifications, have been recommended to Congress for inclusion in the National Wild and Scenic Rivers System:

River or River Segments	Miles of River Classification		
	Wild	Scenic	Recreational
Aaron, Oerns, and Berg Creeks		21	16
Anan Creek	17.5	0.5	
Blind River			5
Blue River	26		
Chickamin River	94	2	
Essowah Lakes and Streams	13		
Fall Dog Creek	4		
Farragut River	29	1	
Gilkey River	9		
Glacial River	10		
Gokachin, Mirror, Fish, and Low Creeks	30		
Harding River		16	
Hasselborg River and Lakes	24		
Kadake Creek			23
Kadashan River		8	
Kah Sheets Creek and Lake	5	4	
Katzehin River	10		
Kegan Lake and Streams	9		
King Salmon River	8		
Kutlaku Creek and Lake	2		
LeConte Glacier	6		
Lisianski River	5		
Naha River	17	2	
Orchard Creek and Lake	10		16
Petersburg Creek	7		
Salmon Bay Lake and Stream	4	2	
Santa Anna Creek and Lake Helen		4	
Sarkar Lakes	14	3	2
Thorne River and Hatchery Creek		24	18
Virginia Lake and Creek			9
Wolverine Creek and McDonald Lake	6		

Research Natural Areas
The following areas will continue to be managed as established Research Natural Areas:

Cape Fanshaw Research Natural Area
Dog Island Research Natural Area
Limestone Inlet Research Natural Area
Old Tom Creek Research Natural Area
Red River Research Natural Area
Kadin Island
Marten River
Rio Roberts
Robinson Lake
Tonalite Creek
Warm Pass
West Gambier Bay

Special Interest Areas
The following areas will continue under a Special Interest Area classification:

Admiralty Lakes Recreation Area
Bailey Bay Hot Springs Recreation Area
Blind Slough Scenic and Zoological Area
Blue River Lava Flow Geological Area
Clear River Zoological Area
Duke Island Zoological Area
Falls Creek Windthrow Botanical Area
Fish Creek Hot Springs Recreation Area
Hubbard Glacier Geological Area
Karst Areas Geological Area (see expansions below)
Keku Islets Geological and Scenic Area
Mendenhall Glacier Recreation Area
Mount Edgecumbe Geological Area
Naha Recreation Area
New Eddystone Rock Geological Area
North Hamilton River Redcedar Cultural and Botanical Area
Pack Creek Zoological Area
Patterson Glacier Geological and Botanical Area
Pike Lakes Recreation Area
Soda Springs Geological Area
Suemez Island Geological Area (see expansion below)
Tracy Arm-Fords Terror Scenic Area
Walker Cove-Rudyerd Bay Scenic Area
Ward Lake Recreation Area (including expansion)

The following areas are classified as Special Interest Areas by the 2008 amendment (see Appendix L) and designated as named below:

Big Creek Geological Area
Blake Channel Geological Area
Calamity Creek Caves Geological Area
Dall Island Geological Areas (includes part of former Karst Geological Area)
Eastern Chichagof Geological Areas
Heceta Island Geological Area
Kosciusko Island Geological Areas
North-central Prince of Wales Geological Areas
Northern Prince of Wales Geological Areas (includes part of former Karst Geological Area)
Suemez Island Volcanics Geological Area (expansion of existing Suemez Island Geological Area)

Experimental Forests
The existing Maybeso Experimental Forest will continue to be managed as an Experimental Forest.

The existing Young Bay Experimental Forest is recommended for declassification as an Experimental Forest.

The following area is recommended for classification as an Experimental Forest: Cowee-Davies Experimental Forest

Map Errata

The Tongass Forest Plan LUDs were developed using small-scale Tongass-wide Forest maps similar to those included in the map packets of the Draft and Final EISs. The level of accuracy of a map at such a scale is approximately +/- 500 feet. Enlargements of this map were also sometimes used in LUD development, but these maps contained no additional detail or accuracy; they were just larger scale. This approach is appropriate for the development of a Forest Plan map, which is a permissive, zoning map. It is the role of subsequent project planning to resolve, within the overall intent of the Forest Plan mapped LUDs, the actual location of activities on the ground. In some situations, there is a lack of precise map correlation or registration of a LUD boundary between two GIS maps. Most of these variations are minor, and are due to the combining of map covers of varying resolution. This situation results in remnants, or "slivers" of small acreages of land appearing on the maps between mapped polygons. In other situations during project planning LUD boundaries may be indefinite or illogical if located literally on the ground as depicted on the FEIS map. In some instances boundaries may appear to bisect an existing or mapped harvest unit; or, while paralleling an existing or mapped road, boundaries may appear to cross and recross the road randomly.

Dealing with these types of map inconsistencies is not considered to be a "change" in the Forest Plan. These are considered to be the correction of errata on an as-needed basis when it occurs during project planning or other analysis. Resolution of the occurrences discussed above will be guided by:

1. Following the physical and other identifiable on-the-ground features;

2. Consider assigning the LUD that comes nearer to maintaining the natural setting of the area; or

3. Using professional management judgement regarding the resource situation, in consultation with other agencies, with documented rationale.

WILDERNESS and NATIONAL MONUMENT WILDERNESS

Goals

Manage all designated Wilderness to maintain the enduring resource of Wilderness as directed by the Wilderness Act of 1964, subject to the special provisions and exceptions in the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) and the Tongass Timber Reform Act of 1990 (TTRA).

Protect and perpetuate natural biophysical and ecological conditions and processes. Ensure Wilderness ecosystems are substantially free from the effects of civilization.

Provide a high degree of remoteness from the sights and sounds of humans, and opportunities for solitude or primitive recreation activities consistent with Wilderness preservation.

Keep Wilderness untrammeled and free from human control or manipulation, including actions taken to manage Wilderness.

Protect the undeveloped character of Wilderness by following legislative guidelines regarding permanent improvements or human occupation, including mechanized transport and motorized equipment.

Goals Specific to National Monument Wilderness

To manage the Wilderness portions of Admiralty Island and Misty Fiords National Monuments to maintain an enduring Wilderness resource, while providing for public access and uses consistent with the Wilderness Act of 1964, ANILCA, and their respective Presidential Proclamations of 1978, which designated these units as National Monuments because of their superlative combination of significant scientific and historical features.

Admiralty Island, exclusive of the Mansfield Peninsula, was designated as a National Monument for the scientific purpose of preserving intact a unique coastal island ecosystem. The goal of preservation was to ensure continued opportunities for study of Admiralty Island's ecology and its notable cultural, historical, and wildlife resources, within its relatively unspoiled natural ecosystem. Protection and study of Tlingit cultural resources, other historical resources, and brown bear and bald eagle populations are specifically directed.

Misty Fiords was designated as a National Monument to serve the scientific purposes of preserving a unique ecosystem and the remarkable geologic and biological objects and features it contains. The goal of preservation was to ensure continued opportunities for study of Misty Fiord's geology and ecology, including the complete range of coastal to interior climates and ecosystems. Protection and study of the geology, plant and animal succession, historical resources, and fish and wildlife resources are specifically directed.

Objectives

Apply a multi-disciplinary focus to Wilderness management; consider stewardship of Wilderness in the annual program of work by all resources.

Manage recreation activities so that the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Primitive Recreation Opportunity Spectrum (ROS) Class are emphasized (see Chapter 4, Recreation and Tourism and Appendix I). Areas managed as Semi-Primitive within a Wilderness are an exception and not encouraged.

Provide for public uses of Wilderness as authorized in the Wilderness Act, but subject to ANILCA provisions for motorized and non-motorized access and travel, including reasonable traditional subsistence use by rural residents, and provisions of other applicable Wilderness designation acts.

Maintain trails and primitive facilities that are in harmony with the natural environment and that promote primitive recreation opportunities. Feature facilities designed primarily to provide resource protection and encourage smaller group size, and emphasize challenge and risk instead of convenience.

Maintain the Wilderness capacity to provide information on natural ecological processes.

Preserve and perpetuate biodiversity.

Inventory, reduce, and, when possible, eliminate non-native species in Wilderness.

Manage Wilderness as a place where self-reliance and primitive skills are needed and can be honed.

Objectives Specific to National Monument Wilderness

Inventory, research, protect, and interpret National Monument resources as directed by Monument designation consistent with Wilderness management practices.

Make resource and research information about the National Monuments available to other forest units where it may be beneficial for management of multiple use lands.

Desired Condition

All designated Wilderness on the Tongass National Forest is characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not measurably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance, challenge, and risk. Motorized and mechanized use is limited to the minimum needed for the administration of the Wilderness. Allow for access to state and private lands, subsistence uses, and public access and other uses to the extent provided for by ANILCA.

Desired Condition Specific to National Monument Wilderness

The purposes of National Monument designation are fulfilled by protecting and learning more about the special resources they contain. Appropriate research is encouraged and supported within the constraints of Wilderness designation, and contributes to both the purposes of the Wilderness National Monuments and improved management of other forest lands. Appropriate interpretive and educational efforts allow the public to better understand the resources of these special areas and to appreciate how these areas fit into the local, regional, and even global context of geology, ecology, and human history.

The Wilderness portions of Admiralty Island and Misty Fiords National Monuments are characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not measurably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance, challenge, and risk. Motorized and mechanized use is limited to the minimum needed for the administration of Wilderness. Allow for access to state and private lands, subsistence uses, and public access and other uses to the extent provided by ANILCA. If not specifically provided through an ANILCA exception, the resources within a designated Wilderness shall be administered in accordance with the applicable provisions of the Wilderness Act.

Wilderness and National Monument Wilderness Land Use Designations
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I
Facilities	FAC	All
Fire	FIRE1	All
Fish	FISH	All
Forest Health	HEALTH1	I(B:1;C)
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND1, 3, 4, 6	All
	LAND2	I(A:1-13),VII,IX
	LAND5	I(A)
Minerals and Geology	MG1	All
	MG2	I,III,IV,VI,VII
Plants	PLA	All
Recreation and Tourism	REC1	All
	REC2	I,II(A),III
	REC3	I,II,III(B),IV-VII
Riparian	RIP1	All
	RIP2	I,II(A-E)
Rural Community Assistance	RUR	All
Scenery	SCENE1	All
	SCENE2	I,II(A,E)
	SCENE3	I(B,D),II
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,B-F),II
Subsistence	SUB	All
Timber	TIM2,5	All
Trails	TRAI1	I(A-E;F:1,3,5,6)
	TRAI2	All
Wetlands	WET	All
Wildlife	WILD1	I-V; VI(A,B,C,E); VII; VIII; IX(A:1-3,5-8,11,B); X; XI(A:1); XII-XIV; XVI(A:1)
	WILD2	I(A:1,B)
	WILD4	All

Apply the following LUD Standards and Guidelines:

AIR

Air Resource Inventory: AIR1

A. Air Quality monitoring will be accomplished in accordance with specific District- or Forest-level plans and strategies.

FACILITIES

Administrative Facilities: FAC1, FAC2, FAC3, and FAC4

A. Construct no new permanent administrative facilities in Wilderness, except as consistent with ANILCA, Sections 1303, 1306, 1310, and 1315, and other applicable Wilderness designation acts.

B. Allow the continued operation and maintenance of permanent administrative facilities for which there is an ongoing need (ANILCA, Section 1306 (b)).
   1. When reconstruction of existing permanent administrative structures is necessary, reconstruct or replace them with structures of compatible design.
   2. During reconstruction and maintenance activities:
      a) Paint or stain structure to blend with the environment;
      b) Keep clearing of vegetation to the minimum feasible; and
      c) Select materials that are natural in appearance.

C. Allow temporary facilities and crew barges for administration.
   1. Temporary administrative camps used by Wilderness rangers, trail crews, or for other administrative activities should avoid areas used for camping by the general public and should be screened from view.
   2. Temporary administrative camps may remain in place only during periods required for the administrative activity. All equipment and materials will be removed or collapsed and laid flat at the end of the field season or during other extended periods of non-use.
   3. Temporary camps will seek to achieve minimum impact on the land. There will be no permanent foundations or anchors, and only minimal clearing of vegetation at campsites.
   4. Crew barges should be located in unobtrusive locations. They may be periodically moved and relocated to support administrative needs.

D. Allow administrative use of public cabins and shelters in Wilderness. When scheduling, avoid conflict with public use.

E. When necessary, allow radio repeaters to provide essential communications for the health and safety of employees involved in the administration of the area. Allow permanent radio repeaters currently located in Wilderness to remain.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.

B. Emphasize suppression tactics resulting in the least possible disturbance or evidence of human presence.
   1. Use of mechanized equipment requires approval by the Forest Service officer with delegated authority.
   2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
   3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. As a general management practice, do not use management-ignited prescribed fire. Should it become necessary to consider the use of management-ignited prescribed fire, Forest Service Manual (FSM) 2324 provides direction.

B. As a general management practice, allow natural fires in accordance with fire management plans specific to the area. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

Planning

A. Plan for fisheries in Wilderness consistent with ANILCA, Section 1315(b), which recognizes the goal of restoring and maintaining fish production in the State of Alaska to optimum sustained yield levels and in a manner that adequately ensures protection, preservation, enhancement, and rehabilitation of the Wilderness resource. Subject to reasonable regulations, permanent improvements and facilities such as fishways, fish weirs, fish ladders, fish hatcheries, spawning channels, stream clearance, egg planting, and other accepted means of maintaining, enhancing, and rehabilitating fish stocks may be permitted. For this purpose, optimum sustained yield levels will be considered synonymous with the long-term harvest goals documented in the State of Alaska Comprehensive Salmon Plans and other state fisheries plans. (Consult R-10 supplements to FSM 2632 and FSM 2320 for further details.)

B. Determine the need for Wilderness aquaculture projects (as described in ANILCA, Section 1315(b)) on a broad basis that includes the potential of private, state, and federal nonwilderness projects.

C. Evaluate fish habitat improvement during project planning by considering: 1) availability of suitable nonwilderness opportunities that should be used first; 2) effects on Wilderness conditions, in general; 3) effects resulting from the introduction of species not indigenous to the watershed; 4) the appropriateness of structures both in type and scale to the desired future condition for the Wilderness and the ROS class setting; and 5) the need to provide well-distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.

D. In planning, stress protection of fish habitat to prevent the need for mitigation.

Fish Habitat Improvement: FISH3

A. Construct facilities in a rustic manner to blend into the natural character of the area and limit facilities to those essential to the project (ANILCA, 1315(b)). Methods for the installation of any feature or facility will apply the minimum requirement concept to management activities that affect the Wilderness resource and character by conducting a minimum requirements analysis (FSM 2322.03).

B. Permit reasonable access, including the temporary use of motorized equipment, subject to reasonable regulation to maintain the Wilderness character, water quality, and fish and wildlife values of the area.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Allow natural occurrences to play their normal role in ecological succession.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible insect and disease outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Enhancement

A. Heritage resources are available for scientific study to the extent that the study is consistent with 1) the preservation of Wilderness; 2) the intent of the Wilderness Act; and 3) heritage resource management objectives.

B. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with management of Wilderness.

1. Provide interpretive information concerning heritage resources to users in the form of exhibits and publications outside of the Wilderness.

Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, and protection within the Wilderness.
   1. Identify heritage properties to be nominated to the National Register of Historic Places.
   2. Identify, classify, and evaluate known heritage resources.
   3. Identify heritage properties that require stabilization or other protective measures.

INVASIVE SPECIES

Invasive Species Monitoring and Treatment: INV2 and INV3

A. Non-native, invasive species monitoring and treatment will be accomplished in accordance with specific District- or Forest-level plans and strategies.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. A cave management plan will be developed prior to the authorization of appropriate, allowed activities inside caves. Activities include agency interpretation, commercial use, or scientific investigation.
B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (non-recreation): LAND2

A. Authorize only activities that are consistent with the Wilderness Act or specifically allowed by ANILCA, or other applicable Wilderness designation acts, and are otherwise in compliance with management direction of this plan. (Consult FSM 2700, FSM 2320, and Regional Supplements.)
   1. Analyze proposals on a case-by-case basis.
   2. Permit only activities consistent with the goals, objectives, and desired conditions for Wilderness.
   3. Integrate special use management with the ROS so that approved uses and activities emphasize the most primitive ROS class setting.
   4. Avoid authorizing uses that are not dependent upon Wilderness resources or uses for which reasonable alternative locations exist outside the Wilderness.
   5. Utilize cost-recovery direction to process applications.
B. New special use cabins and related structures may be permitted by the Forest Service officer with delegated authority in accordance with Section 1303(b)(1) of ANILCA under the conditions described below.
   1. The permit is nontransferable and limited to a 5-year term.
   2. The determination is made that the proposed use, construction, and maintenance of the structure(s) are consistent with the goals, objectives, and desired conditions for Wilderness.
   3. The determination is made that the proposed cabin is either directly related to the administration of the Wilderness or the continuation of an ongoing use otherwise allowed in the Wilderness, where a) the applicant has no reasonable alternative site for constructing a cabin; and b) the cabin is not to be used for private recreational use.
   4. The United States shall retain ownership of the cabin and related structures.

5. To qualify, an applicant must:
   a) Agree to vacate the structure(s) and remove all personal property upon nonrenewal or revocation of the permit within a reasonable time period established by the District Ranger or Monument Ranger;
   b) Acknowledge in writing that they have no interest in the real property on which the structure(s) are constructed and that any cabin or related structure constructed under the authority of the Special Use Authorization shall be the property of the United States; and
   c) Submit with their applications a sketch or photograph and a map of the proposed structure(s) showing the specific geographical location.
6. Special Use Permits will contain the following provision: "Chainsaws, generators or other motorized equipment shall not be used in the permit area unless specifically approved by the Regional Forester."

C. Cabins and related structures that were in place on December 2, 1980, for which a valid authorization does not exist, may be authorized with a non-transferable renewable 5-year Special Use Authorization by the Regional Forester for traditional and customary uses if the use is compatible with the Wilderness. No permits shall be issued for private recreational use. These permits shall be renewed until the death of the last immediate family member using the cabin as a dwelling. Revocation of the permit must be by the Regional Forester, after notice and hearing establish that continued use is causing, or may cause, significant harm to the Wilderness (ANILCA, 1303(b)).
   1. To qualify for an authorization, the applicant must:
      a) Demonstrate by affidavit, bill of sale, or other documentation, proof of possessory interests or rights of occupancy in the cabin;
      b) Submit a list of all immediate family members;
      c) Submit a sketch or photograph and a map of the cabin and related structures showing its geographic location;
      d) Agree to vacate all structures and remove all personal property within a reasonable time period established by the District Ranger or Monument Ranger; and
      e) Acknowledge, in writing, that there is no interest in the real property on which the cabin and structures are located.
   2. The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities in the permitted area for a period not to exceed the termination or the revocation of the authorization. Authorized ground equipment includes chainsaws, generators, power brushcutters, and other hand-held tools and appliances, but do not include all-terrain vehicles, motorcycles, or other types of off-highway vehicles (OHVs), except snowmachines. Power lawnmowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as Wilderness.
   3. Cabins and associated structures that do not qualify for Special Use Authorization shall be removed by the owner unless accepted as a donation to the United States. Cabins that remain will be posted as property of the United States. Cabins that may be useful for emergency shelter may be designated by the Forest Service officer with delegated authority as public use cabins or posted for use as emergency public shelters.

D. Renew existing valid Special Use Authorizations for cabins, homesites, or similar structures, which were in effect on December 2, 1980, unless the Forest Service officer with delegated authority finds, following notice to the permittee and after the permittee has had a reasonable opportunity to respond, that the permitted structure constitutes a direct threat or a significant impairment to the Wilderness (ANILCA, Section 1303(d) and Section 101 (b)).

1. Authorizations in effect on December 2, 1980, will be considered for renewal in accordance with provisions of the existing authorization and reasonable regulations that may be prescribed.
2. The structures authorized by these authorizations may be maintained, rehabilitated, modified, replaced, or removed, but not enlarged.
3. All modifications and replacement plans will require form, color, and materials that blend and are compatible with the immediate and surrounding Wilderness landscape.
4. In the case of conflicts that could lead to termination of the permit, the permittee will be offered reasonable opportunity to correct the conflict.
5. The Special Use Authorization may be transferred at the election or death of the original permittee. The original permittee is the one of record on December 2, 1980. This is a transfer of the authorization in effect on December 2, 1980—not the issuance of a new Special Use Authorization. The transfer may be accomplished following the normal procedures except that the Special Use Authorization will be amended to change the name of the permittee instead of issuing a new authorization.
6. The amendment will also contain the following tenure clauses:
   a) This permit is nontransferable, and a new permit will not be issued to any subsequent owner of the improvements or to any person holding any interest in the improvements.
   b) If the present permittee, herein named, ceases to have personal need for, or to make personal use of, the site for the purpose for which the permit is issued, this permit will terminate and the structures on the area shall be disposed of as provided in the conditions of the permit.
   c) No additional improvements shall be constructed without prior written approval by the Forest Service officer with delegated authority.
   d) The use of motorized ground equipment, not designed for personal transport use, is authorized in and about authorized structures and facilities on the permitted area for a period not to exceed the termination or the revocation of this authorization. Authorized ground equipment includes chainsaws, generators, power brushcutters, and other hand-held tools and appliances, but do not include all-terrain vehicles, motorcycles, or other types of OHVs, except snowmachines. Power lawnmowers, rototillers, and other power garden equipment may be used only on existing lawns and gardens that were established prior to the designation of the area as Wilderness.

E. Provide for the continuance of existing and future establishment and use of temporary campsites, tent platforms, shelters, and other temporary facilities and equipment directly related to and necessary for the taking of fish and wildlife in accordance with ANILCA (Section 1316). Regulate these temporary facilities as follows:

1. Permits are limited to a period not to exceed 1 year, but may be renewed.

2. Authorized facilities and/or equipment must be directly and necessarily related to the taking of fish and wildlife. Permits will only be issued when the following conditions are met:
   a) The facilities are needed as a practical necessity to conduct legal hunting, trapping, and fishing activities that occur either within the Wilderness or in adjacent waters.
   b) The applicant has no feasible alternative location outside the Wilderness.
3. Does not include cabins.
4. Does not include motorized forms of transportation other than snowmachines, motorboats, or fixed-wing airplanes.
5. The specific location of temporary facilities will not cause physical resource damage, and should be located and designed to minimize conflicts with other users.
6. Tent platforms, toilets, or other constructed facilities should be located approximately 0.5 mile, or more, from popular beaches, lakes, recreational boat anchorages (both developed and undeveloped), or other special recreation places. Consider season of use, compatibility of activities, core use areas, the goals, objectives, and desired conditions for the Wilderness, consistency with the ROS setting, and other factors in assessing the 0.5-mile guideline.
7. Temporary camp facilities in Wilderness will include at least the following conditions:
   a) The time of occupancy will be limited to coincide with the hunting or fishing season for the species for which the temporary facility is being used.
   b) At the end of the specified occupancy, tents will be taken down and tent platforms laid flat. Unnecessary equipment will be removed from the site.
   c) Temporary structures will be built with materials that blend with and are visually compatible with the surrounding landscape.
   d) Temporary facilities will be screened from the water, and located so that they are unobtrusive as seen from trails and areas of public use.
8. The Forest Service officer with delegated authority may determine, after adequate public notice, that the establishment and use of new facilities or equipment would constitute a significant expansion of existing facilities or uses that would be detrimental to the purposes for which the Wilderness was established, including its wilderness character. Upon such determination, the Forest Service officer with delegated authority may deny the use or establishment of new facilities and equipment in accordance with ANILCA, Section 1316 (b).

F. Allow reasonable access to, and operation and maintenance of existing air and water navigation aids, communication sites, and related facilities, as well as existing facilities for national defense purposes, weather, climate, and fisheries research and monitoring. Allow the continuation of necessary motorized access at existing sites (ANILCA, Section 1310(a)). New facilities proposed for these activities and purposes, except communications sites, shall be permitted: 1) following consultation between the head of the federal agency undertaking the establishment, operation, or maintenance, and the Forest Service officer with delegated authority; and 2) in accordance with such terms and conditions as may be mutually agreed upon in order to minimize the adverse effects of such activities on the Wilderness resources (ANILCA, Section 1310).
   1. Perform environmental analysis to evaluate the effects of such proposals on Wilderness resources and to provide the basis for

determining the necessary terms and conditions under which the use will be permitted.

2. Mechanized transport and motorized equipment may be authorized where no other feasible alternative exists.
3. Forest Service officer(s) with delegated authority will consult with the permittees and jointly develop an operating plan, documenting procedures that will minimize impacts on the Wilderness resources without unreasonably limiting the operation and maintenance of the proposed facilities.

G. The resorts discussed below were under permit prior to the establishment of the Monument Wildernesses. They will be administered in accordance with ANILCA provisions as follows:

1. Thayer Lake Lodge. Section 503(j) of ANILCA provides that the Special Use Permit for Thayer Lake Lodge shall be renewed, as necessary, for the longest of either: 1) 15 years after December 2, 1980; or 2) the lifetime of the permittee, as designated in such permit as of January 1, 1979, or the surviving spouse or child of such permittee, whoever lives longer, so long as the management of the lodge remains consistent with the purposes of the Admiralty Island National Monument.
2. Humpback Lake Chalet. The resort Special Use Permit in existence on December 2, 1980, authorized one rental cabin and appurtenant structures on Humpback Lake within Misty Fiords National Monument Wilderness. The continuation of this use is authorized by ANILCA, Section 1307(a). The existing improvements may be maintained, rehabilitated, modified, replaced, or removed, but not enlarged. New cabin construction will not be allowed. Approval of exterior color schemes, materials, and designs shall use criteria that keep the improvements unobtrusive and compatible with the surroundings. The Special Use Permit may be revised as appropriate, but the permittee must remain Sportsman Paradise Tours, the permittee on December 2, 1980. The use shall continue to be permitted so long as it remains a public recreation rental cabin, provides adequate public service, does not significantly threaten any resource, and other terms and conditions of the permit are met.

H. Allow reasonable access to, operation, and maintenance of existing air and water navigation aids, communication sites, and related facilities, as well as existing facilities for national defense purposes, weather, climate, and fisheries research and monitoring. Allow the continuation of necessary motorized access at existing sites (ANILCA, Section 1310(a)). New facilities proposed for these activities and purposes, except communications sites, shall be permitted 1) following consultation between the head of the federal agency undertaking the establishment, operation, or maintenance, and the Forest Service officer with delegated authority; and 2) in accordance with such terms and conditions as may be mutually agreed upon in order to minimize the adverse effects of such activities on the Monument Wilderness resources.

1. Conduct environmental analysis to evaluate the effects of such proposals on Monument Wilderness resources and to provide the basis for determining the necessary terms and conditions under which the use will be permitted.
2. Mechanized transport and motorized equipment may be authorized where no other feasible alternative exists.
3. Forest Service officers with delegated authority will consult with the permittees and jointly develop Operating Plans, documenting procedures that will minimize impacts on the Monument Wilderness

resources without unreasonably limiting the operation and maintenance of the proposed facilities.

I. Wilderness is a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located in the Wilderness only after an analysis of potential TUS opportunities has been completed and no feasible alternatives exist outside the Wilderness. Refer to the Transportation and Utility section for direction. ANILCA (Section 506) includes specific exceptions for Admiralty Island National Monument Wilderness regarding the right to develop hydroelectric resources and public access and use.

J. Onshore facilities such as waterlines, storage areas, and shoreties for mariculture shall not be permitted in Wilderness.

Landline Location and Maintenance: LAND4

A. Provide adequate marking for the public and Forest Service employees to distinguish land ownership.
   1. Survey, mark, and post property lines of inholdings and adjacent private lands. Give highest priority to those landlines that are adjacent to private lands where activities or occupancies are likely to encroach into the Wilderness. The next priority is adjacent to trails, canoe routes, and other Wilderness transportation corridors or areas of frequent human use.

B. Provide adequate marking of Wilderness boundaries to prevent encroachment of non-compatible activities from adjacent public lands.

C. Determine survey, marking, and posting priorities by the degree to which adjacent land management is compatible with the adjacent Wilderness.

Land Ownership Adjustments: LAND6

A. Acquire private inholdings as opportunities arise.
   1. Acquisition of private inholdings within the Wilderness is a continuing high priority.
   2. As opportunities arise, acquire private inholdings through donation, exchange, or purchase.

MINERALS AND GEOLOGY

Minerals and Geology Administration: MG1 and MG2

Forest Lands Withdrawn from Mineral Entry

A. Forest lands within Wilderness are withdrawn from mineral entry subject to valid existing rights.

B. Claimants with valid claims located within the Wilderness retain valid existing rights if such rights were established prior to the date that Wilderness lands were withdrawn from mineral entry.

C. Permit reasonable access to mining claims in accordance with the provisions of approved Plan of Operations (ANILCA, Section 1110(b)).

D. Section 1010 of ANILCA provides for the assessment of oil, gas, and other mineral potential on all public lands in Alaska. Core and test drilling for geologic information purposes, but excluding exploratory oil and gas test wells, may be authorized within Wilderness. Air access shall be permitted for such assessment activities. Sections 503, 504, and 505 of ANILCA provide specific direction for minerals management in the National Monument.

E. Encourage use of state-of-the-art techniques for developing mineral resources to reduce impacts to Wilderness values to the extent feasible. Include mitigation measures that are compatible with the proposed development and commensurate with potential resource impacts.

F. The use of motorized equipment may be authorized. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads (ANILCA, Section 1110 (b)).

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. To the degree consistent with the Wilderness designation, provide a spectrum of wildland recreation opportunities that reflects the inherent ecological, cultural, historical, prehistorical, scientific, and sociological conditions found within the Wilderness.

B. Emphasize the management of the Primitive ROS setting that acknowledges existing opportunities, while recognizing exceptions due to ANILCA or other authorizations and development activities outside of Wilderness. Provide for the appropriate activities throughout the Wilderness. Protect the integrity of the Wilderness character through integrated project planning and implementation.
   1. Manage for the adopted ROS class where established through Wilderness plans. If adopted ROS classes do not exist for the specific Wilderness, emphasize management for the Primitive ROS class, unless activities and practices allowed by ANILCA are authorized by the Forest Service officer with delegated authority and cause change in the ROS setting(s). Seek to minimize the changes through project design and mitigation. Commercial services may be performed within the Wilderness to the extent necessary for activities that are proper for realizing the recreational or other Wilderness purposes of the area.
   2. Seek to minimize changes to the setting through project design and mitigation. Maintain the capability of the Wilderness to emphasize quality primitive recreation on a sustained basis.

C. Manage recreation activities to meet appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated for either the adopted ROS class or emphasizing the more Primitive ROS class (see “B” above). (Consult national and regional handbooks.)
   1. Group size is limited to no more than 12 persons for commercial or general public use of a Wilderness unless otherwise approved by the appropriate line officer. Exceptions may be approved by the District Ranger or Monument Ranger in response to unusual circumstances. Recurring exceptions should be justified in local area analyses or decision documents. Exceptions for general public use authorized by the Forest Plan include:
      a) The Stikine River Valley and tidal estuary below 100 feet elevation, not including Shakes Valley upstream from the outlet of Shakes Lake.
   2. Length of stay at any one location is limited to 14 days with the exception of uses approved through a Special Use Permit.
   3. At no time will caches or storage of equipment be allowed unless approved by the appropriate line officer by a special use authorization.
   4. Management restrictions on visitor behavior will be primarily for resource protection and to minimize conflicts.
   5. Work to preserve outstanding opportunities for solitude or a primitive, unconfined type of recreation experience. Use will not be encouraged into more pristine areas as a means of resolving conflicts in areas of concentrated use.
   6. Do not authorize commercial services in Wilderness with more than two groups of 12 people from a single vessel or other means of transport or access. These groups will be required to disperse out of sight and

sound from each other when using National Forest System lands to minimize impacts to a specific site or other groups who may want to use an area.

7. Encounters should be less than three groups per day to maintain the more primitive experience.

D. Where applicable, provide for general public use of the Wilderness in accordance with ANILCA provisions for the use of snowmachines (during periods of adequate snow cover), motorboats, fixed-wing airplanes, and nonmotorized surface transportation methods for traditional activities that are legal and for travel to and from villages and homesites (ANILCA, Section 1110). Designation of motorized routes for OHVs in Wilderness areas is not allowed except for instances where documented local traditional use for subsistence activities has occurred prior to ANILCA (1980), or the area is designated as a Wilderness.

1. Traditional activities include, but are not limited to, recreation activities such as sport fishing, sport hunting, boating, sightseeing, and hiking.
2. Legal traditional activities shall be allowed to continue where such use has previously occurred. No proof of pre-existing use will be required in order to use a snowmachine, motorboat, or fixed-wing airplane. No permits will be required for the general public to use these specific types of motorized transport or any nonmotorized surface transportation methods for traditional activities that are legal, unless an area is specifically closed to public use. Such use is subject to reasonable regulation by the Forest Service officer with delegated authority to protect Wilderness resources and other values from damage.
3. Restrictions or closures of specific areas within the Wilderness to transportation methods listed in "D" above, may be invoked by the Forest Service officer with delegated authority following adequate public notice and public hearing, and the determination that such use would be detrimental to Wilderness resources and values. Closure of broad areas is not contemplated.
4. Fixed-wing airplanes will be allowed to land on all suitable lakes, beaches, and icefields without a permit unless the activity (i.e., commercial use) requires a permit.
5. The landing of helicopters for access by the general public is prohibited.

E. Maintain existing public use cabins and shelters at present or improved condition. Consider additional public use cabins and/or shelters only when needed for health and safety purposes (ANILCA, Section 1315(d)).

1. Base new cabin or shelter locations on an analysis of public health and safety needs. The analysis shall include at least the following factors:
   a) Difficulty of access, particularly in regard to timely pick-up of users by floatplane or boat, or for emergency situations;
   b) Presence of natural hazards including weather, brown bears, and dangerous tide and currents;
   c) History of fatalities and life-threatening incidents in the area; and
   d) Natural attractions that entice people to use a particular area.
2. Design of new or replacement cabins or shelters will use drawings approved for use in Wilderness.
3. Appurtenant structures to the cabin or shelter will be limited to a toilet, a woodshed, and minimum structures necessary for resource protection and accessibility.
4. All structures shall be built of materials that blend with, and are compatible with, the foreground and middleground landscape surrounding the site.
5. Decisions to construct new cabins or relocate or move existing cabins must be supported by an environmental analysis.

6. The Forest Supervisor will inform Congress regarding any proposed public use cabin or shelter removal or additions (ANILCA, Section 1315(d)).
7. Report Wilderness managed to standard through INFRA each year.

F. All users will be encouraged to follow “Leave No Trace” practices. With the help of user groups, develop ways to distribute information for "Leave No Trace" practices.

G. Maintain the recreation campsite inventories to help determine changes to Wilderness character and to meet minimum stewardship levels as provided through national direction.

Outfitter/Guide Operations

A. Special Use Authorizations permitting individuals or organizations to provide visitor services in Wilderness may be issued if there is demonstrated need for the service(s) and they are deemed appropriate for the area proposed. District Rangers and Monument Rangers will maintain a record of currently active authorizations.
   1. In selecting persons to provide new visitor services, except for guided hunting and sport fishing, preference shall be given to: 1) the Native corporation most directly affected by the establishment of the subject Wilderness, and 2) local residents defined by the Secretary of Agriculture (ANILCA, Section 1307).
   2. Outfitter and guide permit holders may be authorized the use of assigned temporary campsites for specific dates within a use season. Assigned campsites shall not include structures such as tent platforms or equipment caches (except as in 3. below).
   3. Outfitter and guide services for the taking of fish and wildlife may be allowed certain temporary camp facilities by ANILCA, Section 1316. (See Lands section.)
   4. Authorize a party size of no more than 12 persons for any one site or activity. District Rangers or Monument Rangers may approve exceptions to this party size limitation in response to extremely unusual circumstances. Recurring exceptions should be justified in local area analyses or decision documents.
   5. Outfitter and guide operating plans for Wilderness direct permit holders to model appropriate Wilderness practices and incorporate appreciation for Wilderness values in their interaction with clients and others.

Recreation Special Uses

A. Major and minor developments other than those specifically provided for in ANILCA or other applicable Wilderness designation acts are illegal or not consistent with agency policy and regulations. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Design activities to not be visually evident to the casual observer.
   1. Apply Forest-wide Standards and Guidelines for the Very High or High Scenic Integrity Objective. This objective defines the maximum limit of allowable change to the visual character of the area. Less visible evidence of activities, such as those compatible with the Very High Scenic Integrity Objective, is preferred.
   2. Design allowed structures, campsites, and constructed trails to meet the Moderate Scenic Integrity Objective.

SOIL AND WATER **Watershed Resource Improvements: SW4**

A. Undertake watershed improvements only where deteriorated soil and hydrologic conditions caused by humans or their influences create a threat or loss of Wilderness values, or where such conditions could cause serious depreciation of important environmental qualities outside of the Wilderness. For exceptions, see the Fish section.
B. Whenever possible, use indigenous plant species and materials in implementing watershed improvements.

SUBSISTENCE **Subsistence: SUB**

A. Rural residents engaged in subsistence uses shall have reasonable access to subsistence resources. Appropriate use of snowmachines, motorboats, and other means of surface transportation traditionally employed for such purposes by local residents shall be permitted, subject to reasonable regulation to protect Wilderness resource values (ANILCA Section 811). The use of other mechanical/motorized equipment, such as chainsaws, is allowed by permit only.

TIMBER **Timber Resource Planning: TIM4**

A. Forested land in the Wilderness is classified as unsuitable for timber production and withdrawn from the timber base.
B. The following types of public uses may be authorized if done in a manner that minimizes impacts on the Wilderness (the use of mechanical/motorized equipment, such as chainsaws, is allowed by permit only):
    1. Commercial beach log salvage on Wilderness coastlines may be authorized in accordance with ANILCA, Section 1315(f). Require that the recovery of logs above mean high tide be conducted from the water without roads or use of vehicles on uplands. Beach log salvage is defined as the recovery of logs that have been lost in transit and washed up on beaches.
    2. Traditional personal use wood harvesting activities, primarily: a) beach logs on coastlines that can be removed without roads or use of vehicles on uplands, and b) firewood, subject to reasonable regulations to protect Wilderness resources and values. The cutting of down trees in navigable rivers (sweepers) and removal of trees from the banks is incompatible with Wilderness objectives (the main channel of the Stikine River, which is a treaty river, is an exception). Cutting of green trees (except for emergency cutting of trolling poles) will be by permit only. (Consult ANILCA, Section 1315(f) and 36 CFR 223.10.)
    3. Removal or use of trees cut as part of some other authorized administrative use within the Wilderness (e.g., clearing for a fish ladder).
    4. Trees may be cut for use in construction and maintenance of authorized structures when it is not feasible to obtain the necessary material from outside the Wilderness.

TRAILS **Trail Activities: TRAI1**

A. Provide for a diversity of outdoor recreation trail and waterway opportunities that emphasizes the Primitive ROS class, or are the minimum standard necessary to protect Wilderness values and resources. Emphasize nonmotorized and nonmechanized participation in activities such as hiking, mountaineering, spelunking, cross-country skiing, canoeing, and kayaking.
B. Emphasize primitive recreation opportunities that are in harmony with the natural environment and consistent with the intent and purposes of the

Wilderness Act and ANILCA or other applicable Wilderness designation acts.

C. Consider trail systems that:
   1. Reconstruct and maintain trails so that they appear to be part of the Wilderness environment;
   2. Create connected, multi-day trip opportunities for both land trails and water trails;
   3. Situate trailheads and access points away from concentrated use areas;
   4. Loop trail systems in connection with public use cabins;
   5. Primarily use signs for resource protection, as necessary;
   6. Install signs identifying the area as Wilderness, only as necessary, at trail junctions or trailheads; and
   7. Provide Wilderness boundary signs, where necessary, at entries to inform users of the change in management or conditions.

Trail Administration: TRAI2

A. Trails and associated waterways leading to and within Wilderness and National Monument Wilderness often become the principal management tools for achieving management objectives. Construct and maintain trails, bridges, and signs, so they:
   1. Contribute to Wilderness management goals and objectives;
   2. Emphasize the Primitive ROS setting;
   3. Appear to be part of the Wilderness environment and not an intrusion upon it (Consult the Forest Service Trails Management Handbook and the Alaska Region Trails Construction and Maintenance Guide); and
   4. Provide protection to resources (e.g., streambanks, soils, etc.).

TRANSPORTATION

Transportation Operations: TRAN

A. New roads, new motorized trails, and new airstrips are not permitted in the Wilderness, except where authorized by ANILCA and to access surrounded state and private land and valid mining claims subject to stipulations to protect Wilderness resources and values. Any transportation development in association with minerals operations will be in accordance with an approved Plan of Operations, and subsequent annual work plans.

B. Any existing roads in the Wilderness are closed to motorized uses unless authorized under ANILCA or other applicable Wilderness designation acts.

C. Allow use of snowmachines (during periods of adequate snow cover), motorboats, fixed-wing airplanes, and non-motorized methods of surface transportation for legal traditional activities and transportation to and from villages and homesites, subject to reasonable regulation. (Consult ANILCA, Section 1110(a), and Wilderness and Recreation and Tourism Sections.)

D. Provide adequate and feasible access for economic and other purposes to owners of land, including subsurface rights to land, valid mining claims, or other valid occupancies that are effectively surrounded by Wilderness.
   1. The routes and types of access shall be practical in an economic sense, but do not necessarily have to be the most economically feasible alternative.
   2. District Rangers or Monument Rangers will work with the landowner, or his/her authorized representative, to work out reasonable solutions that will meet the intent of ANILCA (Sections 1110(b) and 1323), while minimizing adverse impacts on Wilderness resources and values.

WILDERNESS **Wilderness Resource Administration: WILDER**

Wilderness Resource Management

A. Manage all designated Wilderness and Wilderness National Monument to maintain an enduring Wilderness resource as provided by the Wilderness Act of 1964, while providing for public access and uses specifically allowed by ANILCA (P.L. 96-487) or other applicable Wilderness designation acts. Consult Alaska Region Supplement to FSM 2320, as amended. Activities and practices authorized by ANILCA will be regulated or restricted in accordance with the special provisions of ANILCA.
   1. Per ANILCA (Section 506 (a)), any right or interest in land granted or reserved in paragraph (3)(A, B, and C) shall not be subject to the provisions of the Wilderness Act.

B. Identify inventory needs for all Wilderness and National Monument Wilderness to meet minimum stewardship levels per the Wilderness Act of 1964. Accomplish baseline inventory needs commensurate with other forest inventory efforts.

C. Use available opportunities to encourage and enlist public and private sector interest groups to work together in meeting Wilderness management objectives. Emphasize programs that help in educating the public in the appropriate conduct of activities and uses within Wildernesses (e.g., "Leave No Trace").

D. To the extent feasible, minimize the impacts of administrative activities on the Wilderness resources and visitors. Administrative activities include authorized use and Wilderness resource-related work being done by other agencies and cooperators. In developing project plans, follow FMS 2300, R10 ID 2300-2006-1, FMS 2322.03 or most current version, and the guidelines described below.
   1. Encourage permittees and cooperators to minimize the use of mechanized vehicles and equipment to make their presence in the Wilderness as unobtrusive as possible even though authorized.
   2. The use of mechanized transport and motorized equipment by the Forest Service and other agencies for the administration of the Wilderness should be carefully considered to determine if it is necessary. Mechanized transport and motorized equipment use is subject to the following conditions:
      a) Aircraft
         - Fixed-wing airplanes may land on all suitable lakes, rivers, beaches, and icefields.
         - The administrative use of helicopters may be allowed on a case-by-case basis after evaluation of the need and full consideration of all alternative options for access. Approval by the Forest Service officer with delegated authority is required for administrative use.
         - Established air routes will be used to the extent feasible.
         - Low flights and continuous circling should be avoided.
         - Work logistics will be planned to minimize the number of aircraft flights over the Wilderness and landings within a specific area.
      b) Motorboats on Rivers
         - Motorboats may be used on rivers for all administrative purposes under the same conditions that public use is allowed.
      c) Motorboats on Freshwater Lakes
         - Outboard motors of 10 horsepower or less may be used for administering the Wilderness, gathering firewood for public use cabins, and transporting crews and equipment on lakes. Exceptions for a larger motor may be allowed when use is

approved by the District Ranger or Monument Ranger. (Consult FMS 2322.03.)

d) Chainsaws and Power Brushers
- Use of chainsaws and power brushers is allowed for trail and cabin maintenance and firewood cutting when specially authorized in writing by the Forest Service officer with delegated authority. (Consult FMS 2322.03.)
- Use of chainsaws and power brushers is allowed for trail construction and reconstruction projects when specifically authorized in writing by the Forest Service officer with delegated authority. (Consult FMS 2322.03.)

e) Generators and Other Motorized Tools
- Generators and other motorized tools may be used for construction/reconstruction projects only when use has been specifically authorized in writing by the Forest Service officer with delegated authority. They may not be used for normal maintenance work or in field camps, except where specifically authorized by the Forest Service officer with delegated authority.

f) Snowmachines
- Snowmachines may be used to administer Wilderness under the same snow conditions that public use is allowed.

g) Exceptions
- Aircraft and mechanized equipment may be authorized by the Forest Service officer with delegated authority as needed for search and rescue purposes and law enforcement.
- The temporary use of motorized equipment may be allowed for fisheries research, management, rehabilitation, and enhancement activities, when such use is authorized in the project environmental assessment or Decision Notice approved by the Forest Service officer with delegated authority.
- The use of chainsaws and power winches is allowed for clearing of navigational hazards along the Stikine River. All other administrative activities must be completed using primitive nonmotorized/nonmechanized methods when specifically authorized by the Forest Service officer with delegated authority. (Consult FMS 2322.03.)

Wilderness Planning

A. Protect and perpetuate Wilderness character. Using the following four qualities, evaluate whether or not Wilderness character is degrading, stable, or improving over time:
   1. Untrammeled,
   2. Natural,
   3. Undeveloped, and
   4. Outstanding opportunities for solitude or primitive and unconfined recreation.

B. A minimum requirements analysis should be used for all management proposals and activities. (Consult FSM 2320.)

C. All mechanized transportation or motorized equipment is reported annually by all other agencies if authorized using minimum requirements analysis.

D. Update individual Wilderness plans if inconsistent with this Plan.

E. Wilderness plans may be developed or updated for an individual Wilderness in response to issues and concerns. All Wilderness plans for individual areas will be consistent with the Wilderness Act, ANILCA, or other applicable Wilderness designation acts, and this Tongass Forest Plan.

F. ROS classes may be adopted through Wilderness planning.

G. As needed and consistent with direction in this Forest Plan, update Wilderness Implementation Schedules and any other area plans, analyses, or decision documents applicable to a Wilderness.
H. Establish subunit management zones within the Wilderness to deal with unique situations, or to integrate local issues and concerns with management activities, where necessary, to better accomplish Wilderness objectives.
    1. The boundaries of subunits should generally be located on identifiable topographic features and/or coincide with existing ROS classification areas.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Wildlife management activities will be consistent with Wilderness objectives, and will protect and maintain natural processes and Wilderness values.
B. Address issues regarding management, introduction, and re-introduction of wildlife species consistent with national and regional policy.

Wildlife Habitat Improvement: WILD2

A. Conduct wildlife habitat improvement projects only when the principal objective is to protect or restore the Wilderness resource, or to assist in the recovery of a federally listed threatened or endangered species.

NONWILDERNESS NATIONAL MONUMENTS

Both National Monuments contain Congressionally designated Wilderness and Nonwilderness National Forest System Lands. Management direction for Wilderness portions is provided in the Wilderness and Wilderness National Monuments LUDs section.

Goals

To manage Admiralty Island and Misty Fiords National Monuments for public access and uses consistent with the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) and their respective Presidential Proclamations of 1978, which designated these units as National Monuments because of their superlative combination of significant scientific and historical features.

Admiralty Island, exclusive of the Mansfield Peninsula, was designated as a National Monument for the scientific purpose of preserving intact a unique coastal island ecosystem. The goal of preservation was to ensure continued opportunities for study of Admiralty Island's ecology and its notable cultural, historical, and wildlife resources, within its relatively unspoiled natural ecosystem. Protection and study of Tlingit cultural resources, other historical resources, brown bear and bald eagle populations are specifically directed.

Misty Fiords was designated as a National Monument to serve the scientific purposes of preserving a unique ecosystem and the remarkable geologic and biological objects and features it contains. The goal of preservation was to ensure continued opportunities for study of Misty Fiord's geology and ecology, including the complete range of coastal to interior climates and ecosystems. Protection and study of the geology, plant and animal succession, historical resources, and fish and wildlife resources are specifically directed.

To facilitate the development of significant mineral resources located within portions of Admiralty Island and Misty Fiords National Monuments, as specified by ANILCA.

To protect objects of ecological, cultural, geological, historical, pre-historical, and scientific interest, as specified by ANILCA, and the Plan of Operations, as well as minimize effects on non-mineral resources to the extent feasible. In the long term, when mining is completed, to reclaim areas disturbed by mining to a near-natural condition.

To limit mining activities to claims with valid existing rights, and to the land area actually needed to carry out mining operations.

Objectives

Inventory, research, protect, and interpret National Monument resources as directed by National Monument designations.

Make resource and research information about the National Monuments available to other Forest units where it may be beneficial for management of multiple use lands.

Ensure that the Plan of Operations for each mineral development specify the activities to be conducted, the location and timing of those activities, and how the environment and resources in each area will be protected through compliance with federal and state requirements.

In areas affected by mining, manage activities to maintain the productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. Stress protection of fish habitat to prevent the need for mitigation.

In areas affected by mining, manage public recreation use as directed in the Plan of Operations. Outside these areas, manage recreation use and activities to meet the appropriate levels of social encounters,

on-site developments, methods of access, and visitor impacts indicated for the adopted or existing Recreation Opportunity Spectrum (ROS), as appropriate.

Locate and manage trails to direct the public away from mining operations.

Develop reclamation plans prior to project initiation. Include, as needed, rehabilitation of fish and wildlife habitats, soil resources, and the scenery.

Desired Condition

The purposes of National Monument designation are fulfilled by protecting and learning more about the special resources they contain. Appropriate research is encouraged and supported and contributes to both the purposes of the Wilderness National Monuments and improved management of other Forest lands. Appropriate interpretive and educational efforts allow the public to better understand the resources of these special areas and appreciate how these areas fit into the local, regional, and even global context of geology, ecology, and human history.

During mining operations, mining activities are localized and limited to the area necessary for their efficient and orderly development. Off-site effects to National Monument resources are minimal, and most Monument users are not aware of, or affected by, the mines. After the completion of mining, reclamation of the affected areas is done to minimize the evidence of past mining and, to the maximum extent feasible, seek to return the area to generally natural conditions. Ultimately, the entire Nonwilderness National Monument provides the same natural settings and recreation experiences as the adjacent Wilderness National Monument areas.

Nonwilderness National Monuments Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I,II(A-D,I)
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH1	I(B:1;C)
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG1	All
	MG2	I,III-VII
Plants	PLA	All
Recreation and Tourism	REC1, 3	All
	REC2	I,II(A),III
Riparian	RIP1	All
	RIP2	I,II(A-E)
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4;6-7,B-F),II
Subsistence	SUB	All
Timber	TIM2	All
	TIM5	VIII(D)
Trails	TRAI1	I(A-E;F:1,3,5)
	TRAI2	All
Transportation	TRAN1, 2, 3, 6	All
	TRAN4	II-IV
Wetlands	WET	All
Wildlife	WILD1	All
	WILD2	I(A:1;B)
	WILD4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow structures needed and authorized for the extraction of mineral deposits, specially authorized activities, and for the protection of National Monument values.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.

B. Emphasize suppression tactics resulting in the least possible disturbance or evidence of human presence.

1. Use of mechanized equipment will require approval by the Forest Service officer with delegated authority.

2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as it is safe, but within 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. As a general management practice, do not use management-ignited prescribed fire. Should it become necessary to consider the use of management-ignited prescribed fire, consult Forest Service Manual (FSM) 2324.
B. Outside the active mining area, use prescribed fire only to perpetuate natural ecological processes. As a general management practice, do not use prescribed natural fire. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

Planning and Mitigation

A. In areas affected by mining, manage activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult ANILCA, Section 505 (a).)
B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation, and monitoring of mining impacts to fish habitat or populations shall be identified in appropriate environmental documents, Plan of Operations, and updates and amendments to each. Stocking of sport fish will generally be employed only to re-establish indigenous stock depleted by human influences. Stocking of indigenous species in currently barren waters may be considered, where appropriate, to the purposes of National Monument management.
C. Mining impacts to fish habitat shall be mitigated by the mining operator. (Consult ANILCA, Section 505 (b) for Quartz Hill.)

Planning Fish Enhancement

A. Provide for fisheries habitat enhancement subject to the goal of restoring and maintaining fish production in the State of Alaska. (Consult ANILCA, Sections 507 and 1315(b) and the Regional Comprehensive Salmon Plans.) Consider the suitability of fish habitat enhancement, during project planning, by evaluating: 1) availability of suitable non-Monument, Nonwilderness opportunities; 2) effects on Monument conditions in general; 3) effects on Monument ecosystems and desired solitude level due to an enhanced fishery resulting in increased recreation use; 4) effects on ecosystems due to the introduction of species not indigenous to the watershed; and 5) the appropriateness of structures both in type and scale to the ROS setting.

Fish Habitat Improvement: FISH3

A. Use construction techniques that are consistent with Monument management.
   1. Construct only those facilities essential to operations and in a rustic manner to blend into the natural character of the area. (Consult ANILCA, Section 1315 (b).)
   2. Land-disturbing activities necessary for construction will be temporary.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Allow natural occurrences to play their normal role in ecological succession.
B. Scientific study of natural populations is encouraged using research methods appropriate for the National Monument setting and goals.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Activities that have the potential to affect heritage resources shall be in compliance with the National Historic Preservation Act, Section 106, 110.
B. Inventory valid, existing mineral claims prior to the approval of a Plan of Operations for mineral activities.
C. Inventory and evaluation may be done at the operator's discretion and cost, provided that the inventory and evaluation is accomplished under the supervision of a qualified heritage resource specialist and authorized by a Special Use Authorization.
D. Include, as part of the Plan of Operations, specific protective and/or mitigative measures to be taken by the operator who is responsible for the cost of any such protective or mitigative measures.

Enhancement

A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
    1. Provide for the scientific study and interpretation of heritage resources to visitors.

INVASIVE SPECIES

Invasive Species Monitoring and Treatment: INV2 and INV3

A. Non-native, invasive species monitoring and treatment will be accomplished in accordance with specific District- or Forest-level plans and strategies.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Authorize special uses to facilitate mineral-related activities. Authorize other uses if they do not substantially conflict with mineral-related activities.
    1. Authorizations must be compatible with the purposes for which the area was established, subject to exceptions provided by ANILCA.
B. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and Utility sites and corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside the LUD. Refer to the Transportation and Utility section for direction.

Landline Location and Maintenance: LAND4

A. Provide adequate marking for the public and Forest Service employees to distinguish land ownership and land classification.
    1. Survey, mark, and post property lines to Wilderness or National Monument standards along trails, canoe routes, and other transportation corridors or areas of frequent human use.

2. Determine survey, marking, and posting priorities by the degree to which the adjacent LUD is compatible with the National Monument management objectives.

Land Ownership Adjustments: LAND6

A. Allow and assist in the process for valid mining claims embracing locatable commodities to go to patent, subject to the requirements of ANILCA.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG1 and MG2

Lands Withdrawn from Mineral Entry

A. National Forest System lands within this LUD are withdrawn from additional mineral entry (ANILCA, Section 503).
B. Claimants with valid claims located in areas withdrawn from mineral entry retain valid existing rights if such rights are established prior to the date the area was withdrawn from mineral entry.
C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations.
D. The Plan of Operations for mining projects describes the activities that will be conducted, the location and timing of those activities, and how the environment and resources in each area will be protected through compliance with federal and state requirements. (Consult ANILCA, Sections 503 and 504.)
E. Issue leases and other necessary associated permits in accordance with ANILCA, Sections 503 and 504.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. To the degree consistent with the overall purposes of National Monument management, provide a spectrum of wildland recreation opportunities that reflect the existing ecological, historical, and sociological conditions found within the Monument.
B. Continue to manage for the established ROS opportunities and appropriate activities throughout the LUD unless specifically closed to public use. Protect the integrity of National Monument resources through integrated project planning and implementation within the National Monument.
    1. Manage for the existing recreation settings and opportunities unless scheduled activities and practices cause a change in the ROS setting(s). Manage recreation use in a manner that is compatible with the long-term objectives of the Monument.
    2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Maintain the capability of the National Monument to provide appropriate quality recreation opportunities on a sustained basis.
C. Manage and regulate public recreation use within this LUD area in accordance with direction contained in the Plan of Operations for the respective mining operations. Outside the area covered by the Plan of Operations, manage recreation use and activities to meet the appropriate levels of social encounters, on-site development, methods of access, and

visitor impacts indicated for the established ROS settings. (Consult national and regional handbooks.)

D. Consider additional public use cabins and/or shelters when needed to meet recreation demand within the National Monument.

E. With the help of user groups, develop "no trace" camping and use programs to encourage the dispersal and use of durable campsites. Where dispersal is not feasible, develop designated campsites and encourage their use.

F. Designation of motorized routes for off-highway vehicles (OHVs) in Nonwilderness National Monument LUDs is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route is compatible with Monument management objectives.

Establishment of Subunit Management Zones

A. Where necessary, to better accomplish Nonwilderness National Monument management objectives, establish special management zones within the Monument to deal with unique situations, or to integrate local issues and concerns with management activities.
   1. The boundaries of subunits should generally be located on identifiable topographic features and/or coincide with an established ROS area.

Recreation Special Uses

A. Major developments are generally not consistent with the objectives of this LUD. Development proposals require scrutiny for the magnitude and scope of conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Manage the visual resource to be compatible with Nonwilderness Monument objectives.
   1. Adopted Scenic Integrity Objectives will range from High in those portions of the Monument without access, to Very Low in those portions developed in connection with mineral activities. Site-specific Scenic Integrity Objective and rehabilitation objectives will be identified in specific Plan of Operations for mineral operations.

SUBSISTENCE

Subsistence: SUB

A. Assess the effect of continued existing subsistence uses on the long-term condition and natural succession of National Monument ecosystems.

TIMBER

Timber Resource Planning: TIM4

A. Commercial timber sales and harvesting are prohibited in the National Monument. Forested land is classified as unsuitable for timber production and withdrawn from the timber base. Any timber removal associated with mineral access and facility development will not count toward the Allowable Sale Quantity.

B. Commercial beach log salvage on coastlines may be authorized in accordance with ANILCA, Section 1315(f). Require that the recovery of logs above mean high tide be conducted from the water without roads or use of

vehicles on uplands. Beach log salvage is defined as the recovery of logs that have been lost in transit and washed up on beaches.

C. Allow traditional personal use wood harvesting activities (primarily: 1) beach logs on coastlines that can be removed without roads or use of vehicles on uplands, and 2) firewood) in National Monuments, subject to reasonable regulations to protect Monument resources. The cutting of down trees in navigable rivers (sweepers) and removal of trees from the banks is discouraged. Cutting of green trees (except for emergency cutting of trolling poles) will be by permit only. (Consult ANILCA, Section 1315(f) and 36 CFR 223.10.)

Timber Resource Improvements: TIM2

A. Rehabilitation, including reforestation, will be a function of mineral development and not a timber management objective.

TRAILS

Trail Administration: TRAI2

A. During the period of mining development and operation, plan and locate trails within this LUD to direct the public away from mining operations. Construct and maintain trails and related facilities so that they contribute to desired conditions and appear to be an appropriate part of the Monument environment and not an intrusion upon it. (Consult the Forest Service Trails Management Handbook.)

TRANSPORTATION

Transportation Operations: TRAN

A. New roads are not permitted, except: 1) to access valid mining claims and state or private lands not otherwise reasonably accessible; and 2) for Transportation and Utility Corridors in accordance with ANILCA, Title XI.

B. Further development of transportation systems in association with minerals extraction will be in accordance with an approved Plan of Operations and subsequent annual work plans.

C. Roads in this LUD are generally closed to public use.

D. Use of snowmachines, motorboats, aircraft and non-motorized methods of surface transportation are permitted.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Mitigation, rehabilitation, and monitoring of mining impacts to wildlife habitats or populations shall be identified in environmental documents, Plan of Operations, and updates and amendments to each.

Wildlife Habitat Improvement: WILD2

A. Wildlife habitat improvements must have as their principal objective the protection or restoration of the National Monument resources.

B. Scientific study of indigenous species and their habitats is encouraged with emphasis on identifying their roles in ecosystem dynamics and impacts of human uses.

C. Address issues regarding management, introduction, and re-introduction of wildlife species consistent with national and regional policy.

RESEARCH NATURAL AREA

Goals

To preserve areas of ecological importance in their natural condition for the purposes of research, monitoring, education, and/or to maintain natural diversity.

To allow natural physical and biological processes to prevail without human intervention.

Objectives

Provide opportunities for baseline monitoring of ecological processes and non-manipulative research and observation.

Maintain the natural, undisturbed character of each area by:

- Permitting no permanent facilities, and no roads or trails except for research purposes or as otherwise provided by law;
- Recommending withdrawal of the area from mineral entry when necessary, subject to valid existing rights;
- Limiting recreation uses to those that do not affect or alter natural biological processes; and
- Allowing vegetative manipulation, fish enhancements, wildlife improvements, and/or soil and water improvements only if they will provide a closer approximation of natural conditions than would be possible otherwise.

Desired Condition

All Research Natural Areas (RNAs) on the Tongass National Forest are characterized by essentially unmodified environments in which natural ecological processes prevail. They remain undisturbed by human uses or activities, and provide quality opportunities for non-manipulative scientific research, observation, and study. The RNA network is representative of the predominant vegetation types, wildlife habitats, and aquatic communities of the Tongass. The "National Hierarchical Framework of Ecological Units" is used to identify sites to be represented in the RNA network. RNAs are used as monitoring reference areas to evaluate other lands where management activities are undertaken to assess the effectiveness of various standards, guidelines, and mitigation measures in reducing or preventing adverse environmental effects.

Research Natural Areas Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	None
Facilities	FAC	None
Fire	FIRE1	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC1	All
	KC2	All
Lands	LAND2	VII
	LAND4	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC1	All
	REC2	I(A)
	REC3	I,II,III(B),VI,VII
Riparian	RIP1	All
	RIP2	I,II(A-E)
Rural Community Assistance	RUR	All
Scenery	SCENE1	All
	SCENE2	I,II(A,E)
	SCENE3	II
Soil and Water	SW1, 2	All
	SW3	I(A:1-4,B-F)
Subsistence	SUB	All
Timber	TIM2	
Wetlands	WET	II
Wildlife	WILD1	I, II, V, VI(A,C,E); VII-VIII; IX(A:1-3;5-7,B); X; XI(A:1); XII(A:1-2), XIII, XIV, XVI(A:1)
	WILD4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. No buildings are permitted. (Consult Forest Service Manual [FSM] 4063 for authorizing temporary physical improvements, which requires approval by the Pacific Northwest Research Station Director.)

FIRE

Fire Suppression: FIRE1

Suppression Action

A. As a general guide, extinguish human-ignited fires that endanger Research Natural Areas as quickly as possible, using means that will cause minimal damage to the area. Naturally ignited fires are generally not suppressed unless they pose a threat to adjacent lands, life and property.

Fuel Improvements: FIRE2

Prescribed Fire

A. Use prescribed fire, including those ignited by management as well as natural ignitions, only if the land manager is certain that it will provide a closer approximation of natural vegetation than would be possible otherwise. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

A. Allow enhancement of fish habitat only if it will provide a closer approximation of natural conditions than would be possible otherwise.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Implement insect and disease management measures only if the Regional Forester and Pacific Northwest Research Station Director deem such action necessary to protect the features for which the RNA was established or proposed, or to protect adjacent resources. More specifically, 1) if endemic, consider no management; 2) if exotic, consider control; 3) if past insect and disease management activities (e.g., insect and disease and/or fire suppression) have exacerbated the threat to the RNA, consider control; and 4) if insects and disease in the RNA threaten adjacent lands, consider control.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

A. Locate, evaluate, and protect significant heritage resources. Interpretation may be provided when it can be done while maintaining unmodified natural conditions and processes.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.

B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Except as otherwise provided by law, allow only activities that will preserve the RNA in an unmodified condition, or activities that serve research purposes. (Consult FSM 2700 and 4063.)
   1. Coordinate all special use proposals with the Pacific Northwest Research Station Director, to ensure compatibility with research objectives.
   2. Do not authorize activities that modify natural ecological processes.
   3. Do not permit roads, fences, or signs in an RNA, unless they contribute to the management objectives or the protection of the area.
   4. Do not authorize new buildings, and remove existing unauthorized buildings when feasible.

5. Consider authorizing temporary facilities, such as tent platforms, when directly and necessarily related to the taking of fish and wildlife, when approved by the Pacific Northwest Research Station Director in consultation with the Forest Supervisor. (See the Lands Forest-wide Standards and Guidelines for additional information.)
6. Only the Pacific Northwest Research Station Director, after consultation with the Forest Supervisor, can approve plans for temporary water and atmospheric gauging stations and instrument shelters. Ensure that such plans contain provisions for tenure of the facility, actions to be taken, time limits for completion of actions, and identification of parties responsible for returning disturbed areas to a natural condition.
7. Encourage the use of RNAs by scientists and educators. Refer research applicants to the Pacific Northwest Research Station Director, who will approve study plans in consultation with the Forest Supervisor. Upon approval of the study plan, the District Ranger authorizes access to the area.
8. Do not allow road or trail development or special uses of a permanent nature, except for research and education purposes, unless otherwise provided by law.

B. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.

Landline Location and Maintenance: LAND4

A. Ensure that the boundaries of RNAs are clearly identifiable in the field and in administrative records.

Land Ownership Adjustments: LAND6

A. Acquire private inholdings as opportunities arise.

LAW ENFORCEMENT

Law Enforcement Activities: LAW

A. Where a special closure is necessary to protect an RNA, recommend a closure order under provisions of 36 CFR 261.50. Ensure that such orders incorporate the special closure provisions of 36 CFR 261.53. (Consult FSM 4060.)

MINERALS AND GEOLOGY

Minerals and Geology Administration: MG1 and MG2

Mineral Withdrawals

A. Designated RNAs may be withdrawn from mineral entry, subject to valid existing rights.
B. Permit reasonable access to mining claims with valid existing rights in accordance with the provisions of an approved Plan of Operations.
C. Mineral leasing and material sales are allowable in areas open to mineral entry at the discretion of the Authorized Officer and in accordance with Forest Service Mineral Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Provide only those specific types and intensities of recreation activities and opportunities that can be accommodated without endangering or altering the natural biological processes occurring within the RNA.

B. Issue appropriate orders regulating public use within the area that are necessary to ensure non-degradation of the natural environments for which the RNA was established or proposed.
C. Designation of motorized routes for off-highway vehicles in RNAs is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route can be accommodated without endangering or altering the natural biological processes occurring within the RNA.

Recreation Special Uses
A. Neither major nor minor developments are allowed because they are incompatible with the objectives of this LUD. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1
A. Allow the visual character of the area to evolve naturally.
   1. Apply Forest-wide Standards and Guidelines for the High Scenic Integrity Objective.

SOIL AND WATER

Watershed Resource Improvement: SW4
A. Soil and water resources evolve under natural conditions. Allow improvement of soil and water resources only if it will provide a closer approximation of natural conditions than would be possible otherwise.

SUBSISTENCE

Subsistence: SUB
A. Seek to provide customary and traditional subsistence opportunities consistent with the Alaska National Interest Lands Conservation Act of 1980.

TIMBER

Timber Resource Planning: TIM4
A. Forested lands are classified as unsuitable for timber production.
B. Vegetation is allowed to evolve in natural undisturbed conditions. Non-native plants are removed if feasible. Avoid RNAs when other feasible locations for personal use wood cutting are available. If personal (free) use timber harvest is allowed, personal permit requirements must satisfy LUD objectives (refer to Personal Use, Section TIM7). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled. Christmas tree cutting is incompatable with LUD objectives.
C. Administrative use of timber is generally incompatible.

TRAILS

Trail Activities: TRAI1
A. Locating trails in this LUD is not permitted unless they contribute to the objectives or the protection of the area, unless otherwise provided by law.

TRANSPORTATION

Transportation Operations
A. Unless otherwise provided by law, do not locate roads in this LUD unless they contribute to the objectives or protection of the area.

WILDLIFE

Wildlife Habitat Improvement: WILD2

A. Wildlife habitats evolve in natural conditions except that non-native plants and animals are removed if feasible. Allow wildlife habitat enhancement only if it provides a closer approximation of natural conditions than would be possible otherwise.

SPECIAL INTEREST AREA

Goals

To provide for the inventory, maintenance, interpretation, and protection of the existing characteristics and attributes of areas with unique cultural, geological, botanical, zoological, recreational, scenic, or other special features.

Objectives

Provide opportunities for public study, use, and enjoyment of unique natural areas that are suitable to, and do not compromise, the characteristics of each area.

Allow only facilities and recreation developments that contribute to the interpretation of natural features or provide for compatible public uses, and that blend with the natural setting.

Provide for existing Recreation Opportunity Spectrum (ROS) opportunities and activities, unless public use is specifically restricted for the protection of other resources.

Consider withdrawing each area from mineral entry, subject to valid existing rights, on a case-by-case basis, if mineral development would not be consistent with protecting the unique features of the area.

Apply the High Scenic Integrity Objective except around developed interpretive facilities, and other developments or structures.

Allow fish, wildlife, and/or soil and water improvements if they are compatible with the purposes for which each Special Interest Area was established.

Develop management plans for those Special Interest Areas needing specific direction for achieving these goals and objectives.

Desired Condition

All Special Interest Areas on the Tongass National Forest are characterized by generally unmodified environments in which unique natural features are preserved. They remain largely undisturbed by human uses or activities, except for localized interpretive purposes and, in some cases, recreation developments, and provide quality opportunities for public study, use, and enjoyment. Each is an example of one or more cultural, geological, botanical, zoological, paleontological, or other special features unique within the Tongass.

- Cultural areas possess prehistoric/historic sites, buildings, or artifacts of National Register of Historic Places Significance or having special cultural associations with Native Americans.
- Scenic areas are comprised of landscapes of outstanding beauty or natural characteristics, such as glaciers, alpine, and areas of diverse vegetative patterns/coverage. These are areas that could be viewed for a long duration from specific vantage points, such as developed recreation sites, trails, anchorages, travel routes, and communities.
- Geological areas have unique geologic features of the earth's development, including caves, volcanic features, stratigraphic and structural features, and fossilized specimens of plants and animals.
- Botanical areas contain specimens or groups of plants, plant groups, and plant communities that are significant because of form, color, occurrence, habitat location, life history, arrangement, ecology, environment, rarity, and/or other features.
- Zoological areas contain unique or significant animals, animal groups, or animal communities, habitat, location, life history, ecology, environment, rarity, or other features.

Special Interest Area Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I,II(A-I,K,L)
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP1	All
	RIP2	I,II(A-E)
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,6-7)II,III
Subsistence	SUB	All
Timber	TIM2, 5, 7, 8	All
Trails	TRAI	All
Transportation	TRAN1, 2, 3, 5, 6	All
	TRAN4	I-IV
Wetlands	WET	All
Wildlife	WILD1, 3, 4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow administrative, interpretive, and information sites as needed to accomplish Special Interest Area objectives.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression action that minimizes fire suppression cost and resource damage. The action must meet the Special Interest Area objectives.
B. Suppression tactics will be compatible with Special Interest Area objectives.

Fuel Improvements: FIRE2

Prescribed Fire

A. Use management-ignited prescribed fire if it is compatible with the Special Interest Area objectives.
B. As a general management practice, do not use prescribed natural fire. (Consult Forest Service Manual [FSM] 5142.)

FISH

Fish Habitat Planning: FISH2

A. Provide for public interpretation of fish habitats, habitat enhancement projects, and associated special fisheries conditions in appropriate Special Interest Areas.
B. Allow fish enhancement projects if they are compatible with Special Interest Area objectives.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Implement insect and disease management measures, consistent with Special Interest Area objectives, to protect the area's special features and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Identify significant heritage properties that include archaeological, historical, religious, or areas that contain specific Forest resources of heritage value used for Native art and craft forms.

Evaluation and Protection

A. Heritage resource properties that are classified as Special Interest Areas under 36 CFR 294 shall be evaluated for the National Register of Historic Places and as possible National Historic Landmarks as established in 36 CFR 63.
   1. Establish the exterior boundary of heritage resource properties on the ground if determined necessary to protect the site.
   2. Protect heritage resource properties from degradation from effects of management activities occurring within adjacent LUDs.
   3. Manage for the availability and use of forest products for traditional Native heritage activities, while maintaining the physical and scientific integrity of the heritage resource properties.
   4. Provide interpretive devices to explain special features and protective regulations.
   5. Provide for interpretive activities that enhance the recreation experience, while protecting the unique values for which the heritage resource property was designated.
   6. Prevent the use of heritage resource property when national policy or sensitivity of unique values requires closure.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Issue only those Special Use Authorizations that will perpetuate the unique values that led to the designation or proposal to designate the Special Interest Area.
   1. Issue authorizations that will aid in the maintenance, improvement, and protection of the existing characteristics and attributes of the Special Interest Area.

2. Analyze each proposal on a case-by-case basis, using an interdisciplinary process.

B. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within a Special Interest Area only after an analysis of potential TUS opportunities has been completed and no feasible alternatives exist outside the LUD. Refer to the Transportation and Utility section for direction.

Land Ownership Adjustments: LAND6

A. Acquire private inholdings as opportunities arise.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations of Special Interest Areas, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Withdrawn from Mineral Entry

A. Consider recommending that Special Interest Areas be withdrawn from mineral entry, subject to valid existing rights, when mining would not be compatible with the area's objectives.

B. Permit reasonable access to mining claims with valid existing rights in accordance with the provisions of an approved Plan of Operations.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Regulate use based on studies reflecting the effect of recreation and tourism activities on the unique features for which the Special Interest Area is established. Studies need only be done where a conflict may exist.
   1. Consider providing interpretation of the unique characteristics of the Special Interest Area.
   2. If studies indicate human use adversely affects the special features, regulate use to eliminate the adverse effects or reduce use to acceptable levels.
   3. Design and locate recreation-related structures to be compatible with characteristics of the area. Regulate user-created structures to avoid degradation of the unique character of the area. (Consult Forest Service Recreation Site Development Handbook.)
   4. Restrict public motorized travel to designated travel routes except for powerboats operating on open water channels. Designation of motorized routes for off-highway vehicles in Special Interest Areas is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route is compatible with the characteristics of the area.

B. Adopt ROS classes through project planning; manage according to the adopted ROS class. Before project planning, manage according to the existing ROS class.

Recreation Special Uses

A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Manage areas for their scenic integrity, with most areas in a naturally appearing condition.
   1. Apply Forest-wide Standards and Guidelines for the High Scenic Integrity Objective, except in the portions with developed recreation or interpretive facilities (such as Mendenhall Glacier, Ward Lake, and Blind Slough).
   2. In those portions with developed recreation or interpretive facilities (such as Mendenhall Glacier, Ward Lake, and Blind Slough), apply the Scenic Integrity Objective of Low in the foreground and Moderate in the middleground and background.
   3. Design visitor facilities to blend, to the extent feasible, with the natural setting.

TIMBER

Timber Resource Planning: TIM4

A. Special Interest Areas are classified as unsuitable for timber production. Limited salvage of windthrown timber shall be allowed along existing roads within Geologic Special Interest Areas, as long as karst and cave resource values are not compromised. Many Geologic Special Interest Areas contain areas of past harvest. Opportunities for management of the young-growth stands in these areas should be considered when karst and cave resource values are not compromised.

B. Avoid Special Interest Areas when other feasible locations for personal use wood and Christmas tree cutting are available. If personal (free) use timber harvest is allowed, personal use permit requirements must satisfy the Special Interest Area's objectives (refer to Personal Use, Section TIM7). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.

C. Allow administrative use of timber if it is compatible with the objectives of the Special Use Area.

TRANSPORTATION

Transportation Operations: TRAN

A. Provide and manage a transportation system compatible with, or which will improve the interpretation of, the unique values of the Special Interest Area. (See exceptions under the Lands and Minerals and Geology sections of this prescription.)

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Provide for public interpretation of wildlife habitats and associated special wildlife conditions in appropriate Special Interest Areas.

B. Allow wildlife improvement projects where they are compatible with the purposes for which the Special Interest Area was established. Prioritize treatment needs and scheduling.

REMOTE RECREATION

Goals

To provide extensive, unmodified natural settings for primitive types of recreation and tourism.

To provide opportunities for independence, closeness to nature, and self-reliance in environments offering a high degree of challenge and risk.

To minimize the effects of human uses, including subsistence use, so that there is no permanent or long-lasting evidence.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Primitive Recreation Opportunity Spectrum (ROS) class.

Provide trails and primitive facilities that are in harmony with the natural environment and promote primitive recreation experiences.

Apply the High Scenic Integrity Objective.

Fish enhancement projects may occur. Design wildlife habitat improvements to emulate natural conditions and appearance.

Desired Condition

Areas in the Remote Recreation LUD are characterized by extensive, unmodified natural environments. Ecological processes and natural conditions are not noticeably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance in an environment that offers a high degree of challenge and risk. Interactions between users are infrequent. Motorized access is limited to traditional means: boats, aircraft, and snowmachines. Facilities and structures are minimal and rustic in appearance.

Remote Recreation Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I,II(A-G,K,L)
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP1	All
	RIP2	I-II(A-E,G)
Rural Community Assistance	RUR	All
Scenery	SCENE1	All
	SCENE2	I,II(A,E)
	SCENE3	I(A,B,D),II
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,6-7),II,III
Subsistence	SUB	All
Timber	TIM2, 5, 8	All
Trails	TRAI	All
Wetlands	WET	All
Wildlife	WILD1	I-VIII; IX(A:1-8;11,B); X; XI(A:1); XII; XIII; XIV; XVI(A:1); XVII
	WILD2	I(A:1,B)
	WILD3, 4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Design and locate administrative and non-recreation structures to reduce adverse effects on recreation and tourism opportunities.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Emphasize suppression tactics that result in the least possible disturbance or evidence of human presence.
   1. Keep use of mechanized equipment to a minimum.
   2. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.

3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as part of rehabilitation, but within 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. As a general management practice, do not use management-ignited prescribed fire. Should it become necessary to consider the use of management-ignited prescribed fire, Forest Service Manual (FSM) 2324 provides direction.
B. As a general management practice, do not use prescribed natural fire. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

Fish Enhancement

A. Evaluate fish habitat improvement during project planning by considering: 1) effects resulting from the introduction of species not indigenous to the watershed; 2) the appropriateness of structures both in type and scale to the Primitive ROS setting; and 3) the need to provide well-distributed fisheries that support sport and commercial fisheries, subsistence, and community stability.

Fish Habitat Improvement: FISH3

A. Design development to minimize impact on the Primitive ROS setting.
B. Construction techniques should be compatible with the Primitive ROS setting.
C. Evidence of necessary land-disturbing activities for construction should not be visible to the casual observer after 5 years.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Implement insect and disease management practices to maintain forest health in this and adjacent LUDs.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HSS1

Enhancement

A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
    1. Interpretive information concerning heritage resources located inside this LUD should be in the form of exhibits and publications located outside the LUD.
    2. Heritage resources are available for scientific studies that are consistent with the primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
    1. Identify, classify, and evaluate known heritage resources.
    2. Identify heritage properties to be nominated to the National Register of Historic Places.

3. Identify heritage properties that require stabilization or other protective measures.
4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only those new activities that are compatible with the Remote Recreation objectives.
   1. Permit temporary structures and major fisheries improvement projects (such as hatcheries) only if they are widely dispersed.
   2. Permitted activities and structures should not be visually evident from a Visual Priority Route or Use Area (see Appendix F).
B. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral exploration and development. Mineral activities will be compatible with objectives of this LUD to the extent feasible.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Service Minerals Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with Forest Service Mineral Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Manage for Primitive ROS settings, recognizing other ROS settings may be present due to authorized activities, existing use patterns, and activities in adjacent LUDs. Strive to minimize these changes from the Primitive ROS objective.

B. Manage recreation and tourism use to meet the levels of social encounters, on-site development, and visitor impacts indicated by the ROS charts in the Recreation and Tourism Forest-wide Standards and Guidelines.
C. Designation of motorized routes for off-highway vehicles in Remote Recreation is generally not allowed. There may be limited exceptions where documented local traditional use related to subsistence activities has occurred or when connecting to routes in adjacent LUDs.

Recreation Special Uses
A. Major developments are generally not consistent with the objectives of this LUD. Development proposals require scrutiny of the magnitude and scope for LUD conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1
A. Provide a scenic condition in which activities are not visually evident to the casual observer.
   1. Apply Forest-wide Standards and Guidelines for the High Scenic Integrity Objective.
   2. Exceptions for small areas of non-conforming developments, such as recreation sites, may be considered on a case-by-case basis (see the Recreation and Tourism Forest-wide Standards and Guidelines in this prescription).

SOIL AND WATER

Watershed Resource Improvements: SW4
A. Watersheds will be managed in a natural condition.
B. Use indigenous plants and materials to protect or improve the quality and/or quantity of the water resource or to stabilize soils.

TIMBER

Timber Resource Planning: TIM4
A. Forested land is classified as unsuitable for timber production.
B. Taking of personal use wood will be limited to beach logs that can be removed from coastlines without roads or use of vehicles on uplands. The cutting down of trees in navigable rivers (sweepers) and removal of trees from the banks must be compatible with the management direction for fish habitat.
C. Allow administrative use of timber if LUD objectives are met.

TRANSPORTATION

Transportation Operations: TRAN
A. New roads are not permitted, except to access authorized mineral operations (or as excepted under Lands).
B. Existing roads in this LUD are closed to motorized uses subject to ANILCA provisions.
C. Use of snowmachines, motorboats, and aircraft is permitted.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Wildlife habitats are generally subject to ecological changes only.
B. Indigenous species are maintained.
C. Habitat improvement projects are acceptable if designed to emulate natural conditions and appearance. Prioritize treatment needs and scheduling.

MUNICIPAL WATERSHED

The emphasis of this LUD is to provide protection of municipal water supplies for the following incorporated cities and boroughs: Ketchikan, Petersburg, Sitka, Juneau, Wrangell, Kake, Klawock, Craig, and Hydaburg. For the Petersburg watershed, consult 36 CFR 251.35. See Forest-wide Soil and Water Standards and Guidelines for state-classified public water supply source watershed protection outside of the Municipal Watershed LUDs.

Goals

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 Drinking Water Regulations and Water Quality Standards, in accordance with Forest Service Manual (FSM) 2542 and 36 CFR 251.9.

Objectives

Limit most management activities to the protection and maintenance of natural resources. Consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

Desired Condition

Lands managed as Municipal Watersheds are generally in a natural condition. Facilities or structures to provide municipal water supplies may be present. Uses or activities that could adversely affect water quality or supply do not occur. These watersheds provide municipal water that meets State of Alaska Drinking Water Regulations and Water Quality Standards.

Municipal Watershed Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW1, 2, 4	All
	SW3	I(A1-4,6-7),II
Subsistence	SUB	All
Timber	TIM2, 5	All
	TRAI	All
Trails	TRAI	All
	TRAN1, 2, 3, 4, 5, 6,	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Construct no Forest Service administrative facilities. Facilities such as dams, reservoirs, and pipelines are consistent with municipal watershed objectives.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan
B. Emphasize suppression tactics that result in the least possible disturbance or evidence of human presence.
    1. Use of mechanized equipment should be kept to a minimum.
    2. Rehabilitation of all suppression lines and other evidence of human presence will occur as part of rehabilitation, no more than 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. As appropriate, normally use management-ignited prescribed fire rather than mechanical treatment to reduce the fire hazard from timber salvage. Management-ignited prescribed fire may also be used to maintain or

improve watershed characteristics as long as there is no adverse impact to water quality.

B. As a general management practice, do not use prescribed natural fire. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

A. Plan the construction and maintenance of fish improvement projects only if they are compatible with the municipal watershed objectives.
   1. Restrict fish habitat improvements that result in reduced water quality for a municipality using the water from the affected stream.
   2. When planning fish habitat improvement projects, consider the effects of anticipated municipal water withdrawals.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Maintain or improve forest health. Implement insect and disease management measures to protect the watershed and adjacent resources.

B. Timber may be salvaged at the request of municipality.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment. Interpretation will generally occur outside the municipal watershed.

KARST AND CAVES

Cave Management Program: KC2

A. Caves may be made available for general public recreation and education uses, only when compatible with watershed objectives and in consultation with the municipality.

B. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Manage special uses in accordance with the legislation establishing the watershed (if any) and to safeguard the quality and quantity of municipal water supplies. Limit special uses to those that support development activities. Coordinate all proposals with affected municipalities and obtain written concurrence before issuing special-use authorizations. (Consult 36 CFR 251.9, 36 CFR 251.35, and FSM 2700.)
   1. Analyze special-use proposals on a case-by-case basis, using an interdisciplinary process, to determine probable effects.

2. Do not permit any activities that would lead to violation of State of Alaska Drinking Water Regulations.
3. Terminate or bring into conformance, existing uses that are causing violation of State of Alaska Drinking Water Regulations or degradation of water quality.

B. This LUD represents a Transportation and Utility System (TUS) "Avoidance" Area. Transportation and utility sites and corridors may be located in this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

Land Ownership Adjustments: LAND6

A. Protect municipal interests in land adjustment decisions. Unless otherwise prohibited by law, encourage actions that result in the affected municipality owning the land.
1. Dispose of lands only when allowed to by applicable legislation.
2. When disposal is contemplated, involve the affected municipality early in the process.
3. Encourage state land selections under the Statehood Act for subsequent transfer to the municipal governing body.
4. If legislation allows, consider exchange of these lands with the affected municipality.
5. Do not acquire National Forest System lands for municipal watershed purposes.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Interpret geologic, paleontologic, and historic mining for municipal watersheds, where appropriate.

B. Maintain inventory of surficial geology, geomorphic features, geologic hazards, and paleontological resources. Maintain reports of municipal watershed assessments.

Minerals and Geology Administration: MG2

Mineral Withdrawals

A. Municipal watersheds may be withdrawn from mineral entry on a case-by-case basis after consultation with the municipality, subject to valid existing rights.

B. Assure claimants with valid and existing rights are allowed ingress and egress granted under the General Mining Law of 1872, the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and Forest Service Minerals Regulations under 36 CFR 228.

C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with Forest Service Mineral Regulations 36 CFR 228 and FSM 2800.

D. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operation

A. Provide only for those activities and recreation use levels that can be accommodated without detriment to water quality and flow.
B. Issue appropriate orders for regulating public use within the watershed, in cooperation with the municipality.
C. Designation of motorized routes for off-highway vehicles in Municipal Watersheds is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route does not degrade water quality or flow.
D. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

Recreation Special Uses

A. Major and minor developments are generally not consistent with objectives for this LUD. Proposals for development will require scrutiny of the magnitude and scope of the project to see if they meet LUD objectives. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
B. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

SCENERY

Scenery Operations: SCENE1

A. Considerations for the scenery resource will be secondary to the objectives of the municipal watershed. Scenic quality conditions are the result of the municipality's watershed management objectives.
    1. Design management activities within the watershed to minimize scenery impacts as seen from Visual Priority Travel Routes and Use Areas (see Appendix F).

SOIL AND WATER

Watershed Resource Planning: SW3

A. Maintain water quality consistent with Alaska Water Quality Standards (18 AAC 70) and protect source watersheds consistent with the federal Safe Drinking Water Act and the Alaska Drinking Water Regulations (18 AAC 80)
B. Do not authorize activities that create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system.
C. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution. Refer to FSM 2542 and 36 CFR 251.9 for guidance. Refer to 18 AAC 80.620(c)(3) for systems that seek to avoid filtration.
D. Develop site-specific Best Management Practices (BMPs) for any authorized activity. Consider at a minimum BMPs that limit ground disturbance, restrict public access (in consultation with municipality), and restrict hazardous materials and hazardous waste.

Watershed Resource Improvement: SW4

A. Soil and water protective measures are applied to protect the watersheds and water resources for municipal water use. Soil and water improvement will occur on all disturbances that threaten the watershed values.

B. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

SUBSISTENCE

Subsistence: SUB

A. Permit subsistence activities in accordance with the federal, state, municipal, and other local laws.

TIMBER

Timber Resource Planning: TIM4

A. Forested land is classified as unsuitable for timber production.
B. No timber harvest is scheduled. Salvage may be considered on a case-by-case basis in consultation with the municipality.
C. Avoid Municipal Watersheds when other feasible locations for personal use wood and Christmas tree cutting are available. If personal (free) use timber harvest is allowed, personal permit requirements must satisfy the Municipal Watershed's objectives (refer to Personal Use, Section TIM7). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.
C. Allow administrative use of timber if LUD objectives are met.

TRAILS

Trails: TRAI1

A. Trail systems are limited to those that can be accommodated without detriment to water quality and flow. Trails may be considered on a case-by-case basis in consultation with the municipality. (For the Petersburg watershed, consult 36 CFR 251.35.)

TRANSPORTATION

Transportation Operations: TRAN

A. Allow roads needed for the routine operation, maintenance, and improvement of the municipal water system and watershed. Allow roads to provide for timber salvage operations if they are permitted by the watershed's establishing legislation (if any) and after consultation with the affected municipality. If no feasible alternative exists, roads may occur in this area.
    1. Conduct a transportation analysis to determine optimum road location and design standards to ensure minimum adverse impacts to the watershed.
    2. Coordinate road management with the affected municipality. Manage access in accordance with the legislation establishing the watershed (if any).
    3. Road construction may occur if it is consistent with legislation establishing the watershed (if any), and if it can be done without unacceptable degradation of water quality.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Manage wildlife habitats for uses compatible with the watershed management objectives. Prioritize treatment needs and scheduling.

OLD-GROWTH HABITAT

Goals

Maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources.

Manage early seral conifer stands to achieve old-growth forest characteristic structure and composition based upon site capability. Use old growth definitions as outlined in Ecological Definitions for Old-growth Forest Types in Southeast Alaska (R10-TP-28).

Objectives

Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of native and desired non-native fish and wildlife species and subspecies that may be closely associated with old-growth forests.

Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses.

Maintain components of flora and fauna biodiversity and ecological processes associated with old-growth forests.

Allow existing natural or previously harvested early seral conifer stands to evolve naturally to old-growth forest habitats, or apply silvicultural treatments to accelerate forest succession to achieve old-growth forest structural features. Consider practices such as thinning, release and weeding, pruning, and fertilization to promote accelerated development of old-growth characteristics.

To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives.

Desired Condition

All forested areas within this LUD have attained old-growth forest characteristics. A diversity of old-growth habitat types and associated species and subspecies and ecological processes are represented.

Old-Growth Habitat Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP1	All
	RIP2	I,II(A-E,G,H)
Rural Community Assistance	RUR	All
Scenery	SCENE1, 3	All
	SCENE2	I,II(A,E)
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,6-7),II,III
Subsistence	SUB	All
Timber	TIM2, 5, 7, 8	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD1	I-VIII; IX(A:1-8,11,B); X-XVIII
	WILD 2, 3, 4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow administrative and recreational facilities when compatible with LUD objectives.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards for this LUD, such as soil and watershed concerns.

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire only where its use maintains old-growth characteristics.
B. As a general management practice, do not use prescribed natural fire. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

A. Emphasize the protection and restoration of fish habitat, fish production, and aquatic biodiversity. Enhancement projects that may change the natural distribution of fish species within a watershed are consistent with LUD objectives.

FOREST HEALTH

Forest Health: HEALTH1

A. Insect and disease management measures consistent with this LUD may be implemented to protect the old-growth forest component and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only improvements (such as tent platforms, fish weirs, minor waterlines, minor powerlines, etc.) that are compatible with LUD objectives.

B. This LUD represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this LUD only after an analysis of potential TUS corridor opportunities has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.

B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands

Conservation Act of 1980 (ANILCA), and National Forest Service Mining Regulations 36 CFR 228.

C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with Forest Service Mineral Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Manage recreation and tourism use to meet LUD objectives for fish and wildlife resources and habitat.
   1. Design and locate recreation-related structures to be compatible with habitat needs of old-growth associated species.

B. Generally provide for Semi-Primitive ROS settings, recognizing that more developed settings may be present due to authorized activities, existing use patterns, and activities in adjacent LUDs.

C. Designation of motorized routes for off-highway vehicles is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route does not degrade water quality or flow.

Recreation Special Uses

A. Minor recreation and tourism developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Apply Forest-wide Standards and Guidelines for High Scenic Integrity Objective. Design activities to not be visually evident to the casual observer.

B. Exceptions for small areas of non-conforming developments, such as recreational developments, transportation developments, log transfer facilities, and mining development, may be considered on a case-by-case basis. Use designs and materials that are compatible with forms, colors, and textures found in the characteristic landscape.

SOIL AND WATER

Watershed Resource Improvements: SW4

A. Undertake watershed improvements only where deteriorated soil and hydrologic conditions create a threat to the goals and objectives for which the old-growth habitat is managed. Rehabilitation or stabilization projects will seek to enable the area to retain its natural appearance.

TIMBER

Timber Resource Planning: TIM4

A. Forest land is classified as unsuitable for timber production.

B. Beach log salvage is compatible with this LUD.

C. Avoid Old-growth Habitat areas when other feasible locations for personal use sawtimber, firewood, and Christmas tree cutting are available. If personal (free) use timber harvest is allowed, personal use permit requirements must satisfy LUD objectives (refer to Personal Use, Section TIM7). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.

D. Harvest of bridge stringer logs is permitted.

Timber Sale Preparation: TIM5

A. Salvage of dead or down material is permitted, but is limited to roadside windfall and hazard trees immediately adjacent to existing permanent roads and catastrophic windthrow events or large insect or disease outbreaks (generally exceeding 100 acres). Limited standing undamaged timber (up to 20 percent of total salvage) may be removed only for safety reasons or for feasibility of salvage operations. Salvage sales must be compatible with LUD objectives as determined through the environmental analysis process. Stands once salvaged will be managed to achieve old-growth habitat characteristics. During the environmental analysis, consider the scale of the affected area salvaged. If reserve design criteria are no longer met, adjust reserve locations to better meet reserve size, spacing, and composition criteria if lands are available (see Wildlife Habitat Planning, section B below, and Appendix K).

TRANSPORTATION

Transportation Operations: TRAN

A. New road construction is generally inconsistent with Old-growth Habitat LUD objectives, but new roads may be constructed if no feasible alternative is available.
   1. Perform integrated logging system and transportation analysis (including Access and Travel management planning) to determine if other feasible routes avoiding this LUD exist during the project environmental analysis process. If no feasible alternative routes exist, locate, design, and construct roads in a manner that minimizes adverse impact to fish and wildlife resources to the extent feasible, and will be compatible with LUD objectives. Keep clearing widths to the minimum feasible. Consider enforcement costs of road closures in the integrated logging system and transportation analysis.
   2. If reserve design criteria are no longer met, adjust reserve locations to meet reserve size, spacing, and composition criteria if lands are available (see Wildlife Habitat Planning, section B below, and Appendix K).
   3. For timber salvage, use logging systems that do not require additional permanent road construction.

B. Manage existing roads to meet LUD objectives.
   1. In Old-growth Habitat LUDs with existing roads, develop or update road management objectives to meet LUD objectives (see Wildlife [brown bear and wolf] and Transportation Forest-wide Standards and Guidelines). Use of existing roads may continue pending the development or update of the access and travel management plan.
   2. Road management objectives may include temporary or permanent road closures, and may be specific to individual road specification types (e.g., keep mainlines open, close arterial and spur).
   3. Road maintenance and reconstruction may be permitted if consistent with road management objectives.

C. Sites for log transfer facilities are generally not appropriate in this LUD. If no other feasible alternative sites exist, locate, design, construct, and manage these facilities in a manner that will be compatible with LUD objectives. Consider the Log Transfer Facility Guidelines (Appendix G) when making the selection for the facility.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Maintain contiguous blocks of old-growth forest habitat in a forest-wide system of old-growth reserves to support viable and well-distributed populations of old-growth associated species and subspecies.

B. A system of large, medium, and small old-growth habitat reserves has been identified and mapped in the Forest Plan as part of a Forest-wide Old-growth Habitat reserve strategy. The mapped large and medium reserves generally achieve reserve strategy objectives, and few major modifications are anticipated. The small mapped reserves have received differing levels of ground-truthing and integration of site-specific information in their design. During project-level environmental analysis, for projects areas that include or are adjacent to mapped old-growth habitat reserves, the size, spacing, and habitat composition of mapped reserves may be further evaluated. (See Appendix K for mapping criteria.)
   1. Adjust reserves not meeting the minimum criteria to meet or exceed the minimum criteria.
   2. Reserve location, composition, and size may otherwise also be adjusted. Alternative reserves must provide comparable achievement of the Old-growth Habitat LUD goals and objectives. Determination as to comparability must consider the criteria listed in Appendix K.
   3. Adjustments to individual reserves described in 1. and 2. above are not expected to require a significant plan amendment. Adjustments Forest-wide shall be monitored yearly to assess whether a significant plan amendment is warranted on the basis of cumulative changes.

C. Allow previously harvested or natural early seral stands to develop into old-growth habitats, or provide young-growth management to accelerate attainment of old-growth characteristics. (See WILD2, below.)

Wildlife Habitat Restoration: WILD2

A. Manage early seral forest stands for purposes of wildlife habitat development. Allow techniques such as thinning, pruning, and planting to accelerate development of advanced seral stand structure, including maintenance of shrub and forb understory.

SEMI-REMOTE RECREATION

Goals

To provide predominantly natural or natural-appearing settings for semi-primitive types of recreation and tourism, and occasional enclaves of concentrated recreation and tourism facilities.

To provide opportunities for a moderate degree of independence, closeness to nature, and self-reliance in environments requiring challenging motorized or non-motorized forms of transportation.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Semi-Primitive Recreation Opportunity Spectrum (ROS) classes. Enclaves of concentrated recreation and tourism developments within the LUD or management activities in adjacent LUDs may cause the ROS setting to become Rural.

Determine on a case-by-case basis whether roads, trails, and other areas should be closed to motorized recreation activities. If so, incorporate into off-highway vehicles (OHV) plans. If not, the use of boats, aircraft, and snowmachines for traditional activities is allowed.

Permit small-scale, rustic recreation and tourism facilities, and occasional enclaves of concentrated recreation and tourism facilities.

Apply the Moderate Scenic Integrity Objective to any developments, facilities, or structures.

Fish enhancement and wildlife habitat improvement may occur.

Desired Condition

Areas in the Semi-Remote Recreation LUD are characterized by generally unmodified natural environments. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Users have the opportunity to experience a moderate degree of independence, closeness to nature, solitude, and remoteness, with some areas offering motorized opportunities and others non-motorized opportunities (except for the traditional uses of boats, aircraft, and snowmachines). Interactions between users are infrequent. Facilities and structures may be minimal or occasionally may be larger in scale, but will be rustic in appearance, or in harmony with the natural setting.

Semi-Remote Recreation Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I,II(A-G,K,L)
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
	RIP2	I,II(A-E,G,H)
Rural Community Assistance	RUR	All
Scenery	SCENE1, 3	All
	SCENE2	I,II(A-B,E)
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,6-7),II,III
Subsistence	SUB	All
Timber	TIM2,5, 7, 8	All
	TIM5,TRAI	All
Trails	TRAI	All
	TRAN1, 2, 3, 4, 5, 6	All
Wetlands	WET	All
Wildlife	WILD1	I-VIII; IX(A:1-8;11,B); X-XV
	WILD2	I(A:1;B)
	WILD3, 4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Design and locate administrative and non-recreation structures to reduce adverse effects on recreation and tourism opportunities.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Emphasize suppression tactics that result in the least possible disturbance or evidence of human presence.
   1. Suppression tactics will avoid human/bear conflicts and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.

2. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as part of rehabilitation activities, but within 1 year after the fire occurs.
3. Mechanized fireline construction will avoid important wildlife habitat areas such as meadows, bogs, and riparian areas.

Fuel Improvements: FIRE2

Prescribed Fire

A. Management ignitions, although they are not presently used in this LUD, may be used as an acceptable means of fuels management and wildlife habitat improvement so long as its use is compatible with LUD objectives.
B. As a general management practice, do not use prescribed natural fire. (Consult Forest Service Manual [FSM] 5142.)

FOREST HEALTH

Forest Health Management: HEALTH1

A. Insect and disease management measures consistent with LUD objectives may be implemented to protect recreation and tourism opportunities, and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Enhancement

A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
   1. Provide interpretive information concerning heritage resources located within this LUD to users in the form of exhibits and publications located outside of this LUD.
   2. Heritage resources are available for scientific studies that are consistent with the semi-primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only facilities and uses consistent with Semi-Remote Recreation LUD objectives.
B. This LUD represents a Transportation and Utility System (TUS) "window" and provides opportunities for the future designation and location of Transportation and Utility sites.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral exploration and development.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Generally, manage for Semi-Primitive ROS settings. Enclaves of concentrated recreation and tourism developments within the LUD or management activities in adjacent LUDs may cause the ROS setting to become Roaded Natural, Roaded Modified, or Rural.
B. Designation of motorized routes for OHVs in Semi-Remote Recreation is allowed and will be planned in accordance with 36 CFR 212.
    1. Manage roads for Maintenance Level 2, except when Maintenance Level 3 roads provide access to or through the LUD. Occasional enclaves of concentrated recreation and tourism developments could warrant higher service levels in those areas.
C. Where roads, trails, and other areas are closed to motorized recreation activities or vehicles, provide Semi-Primitive Non-Motorized recreation opportunities.
    1. Permit use of snowmachines, motorboats, and aircraft for traditional activities.
D. Permit small scale, rustic recreation and tourism facilities such as recreation cabins, shelters, docks, and enclaves of concentrated recreation and tourism development.
    1. During all construction activity:
        a. Minimize site modification,
        b. Minimize vegetation clearing adjacent to the site, and
        c. Use colors found in the natural environment.

Recreation Special Uses

A. Major and minor developments are compatible with this LUD. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Design resource activities to remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color, or texture common to the landscape. New form, line, color, or texture will be subordinate to the characteristic landscape.
   1. Apply Forest-wide Standards and Guidelines for the Moderate Scenic Integrity Objective.
   2. There may be cases where facilities associated with a concentrated recreation or tourism development may not feasibly meet the Moderate objective. After analysis of the proposal and public involvement, the NEPA decision document for this project should determine the specific Scenic Integrity Objective for the development. The environmental analysis shall also prescribe design guidelines necessary to meet this scenery objective. During the project's design phase, the Forest Service shall be closely involved in the review of design work as it evolves.
   3. Design visitor facilities to blend, to the extent feasible, with the natural setting.

B. Rehabilitation techniques may be used to restore disturbed landscapes to be compatible with the Semi-Primitive setting.

TIMBER

Timber Resource Planning: TIM4

A. Forested land is classified as unsuitable for timber production.

B. The following types of uses may be authorized when they meet LUD objectives.
   1. Removal or use of trees for improvement of recreation and tourism opportunities, such as clearing for vistas, campsites, or trails.
   2. Removal or use of trees cut as a part of some other authorized use within this LUD (e.g., clearing for a fish ladder or road).
   3. Trees may be cut for use in construction and maintenance of authorized structures when it is not feasible to obtain the necessary material from outside this LUD.

C. Personal use wood harvest from beach log salvage is fully compatible with this LUD. Personal use wood cutting may be allowed based on local determination. If personal (free) use timber harvest is allowed, personal use permit requirements must satisfy the LUD's objectives (refer to Personal Use, Section TIM7). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.

Timber Sale Preparation: TIM5

A. Salvage will be limited to dead and/or down material resulting from events such as windthrow and insect or disease mortality. Limited standing green timber may be harvested during salvage operations for safety and operational considerations.

TRANSPORTATION

Transportation Operations: TRAN

A. Where Semi-Primitive Motorized recreation opportunities are emphasized, existing low standard roads are generally managed for use by high clearance or OHVs, snowmobiles, or motorcycles subject to an approved Access and Travel Management Plan. Generally, new roads are not constructed in this area, except to link existing roads or provide access to adjacent LUDs.

1. Limit the design standards of Forest development roads to those commensurate with the intended use.
2. Maintain, as necessary, to provide passage of planned traffic.
3. Locate and design new roads to consider Semi-Primitive recreation opportunities in this LUD.

B. Where Semi-Primitive Non-Motorized recreation opportunities are emphasized, provide foot or cross-country ski trails. Roads and trails may be closed or seasonally restricted. Close or obliterate existing roads except for transportation system links.

C. Sites for log transfer facilities may be considered in this LUD. If no other feasible alternative sites exist, locate, design, construct, and manage these facilities in a manner that will be compatible with LUD objectives. Consider the Log Transfer Facility Guidelines (Appendix G) when making the selection for the facility.

LAND USE DESIGNATION II

Introduction

Twelve areas were permanently allocated to LUD II special management in the Tongass Timber Reform Act of 1990 (TTRA). These areas include Yakutat Forelands, Berners Bay, Anan Creek, Kadashan, Lisianski River/Upper Hoonah Sound, Mt. Calder/Mt. Holbrook, Nutkwa, Outside Islands, Trap Bay, Point Adolphus/Mud Bay, Naha, and Salmon Bay. Specific management criteria for LUD II areas are defined in the Tongass Land Management Plan, completed March 1979, and amended Winter 1985-1986 (pp. 8-9).

Goals

To manage the 12 areas designated in perpetuity as LUD II by the TTRA according to the direction for LUD II areas in the 1979 Tongass Land Management Plan, as amended.

Manage these areas in a roadless state to retain their wildland character.

Objectives

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated by the Primitive and Semi-Primitive Recreation Opportunity Spectrum (ROS) classes. Apply the LUD II direction from the 1979 Tongass Land Management Plan, which is summarized as follows:

- Prohibit commercial timber harvest. Permit salvage logging only to prevent significant damage to other resources. Allow personal use of wood for cabin logs, fuelwood, float logs, trolling poles, etc.
- Permit water and power developments if designed to be compatible with the primitive characteristics of the area.
- Permit roads only for access to authorized uses, transportation needs identified by the state, or vital linkages. (See the Standards and Guidelines in this prescription.)
- Allow mineral development.
- Permit access by boats, aircraft, and snowmachines, unless such uses become excessive.
- Permit fish and wildlife habitat improvements. Design structures to minimize the effects to recreation resources.
- Permit primitive recreational facilities.
- Generally exclude major concentrated recreational facilities.

Salvage logging, personal use of wood, water and power development, fish and wildlife habitat improvement, and research facilities will be designed to be compatible with the primitive characteristics of the area.

Desired Condition

Areas in this LUD are characterized by extensive, generally unmodified natural environments, and retain their wildland character. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Users have the opportunity to experience a high-to-moderate degree of independence, closeness to nature, solitude, and remoteness, and may pursue activities requiring self-reliance, challenge, and risk. Interactions between users are infrequent. Recreational facilities and structures are primitive.

Land Use Designation II
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I,II(A-G,K,L)
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP1	All
	RIP2	I,II(A-E,G,H)
Rural Community Assistance	RUR	All
Scenery	SCENE1, 3	All
	SCENE2	I,II(A-B,E)
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,6-7),II,III
Subsistence	SUB	All
Timber	TIM2, 5, 7, 8	All
	TRAI	All
Trails	TRAI	All
	TRAN1, 2, 3, 4, 5, 6	All
Wetlands	WET	All
Wildlife	WILD1	I-VIII; IX(A:1-8,11,B); X-XVIII
	WILD2	I(A:1;B)
	WILD3, 4	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Administrative Facilities: FAC2 and FAC3

A. Permanent administrative facilities may be constructed in a manner that blends with the natural character of the area.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Emphasize suppression tactics that result in the least possible disturbance or evidence of human presence.
   1. Suppression tactics will minimize human/bear conflicts, and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
   2. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as part of rehabilitation activities, and no longer than 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire for fuels management, insect and disease protection, and wildlife habitat improvement.

B. As a general management practice, do not use prescribed natural fire, although natural ignitions may be used to perpetuate natural ecological processes. (Consult Forest Service Manual [FSM] 5142.)

FISH

Fish Habitat Planning: FISH2

Fish Enhancement

A. Improvements such as fishways, fish hatcheries, or aquaculture sites may be built. Appropriate landscape management techniques will be applied in the design and construction of such improvements to reduce impacts on recreational resources and scenery.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Insect and disease management measures consistent with this LUD may be implemented to protect these and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Enhancement

A. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses.
   1. Heritage resources are available for scientific studies that are consistent with the primitive settings and activities, and heritage resource management objectives for the specific site.

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Water and power developments are permitted if they can be designed to retain the overall primitive characteristics of the allocated area.

B. Except as authorized by the TTRA, permit only those activities that are consistent with the wildland character of the area.

C. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area. "Transportation and utility sites or corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.

MINERAL AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral exploration and development.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980, and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with 36 CFR 228 and FSM 2800.
D. Manage mineral exploration and development activities to be compatible with the emphasis on maintaining the wildland character of the LUD II Land Use Designation.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. Generally provide for Semi-Primitive ROS settings, recognizing that more developed settings may be present due to authorized activities, existing use patterns, and activities in adjacent LUDs.
    1. Primitive recreation facilities, such as recreation cabins, boat docks, moorings, and trails may be constructed and maintained.
B. Major concentrated recreation facilities, such as development scale IV and V (those heavily modified or with a high degree of site modification) will generally be excluded.
C. If a transportation link is constructed through this LUD, recreation facilities needed to serve the traveling public, to reduce impacts of recreation use to adjacent wildlands, or to provide interpretation, may be constructed in proximity to the transportation link.
D. Designation of motorized routes for off-highway vehicles in LUD II is generally not allowed. There may be limited exceptions where documented local traditional use related to subsistence activities has occurred, or when connecting to routes in adjacent LUDs.

Recreation Special Uses

A. Major developments are generally not consistent with the objectives of the LUD. Development proposals require scrutiny of the magnitude and scope for LUD conformance. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Each proposal will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Landscapes are managed to retain a natural-appearing scenic condition, where activities are not visually evident to the casual observer.
   1. Apply Forest-wide Standards and Guidelines for the High Scenic Integrity Objective.
   2. Some authorized activities and improvements may not meet the High Scenic Integrity Objective, based on project analysis. However, seek to mitigate scenic impacts through location, siting, design, material, and coloring of structures.

TIMBER

Timber Resource Planning: TIM4

A. Forested land is classified as unsuitable for timber production. Commercial timber harvesting is not permitted.
B. Timber can be salvaged only to prevent significant damage to other resources. Examples are removal of windfall in an important fish stream or control of epidemic insect infestations.
C. Personal use of wood is allowed for cabin logs, fuel wood, float logs, trolling poles, and other similar uses.

TRANSPORTATION

Transportation Operations: TRAN

A. Existing roads are generally closed to highway vehicular use. Any proposed roads will use the following guidelines:
   1. Allow vital Forest transportation system linkages including roads and transfer facilities. Vital Forest transportation system linkages refer to necessary additions to the permanent road network. Such linkages may be built through LUD II areas when either: 1) no other feasible routes exist to access adjacent LUDs, or 2) it can be demonstrated that the routing through the LUD II area is clearly environmentally preferable and site-specific mitigation measures can be designed to minimize the impact of the road on the surrounding LUD II area. A clear need to build such linkages must be demonstrated through a comparative analysis of feasible transportation alternatives through the NEPA process and approved by the Forest Supervisor.
   2. Roads, other than vital transportation linkages, will not be built except to serve authorized activities such as mining, power and water developments, aquaculture developments, or transportation needs determined by the State of Alaska (also the Transportation and Utility Systems LUD).

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Wildlife habitats will generally evolve in natural successional stages. Habitat improvement is permitted. Prioritize treatment needs and scheduling.

WILD RIVER

Goals

To manage designated river segments according to the Wild and Scenic Rivers Act (Public Law 90-542), National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service manuals and handbooks.

To maintain, enhance, and protect the free-flowing character and outstandingly remarkable values of rivers and river segments designated as Wild Rivers and included in the National Wild and Scenic Rivers System.

To maintain Wild Rivers in a natural, free-flowing, unmodified condition, and provide recreation and tourism opportunities affording a high degree of independence, closeness to nature, and self-reliance.

To manage recommended Wild River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Wild River segments to maintain an enduring wildland and free-flowing river resource, while providing for access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

Withdraw Wild River segments from mineral entry when designated by Congress, subject to valid existing rights, and classify forested lands as unsuitable for timber production.

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Primitive or Semi-Primitive Recreation Opportunity Spectrum (ROS) classes.

Apply the High Scenic Integrity Objective within the river corridor.

Desired Condition

Wild Rivers and river segments are in a natural, free-flowing, and undisturbed condition. Ecological processes and changes predominate. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation users have the opportunity for primitive and semi-primitive experiences, solitude, and remoteness in a natural setting. Interactions between users are infrequent, and evidence of human activities is minimal. Facilities and structures are rustic in appearance and promote primitive recreation and tourism experiences.

Wild River Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH1	All
	BEACH2	I
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH1	I(B:1,C)
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC1, 3	All
	REC2	I,II(A-C),III
Riparian	RIP1	All
	RIP2	I,II(A-E,G)
Rural Community Assistance	RUR	All
Scenery	SCENE1	All
	SCENE2	I,II(A,E)
	SCENE3	I(A,B,D),II
Soil and Water	SW1, 2, 4	All
	SW3	I(A:1-4,B-F),II
Subsistence	SUB	All
Timber	TIM2, 5, 8	All
Trails	TRAI1	I(A-E;F:1,3,5,6)
	TRAI2	All
Transportation	TRAN	None
Wetlands	WET	All
Wildlife	WILD1	I-V;VI(A-C,E);VII,VIII; IX(A:1-3,5-8,11,B); X-XIV; XVI(A:1)
	WILD2	I(A:1,B)
	WILD4	All

Apply the following LUD Standards and Guidelines

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Avoid construction of new administrative facilities unless needed for administration of river resources and users. If needed, facilities will be rustic and kept to a minimum.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.

B. Emphasize suppression tactics that result in the least possible disturbance or evidence of human presence.

1. Use of mechanized equipment will be addressed in the management plan developed for each river.

2. Suppression tactics will minimize human/bear conflicts, and existing policy will be emphasized to leave no trash or any other kinds of bear attractants in the area.
3. Rehabilitation of all campsites, suppression lines, and other evidence of human presence will occur as soon as part of rehabilitation activities, but within 1 year after the fire occurs.

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire that emulates natural ecological processes.
B. As a general management practice, do not allow prescribed natural fire. (Consult FSM 5142.)

FISH

Fish Habitat Planning: FISH2

Fish Enhancement

A. Fish enhancement projects may be allowed after considering the following during project planning:
   1. The primitive character of the area can be maintained. Realize that an enhanced fishery could result in increased recreation and tourism use.
   2. Effects on Wild River ecosystems due to the introduction of species not indigenous to the watershed.
   3. If a naturally appearing free-flowing condition can be maintained.
   4. Effects on the outstandingly remarkable values for which the river was designated.
   5. The appropriateness of structures both in type and scale to the primitive and natural character of the area.
   6. Ability to meet a High Scenic Integrity Objective.

Fish Habitat Improvement: FISH3

A. Use construction techniques that are consistent with the ROS setting.
   1. Land-disturbing activities necessary for construction will be temporary.
   2. Design development to minimize impact on the primitive character of the corridor.
B. Permanent stream obstructions are not permitted.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Implement insect and disease management measures consistent with this LUD to protect the character and values of Wild Rivers.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Enhancement

A. Heritage resources are available for scientific study to the extent that the study is consistent with the intent of the Wild and Scenic Rivers Act.
B. Heritage resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with Wild River management.
   1. Generally, provide interpretive information concerning heritage resources to users in the form of exhibits and publications outside the Wild River corridor.

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation will generally occur outside this LUD.
B. Manage caves as Class 1 (Sensitive) or Class 3 (Undeveloped) as described in the Karst and Cave Resources Forest-wide Standards and Guidelines.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only those uses consistent with management objectives. (Consult the Land and Resource Management Planning Handbook 1909.12, Chapter 8.)
   1. Do not authorize water supply dams or major diversions.
   2. Do not permit development of hydroelectric power facilities for 1) projects exempted from licensing by the Federal Energy Regulatory Commission (FERC), or 2) projects on rivers designated through Sections 2, 3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in the Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.
   3. Maintain the natural appearance and primitive character of the river area. Do not authorize flood control dams, levees, or similar structures in the channel or river corridor.
   4. Do not authorize new structures that would have a direct adverse effect on river values.
   5. Transportation and utility corridors will be allowed in accordance with ANILCA, Title XI. This LUD represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this LUD only after an analysis of potential TUS corridors is completed and no feasible alternative exists outside this LUD. Refer to the Transportation and Utility section for direction.
   6. Allow motorized access in accordance with ANILCA Sections 811 and 1110(b).

Land Ownership Administration: LAND6

A. Acquire private inholdings in the river corridor as opportunities arise.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Resource Administration: MG2

Wild Rivers

A. When designated by Congress, Forest lands within 0.25 mile of the river are withdrawn from mineral entry subject to valid existing rights.
B. Permit reasonable access to valid existing claims in accordance with the provisions of an approved Plan of Operations.
C. Encourage use of state-of-the-art techniques for developing mineral resources to reduce impacts to Wild Rivers to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Management and Operations

A. To the degree consistent with the overall purposes of designation, provide primitive wildland recreation opportunities that reflect the ecological, historical, and sociological conditions found within the river corridor and adjacent lands.
B. Manage for Primitive and Semi-Primitive ROS settings and activities that emphasize existing opportunities. Protect the integrity of river resources through integrated project planning and implementation.
    1. Manage for the existing or less developed recreation settings and opportunities unless activities and practices authorized by the Forest Service officer with delegated authority causes change in the ROS setting(s). Seek to minimize the changes through project design and mitigation. Manage recreation and tourism use in a manner that is compatible with the long-term objectives of the LUD.
C. Manage recreation and tourism use and activities to meet the appropriate levels of social encounters, on-site development, methods of access, and visitor impacts indicated for the ROS settings. (Consult the ROS Forest Service Handbook and the Recreation and Tourism Forest-wide Standards and Guidelines.)
D. Minor, rustic, recreation and tourism facilities, including public recreation cabins, floatplane and boat docks, trails, and trail bridges may be constructed in the river corridor.
E. Designation of motorized routes for off-highway vehicles in Wild Rivers is generally not allowed. Designation may only occur where documented local traditional use has occurred and the route is compatible with a Primitive or Semi-Primitive ROS setting.

Wild River Management

A. Manage all designated Wild River segments to maintain an enduring wildland and free-flowing river resource, while providing access and use consistent with the purposes of the Wild and Scenic Rivers Act, as amended, and ANILCA (Public Law 96-487). Traditional activities and practices authorized by ANILCA will be regulated or restricted only where it is determined that the effects of continued or expanded use is likely to cause one or more of the following:
    1. The degradation of the long-term successional changes in wildland and water ecosystems. Adequate determination of the cumulative effects of

activities and equipment use must be demonstrated as well as site-specific or singular effects.
2. It is detrimental to the natural dynamics of the composition or structure of wildland and water ecosystems.
3. It is detrimental to identified objects of heritage, historic, prehistoric, and scientific interest.
4. It is detrimental to the ROS setting conditions or where the cumulative effects of various activities are likely to become detrimental to those settings.
5. A specific use is not in accordance with applicable law.

B. Encourage and enlist public and private sector interest groups to work together in meeting Wild River management objectives. Emphasize programs that help to educate the public in the appropriate conduct of activities and uses within Wild River corridors.

Recreation Special Uses

A. Major developments are not consistent with agency policy and regulations. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.
B. Minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Landscapes are managed to retain a natural-appearing scenic condition, where activities are not visually evident to the casual observer.
1. Apply the Forest-wide Standards and Guidelines for the High Scenic Integrity Objective to all areas within the river corridor. The area adjacent to the corridor is managed according to the guidelines of the adjacent LUD.
2. Low scenic-impact recreation and tourism facilities, cabins, infrequent fish or wildlife management activities, and other authorized structures that are compatible with the primitive character of the corridor may be acceptable and should be considered on a case-by-case basis. (Also see the Recreation and Tourism Standards and Guidelines in this prescription.)

SOIL AND WATER

Watershed Resource Improvements: SW4

A. Undertake watershed improvements within 0.25 mile each side of the river only where deteriorated soil or hydrologic conditions create a threat to the values for which the river is managed. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)
B. Maintain water quality and flow to protect the river's outstandingly remarkable values.

SUBSISTENCE

Subsistence: SUB

A. Allow subsistence activities in Wild River corridors, subject to reasonable regulations to protect Wild River resources.

TIMBER

Timber Resource Planning: TIM4

A. Forested land is classified as unsuitable for timber production.
B. Silvicultural treatments are limited to control of insect and disease.
C. Salvage harvest of dead or down material may occur. Removal of naturally occurring dead trees in and along the river shoreline, including sweepers extending into the river from the bank should consider the protection of the outstandingly remarkable values and fish habitat in accordance with agreements with the state.
D. Taking of personal use wood is limited to beach logs on the portion of the river influenced by tidal action. Only beach logs that can be removed without roads or use of vehicles on uplands may be taken.

TRANSPORTATION

Transportation Operations: TRAN

A. Permit no new roads, except to access valid mining claims or as TUS corridors in accordance with ANILCA Title XI.
B. Close roads in this LUD to motorized vehicle use.
C. Allow continued existing use of snowmachines and aircraft; however, restrictions may be imposed on a case-by-case basis to protect outstandingly remarkable river values.

WILDLIFE

Wildlife Habitat Improvement: WILD2

A. Allow wildlife habitat improvements where their principal objective is the protection or restoration of Wild River resources, and enhancement of outstandingly remarkable values.

SCENIC RIVER

Goals

To manage designated river segments according to the Wild and Scenic Rivers Act (Public Law 90-542), National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service manuals and handbooks.

To maintain, enhance, and protect the free-flowing character and outstandingly remarkable values of rivers and river segments designated as Scenic Rivers and included in the National Wild and Scenic Rivers System.

To maintain Scenic Rivers in a natural or naturally appearing, free-flowing condition, and provide recreation and tourism opportunities meeting these expectations.

To manage recommended Scenic River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Scenic River segments to maintain an enduring wildland and free-flowing river resource, while providing access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act (ANILCA).

Permit timber harvest on suitable forest lands if adjacent lands are being managed for that purpose, in accordance with the standards and guidelines for the stated Scenic Integrity Objectives.

Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the desired Recreation Opportunity Spectrum (ROS) class (generally Semi-Primitive).

Permit roads to provide access to, and occasionally cross, the river. Roads, except for short segments, are not visually evident to river users.

Apply the High Scenic Integrity Objective to foreground areas as seen from the river, roads, and trails, and Moderate for all other seen areas within the river corridor.

Desired Condition

Scenic Rivers and river segments are in a generally unmodified, free-flowing condition. Ecological processes and changes may be somewhat affected by human uses. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation and tourism users have the opportunity for experiences ranging from Primitive to Roaded Natural in a natural-appearing setting. Resource activities within the river corridor are not visually evident to the casual observer. Interactions between users are moderate. Facilities and structures are rustic in appearance, and promote semi-primitive recreation experiences and/or public safety. A yield of timber may be produced that contributes to the Forest-wide sustained yield.

Scenic River Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE1, 3	All
	SCENE2	I,II(A-C,E),III
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM	All
Trails	TIM	All
Trails	TRAI	All
	TRAN1, 2, 3, 4, 5, 6	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Administrative and authorized non-recreation facilities should not be evident as viewed from the river and its banks.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan
B. Suppression tactics are limited only by the standards and guidelines for this LUD (e.g., the soil, water, and scenery resources).

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire that meets the High Scenic Integrity Objective and meets all soil and water quality standards.
   1. Treat all activity fuels to meet the High Scenic Integrity Objective within 1 year following timber harvest.
B. As a general management practice, do not allow prescribed natural fire. (Consult Forest Service Manual [FSM] 5142.)

FISH

Fish Habitat Planning: FISH2

A. Provide for public interpretation of fish habitats, habitat enhancement projects, and special fisheries conditions in appropriate Scenic Rivers.
B. Evaluate fish habitat improvement during project planning by considering:
   1. Effects on the free flow of water.
   2. Effects on the outstandingly remarkable values for which the river was designated.
   3. Stream obstructions are discouraged.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Maintain or improve forest health through insect and disease management practices.
   1. Allow sanitation and salvage of infested timber to protect the character and the outstandingly remarkable values of the Scenic River.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only those uses consistent with river management objectives. (Consult the Land and Resource Management Planning Handbook.)
   1. Do not authorize water supply dams or major diversions.
   2. Do not permit development of hydroelectric power facilities for: 1) projects exempted from licensing by the Federal Energy Regulatory Commission (FERC) or 2) projects on rivers designated through Sections 2, 3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in the Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.
   3. Do not authorize flood control dams and levees.
   4. Roads may occasionally bridge river areas. Permit short stretches of conspicuous, or longer stretches of inconspicuous and well-screened,

roads or railroads, on a case-by-case basis, depending upon intended use.

5. Do not authorize new structures that would have a direct adverse effect on river values.
6. Allow transportation and utility corridors in accordance with ANILCA, Title XI. This LUD represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.
7. Allow motorized access in accordance with ANILCA, Sections 811 and 1110(b).

Land Ownership Administration: LAND6

A. Acquire private inholdings as opportunities arise.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Resource Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Service Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites, as well as authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this LUD as indicated by the ROS inventory.
    1. Manage for the existing recreation settings and opportunities until scheduled activities and practices cause a change in the ROS setting(s). Manage recreation use in a manner that is compatible with the long-term objectives of this LUD.
    2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Maintain the capability of this LUD to provide appropriate quality recreation opportunities on a sustained basis.
    3. Provide recreation facilities consistent with the ROS setting. Where possible, major facilities should be screened from the river. On-site interpretation may be provided.
    4. Manage use and activities for the safety and convenience of the user, and protection and interpretation of the river resources. Experiences may include those requiring moderate isolation to those influenced by humans in a modified setting. Recreation facilities may include campgrounds, picnic areas, lodges, resorts, and interpretive sites and similar facilities.
B. Designation of motorized routes for off-highway vehicles in Scenic Rivers is allowed and will be planned in accordance with 36 CFR 212.

Recreation Special Uses

A. Major developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

B. Minor developments are fully compatible with this LUD; applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Maintain or improve the scenic character of river segments that qualified the river as a Scenic River, particularly where scenic quality is an outstandingly remarkable value. In foreground settings, design management activities to not be visually evident to the casual observer. Management activities should be visually subordinate to the characteristic landscape in the middleground distance zone. In all settings, activities should utilize existing form, line, color, and texture found in the characteristic landscape.

   1. Apply to the river corridor the High Scenic Integrity Objective for lands in the foreground distance zone and the Moderate Scenic Integrity Objective for lands in the middleground and background distance zone, as seen from the river and other Visual Priority Travel Routes and Use Areas (see Appendix F). In areas not seen from the river or Visual Priority Travel Routes and Use Areas, apply the Low Scenic Integrity Objective. However, if scenery is listed as one of the outstandingly remarkable values, apply the Moderate Scenic Integrity Objective. These objectives define the maximum limit of allowable change to the scenic character of the area; less visible evidence of activities is acceptable. Note that these standards and guidelines only apply to lands within the Scenic River LUD. The area adjacent to this LUD is managed according to the guidelines of the adjacent LUD.
   2. Exceptions to the Scenic Integrity Objective for small areas of non-conforming developments, such as recreation sites, transportation developments, and mining development, may be considered on a case-by-case basis. Use designs and materials that are compatible with forms, colors, and textures found in the characteristic landscape.

B. Locate and design recreation facilities and other authorized activities within the river corridor in a manner most compatible with the High Scenic Integrity Objective. Recreation facilities visible from the river generally are limited to those providing access to water-based recreation opportunities, such as fishing access points, trails, and boat launch facilities. Other recreation facilities, such as cabins, are generally screened from view from the river.

C. The following guidelines provide direction for timber harvest activities to meet Scenic Integrity Objectives and Visual Absorption Capability (VAC) settings. These conditions are approximate estimates for planning purposes and should be referred to as guidelines during project analysis. Ground conditions may indicate a need to be more restrictive or relaxed in scheduling harvest to meet the intent of the Scenic Integrity Objective.

   1. <u>High</u> - Timber harvest activities are not evident to the casual Forest visitor.
   2. <u>Moderate</u> - Although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
   3. <u>Low</u> - Timber harvest activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally- occurring landscape.

4. Typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the Scenic Integrity Objectives adopted in this LUD are described below.
   - **a) Scenic Integrity Objective High:**
     - Low VAC: Single tree or group selection (openings less than 2 acres)
     - Intermediate VAC: Single tree or clearcut (openings approximately 5 to 15 acres)
     - High VAC: Clearcut (openings approximately 15 to 30 acres)
   - **b) Scenic Integrity Objective Moderate:**
     - Low VAC: Group selection or clearcut (openings approximately 2 to 10 acres)
     - Intermediate VAC: Clearcut (openings approximately 10 to 40 acres)
     - High VAC: Clearcut (openings approximately 40 to 60 acres)
   - **c) Scenic Integrity Objective Low:**
     - Low VAC: Clearcut (openings approximately 15 to 40 acres)
     - Intermediate VAC: Clearcut (openings approximately 40 to 60 acres)
     - High VAC: Clearcut (openings approximately 60 to 100 acres)

SOIL AND WATER

Watershed Resource Improvements: SW4

A. Undertake watershed improvements within the river corridor only where deteriorated soil or hydrologic conditions create a threat to the values for which the river is managed. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource, or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)

SUBSISTENCE

Subsistence: SUB

A. Allow subsistence activities in the Scenic River LUD, subject to reasonable regulations to protect Scenic River resources.

TIMBER

Timber Resource Planning: TIM4

A. Suitable forested land is available for harvest if the adjacent LUD allows timber harvest.

B. Personal use sawtimber, firewood, and Christmas tree harvesting is compatible with this LUD provided that management objectives are met. Discourage cutting within 100 feet each side of the river (also see the Riparian Forest-wide Standards and Guidelines). The cutting of down trees in navigable rivers (sweepers) must be compatible with the management direction for fish habitat and protect the outstandingly remarkable characteristics of the river.

C. Scenic rivers contribute to the old-growth conservation strategy. If project-level planning considers timber harvest within these areas, ensure that sufficient old growth will still be maintained to meet the size, spacing, composition, and connectivity requirements of the old-growth strategy specified in the Forest Plan.

D. Project analysis, development of environmental documents, and design for timber activities will enhance or maintain the outstandingly remarkable values within the river corridor.

Timber Sale Preparation: TIM5

A. Timber harvest activities may include all applicable silvicultural systems. Project analysis will recognize the effects of color, tone, texture, line, slope, size, and edge on the Scenic River.

B. Salvage harvest of dead or down material may occur. Removal of naturally occurring dead trees in and along the river shoreline, including "sweepers" extending into the river from the bank, should consider the protection of outstandingly remarkable values and fish habitat.

TRANSPORTATION

Transportation Operations: TRAN

A. Develop and manage the transportation system in a manner compatible with Scenic River classification.

1. Allow the construction of Forest Development Roads that may provide access to the river. Roads may occasionally bridge the river.
2. Locate and design roads that, except for short segments or at bridge crossings, are not evident to the casual observer traveling on the river. Do not allow long stretches of conspicuous and well-traveled roads parallel the riverbank.
3. Limit the design standards of Forest Development Roads to those necessary to accommodate single use or a controlled mix of traffic (i.e., Traffic Service Level C or D). Occasional roads will be at a higher service level, but that will be an exception.
4. Consider the recreation emphasis of this LUD during development of road management objectives.

WILDLIFE

Wildlife Habitat Improvement: WILD2

A. Allow wildlife habitat improvement where the principal objective is the protection or restoration of river resources, and the enhancement of outstandingly remarkable values.

RECREATIONAL RIVER

Goals

To manage designated river segments according to the Wild and Scenic Rivers Act (Public Law 90-542), National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (Federal Register Volume 47, Number 173, 1982), and direction in Forest Service manuals and handbooks.

To maintain, improve, and protect the essentially free-flowing character and outstandingly remarkable values of rivers and river segments designated as Recreational Rivers and included in the National Wild and Scenic Rivers System.

To provide recreation opportunities in a pleasing, though modified, generally free-flowing river setting, while allowing timber harvest, transportation, and other developments.

To manage recommended Recreational River segments to maintain their outstandingly remarkable values and classification eligibility until Congress designates the segments or decides not to designate them.

Objectives

Manage Recreational River segments to maintain a free-flowing river resource, while providing for access and use consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

Permit timber harvest on suitable forest lands if adjacent lands are being managed for that purpose, in accordance with the standards and guidelines for the stated Scenic Integrity Objectives.

Manage recreation use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the desired Recreation Opportunity Spectrum (ROS) class (generally Roaded Natural).

Permit roads to access, parallel, or cross the river. In general, design access roads to accommodate passenger cars, and open them to public use.

Apply the Moderate Scenic Integrity Objective to foreground areas within the corridor seen from the river, roads, and recreation facilities, and Low to all other seen areas within the river corridor.

Desired Condition

Recreational Rivers and river segments are in a generally unmodified to modified, essentially free-flowing condition. Ecological processes and changes may be affected by human uses. The outstandingly remarkable values for which the river was designated remain outstanding and remarkable. Recreation users have the opportunity for a variety and range of experiences in a modified but pleasing setting. Resource activities and developments may be present within the river corridor, and may dominate some areas. A variety of scenic conditions occur. Interactions between users may be moderate to high. A yield of timber may be produced, which contributes to Forest-wide sustained yield.

Recreational River Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM	All
Trails	TIM	All
Trails	TRAI	All
	TRAN1, 2, 3, 4, 5, 6	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow the location of administrative facilities and public information centers in the river corridor if they do not have adverse effects on the values this LUD is intended to protect.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards and guidelines for this LUD (e.g., soil, water, and scenery resources).

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire that meets the Moderate Scenic Integrity Objective as well as all soil and water quality standards.
   1. Treat all activity fuels to meet the Moderate Scenic Integrity Objective within 1 year following timber harvest.
B. As a general management practice, do not allow prescribed natural fire. (Consult Forest Service Manual [FSM] 5142.)

FISH

Fish Habitat Planning: FISH2

A. Provide for public interpretation of fish habitats, habitat enhancement projects, and associated special fisheries conditions in appropriate Recreational Rivers.
B. Evaluate fish habitat improvement during project planning by considering:
   1. Effects on the free flow of water.
   2. Effects on the outstandingly remarkable values for which the river was designated.
   3. Stream obstructions will be discouraged.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Maintain or improve forest health through insect and disease management practices. Implement these practices in compliance with recreation objectives.
   1. Encourage hazard tree management in developed areas.
   2. Permit salvage and sanitation of infested timber.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, interpretation, and allocation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Permit only those uses consistent with river management objectives. (Consult the Land and Resource Management Planning Handbook 1909.12, Chapter 8.)
   1. Allow existing low dams, diversion works, rip rap, and other minor similar instream structures to remain. Generally, prohibit new structures of this nature.
   2. Permit no development of hydroelectric power facilities for: 1) projects exempted from licensing by the Federal Energy Regulatory Commission (FERC), or 2) projects on rivers designated through sections 2, 3, and 5(a) of the Wild and Scenic Rivers Act. The Forest Service will recommend to FERC that a project on a river found eligible and suitable for inclusion in the Wild and Scenic Rivers System should not be licensed because it is inconsistent with the purposes for which the National Forest was created or acquired and, if necessary, impose

conditions on any license issued for a project on that river that fully protect its outstandingly remarkable characteristics and free-flowing nature.

3. Permit maintenance of existing flood control structures. Do not authorize new ones.
4. Consider authorizing construction of roads, trails, or railroads on a case-by-case basis. They may be authorized on one, or both, river banks and there may be several bridge crossings and numerous river access points. Permit new structures as necessary and appropriate.
5. Transportation and utility corridors will be allowed in accordance with ANILCA, Title XI. This LUD represents a Transportation and Utility Systems (TUS) "Avoidance Area." Transportation and utility sites or corridors may be located within this LUD only after an analysis of potential TUS corridors has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.
6. Allow motorized access in accordance with ANILCA, Sections 811 and 1110(b).

Land Ownership Administration: LAND6

A. Acquire private inholdings as opportunities arise.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this LUD as indicated by the ROS inventory.
   1. Manage for the existing recreation settings and opportunities until scheduled activities and practices cause a change in the ROS setting(s). Manage recreation use in a manner that is compatible with the long-term objectives of this LUD.
   2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines. Maintain the capability of this LUD to provide appropriate quality recreation opportunities on a sustained basis.
   3. Provide recreation facilities consistent with the ROS setting. Where possible, major facilities should be screened from the river. On-site interpretation may be provided.

4. Manage use and activities for the safety and convenience of the user, and protection and interpretation of the river resources. Experiences may include those requiring moderate isolation to those influenced by humans in a modified setting. Recreation facilities may include campgrounds, picnic areas, lodges, resorts, and interpretive sites and similar facilities.

B. Motorized routes for off-highway vehicles in Recreation River LUDs may be allowed and will be planned in accordance with 36 CFR 212.

Recreation Special Uses

A. Major and minor developments are compatible with this LUD; applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. In foreground settings, design management activities to be subordinate to the characteristic landscape. Management activities may dominate areas seen in the middleground distance. In all settings, activities should utilize existing form, line, color, and texture found in the characteristic landscape.
   1. Apply the Moderate Scenic Integrity Objective in the foreground distance zone and the Low Scenic Integrity Objective in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas not seen from the river or Visual Priority Travel Routes and Use Areas, apply the Very Low Scenic Integrity Objective. However, if scenery is listed as one of the outstandingly remarkable values, apply the Moderate Scenic Integrity Objective in the middleground, background, and unseen areas. These objectives define the maximum limit of allowable change to scenic character of the area; less visible evidence of activities is acceptable. Note that these standards and guidelines apply only to the lands within the Recreational River LUD. The area adjacent to this LUD is managed according to the guidelines of the adjacent LUD.
   2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities, and mining development, may be considered on a case-by-case basis. Use designs and materials that are compatible with forms, colors, and textures found in the characteristic landscape.

B. The following guidelines provide direction for timber harvest activities to meet Scenic Integrity Objectives and Visual Absorption Capability (VAC) settings. These estimates are appropriate for planning purposes and should be referred to as guidelines. Ground conditions may indicate a need to be more restrictive or relaxed in scheduling harvest to meet the intent of the Scenic Integrity Objective.
   1. Moderate - Although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
   2. Low - Timber harvest activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally- occurring landscape.
   3. Very Low - Timber harvest activities may visually dominate the original characteristic landscape. This Scenic Integrity Objective should be met within 1 year in the foreground distance zone and within 5 years in the middle and background distances.

4. Typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the Scenic Integrity Objectives adopted in this LUD are described below.
   a) Scenic Integrity Objective. Moderate:
   - Low VAC: Group selection or clearcut (openings approximately 2 to 10 acres)
   - Intermediate VAC: Clearcut (openings approximately 10 to 40 acres)
   - High VAC: Clearcut (openings approximately 40 to 60 acres)

   b) Scenic Integrity Objective Low:
   - Low VAC: Clearcut (openings approximately 15 to 40 acres)
   - Intermediate VAC: Clearcut (openings approximately 40 to 60 acres)
   - High VAC: Clearcut (openings approximately 60 to 100 acres)

   c) Scenic Integrity Objective Very Low:
   - Low VAC: Clearcut (openings approximately 50 to 75 acres)
   - Intermediate VAC: Clearcut (openings approximately 80 to 100 acres)
   - High VAC: Clearcut (openings approximately 80 to 100 acres)

SOIL AND WATER **Watershed Resource Improvements: SW4**

A. Undertake watershed improvements within the river corridor where deteriorated soil or hydrologic conditions exist. Use, whenever possible, indigenous plant species and materials in implementing land treatment measures to protect or improve the quality and/or quantity of the water resource, or when stabilizing or improving the productivity of the soil resource. (Consult FSM 2350 and 2520.)

B. Carry out land use activities to maintain water quality.

TIMBER **Timber Resource Planning: TIM4**

A. Suitable forested land is available for harvest if the adjacent LUD allows timber harvest. Silvicultural treatment is integrated with site and area development to provide healthy tree stands, vegetative diversity, and forage production for indigenous wildlife populations. Insect and disease control, and landscaping are performed to maintain the aesthetic value of both existing recreation and potential recreation sites.

B. Personal use sawtimber, firewood, and Christmas tree harvesting is compatible with this LUD provided that LUD objectives are met, consistent with the level of use allowed by the ROS. Discourage cutting within 100 feet each side of the river (also see the Riparian Forest-wide Standards and Guidelines). The cutting of down trees in navigable rivers (sweepers) must be compatible with the management direction for fish habitat and the protection of the outstandingly remarkable characteristics of the river.

C. Scenic rivers contribute to the old-growth conservation strategy. If project-level planning considers timber harvest within these areas, ensure that sufficient old growth will still be maintained to meet the size, spacing, composition, and connectivity requirements of the old-growth strategy specified in the Forest Plan.

D. Project design, analysis, and development of environmental documents for timber activities will emphasize enhancement or maintenance of the outstandingly remarkable river values.

E. Administrative use of timber is permitted for structures within the LUD and for other uses outside the LUD if compatible with LUD objectives.

Timber Sale Preparation: TIM5

A. Timber harvest activities may include all applicable silvicultural systems. Project analysis will recognize the effects of color, tone, texture, line, slope, size, and edge on the scenic viewshed.

B. Salvage harvest of dead or down material may occur. Removal of dead trees in and along the river shoreline, including sweepers extending into the river from the bank, should consider the protection of the outstandingly remarkable values and fish habitat.

TRANSPORTATION

Transportation Operations: TRAN

A. Develop and manage the transportation system in a manner compatible with Recreational River classification.

1. Allow the construction of Forest Development Roads. The river may be readily accessible by road. Roads may parallel the river bank and be conspicuous in places when viewed from the river.
2. If accessible for public use, design roads to accommodate passenger cars and open them to public use (consistent with road management objectives), although traffic controls may be used during periods of high use (i.e., design to Traffic Service Level C or above).

EXPERIMENTAL FOREST

Goals

To provide for long-term opportunities for forest research and demonstration essential to managing forest resources.

Objectives

The Director of the Pacific Northwest Research Station will prepare a development plan for each experimental forest in consultation with the Forest Supervisor designed to achieve the desired research objectives. Experimental forests are jointly administered by the Pacific Northwest Research Station and the Ranger District in which it is located.

Allow timber harvest, as specified in the development plan, for research and demonstration purposes. Timber harvest is not counted towards the Allowable Sale Quantity, and forest lands are classified as unsuitable for timber production.

Roads and trails will generally complement research and interpretation. Allow facilities necessary for ongoing research, as specified in the experimental forest's development plan.

Allow fish enhancement or wildlife improvement projects for research purposes, or if they are compatible with the establishment objectives of the experimental forest.

Desired Condition

Each experimental forest is managed for the purposes for which it was established. Ongoing research provides useful needed information for forest management. Non-research types of activities and uses may be compatible with, and do not interfere with, research or demonstration objectives. Opportunities for public use of roads may be present.

Experimental Forest Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM2, 5	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

BEACH AND ESTUARY FRINGE

Beach and Estuary Fringe: BEACH2

A. Management activities, more intensive than those allowed in the Beach and Estuary Fringe Forest-wide Standards and Guidelines, may be allowed to assess their impacts on beach and estuary fringe resources. Prior to these activities, appropriate NEPA analysis and decision by the Forest Service officer with delegated authority.

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow facilities necessary for ongoing research and its interpretation, as specified in the individual experimental forest's development plan.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression action that minimizes fire suppression cost and resource damage. The action must meet the objectives of the experimental forest's development plan.
B. Suppression tactics will be compatible with the Experimental Forest's objectives.

Fuel Improvements: FIRE2

Prescribed Fire

A. Allow management-ignited prescribed fire if it is compatible with the experimental forest's objectives.

B. As a general management practice, do not use prescribed natural fire, although it may be needed to perpetuate natural ecological processes. Should it become necessary to consider the use of prescribed natural fire, the Forest Plan must be amended to analyze, justify, and approve prescribed natural fire programs. (Consult Forest Service Manual [FSM] 5142.)

FISH

Fish Habitat Planning: FISH2

A. Fish habitat may be managed differently (e.g., using more intensive timber harvest techniques) than identified in the Riparian Forest-wide Standards and Guidelines to help meet the experimental forest's research objectives. In some cases, Forest-wide direction listed under FISH2 may not apply.

B. Fish enhancement projects may occur if they are compatible with the experimental forest's establishment objectives. Fish habitat manipulation may also occur to provide research into the costs, benefits, and effects of such manipulations with appropriate NEPA analysis and decision by the Forest Service officer with delegated authority.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Coordinate insect and disease management activities with the Pacific Northwest Research Station and with the Experimental Forest's Development Plan.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation.
   1. Identify, classify, and evaluate known heritage resources.
   2. Identify heritage properties to be nominated to the National Register of Historic Places.
   3. Identify heritage properties that require stabilization or other protective measures.
   4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Issue only those Special Use Authorizations consistent with the experimental forest's research objectives.
   1. Coordinate all proposed new uses with the Pacific Northwest Research Station Director to ensure compatibility with research objectives.

B. This LUD represents a Transportation and Utility System (TUS) "Avoidance Area." Transportation and utility sites and corridors may be located within this LUD only after an analysis of potential TUS corridor opportunities has been completed and no feasible alternatives exist outside this LUD. Refer to the Transportation and Utility section for direction.

Land Ownership Adjustments: LAND6

A. Acquire private inholdings as opportunities arise.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Depending on the research objectives, portions or all of the Experimental Forest may be withdrawn from mineral entry.
B. Claimants with claims located within this LUD retain valid existing rights if such rights were established prior to the date the experimental forest was withdrawn.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Continue to provide the spectrum of outdoor recreation opportunities in accordance with the existing capabilities of this LUD.
    1. Manage for the existing recreation uses, settings, and opportunities that can be accommodated without adverse effect on research objectives, until scheduled activities and practices cause a change in the ROS setting(s).
    2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines.
    3. Manage public use within the experimental forest to protect ongoing research activities.
B. Motorized routes may be allowed for off-highway vehicles in Experimental Forests and will be planned in accordance with 36 CFR 212.

Recreation Special Uses

A. Major and minor developments are generally not consistent with the objectives of the LUD. Development proposals require scrutiny of the magnitude and scope for LUD conformance.

SCENERY

Scenery Operations: SCENE1

A. In the Development Plan, identify the Scenic Integrity Objectives that may range from High to Very Low and will depend on the research objectives of the experimental forest. Emphasis on scenic quality should be given for areas seen from Visual Priority Travel Routes and Use Areas (see Appendix F).

RIPARIAN

Riparian Habitat Planning: RIP1 and RIP2

A. Riparian habitat may be managed differently (e.g., using more intensive timber harvest techniques) than identified in Riparian Forest-wide Standards and Guidelines to help meet the experimental forest's research objectives. In some cases, Forest-wide direction listed under RIP may not apply with appropriate NEPA analysis conducted by the Pacific Northwest Research Station for decision by the Forest Service officer with delegated authority.

SOIL AND WATER

Watershed Resource Planning: SW3

A. Soil and water resources may be temporarily altered by experimental activities to assess the impacts of such activities upon soil productivity, water quality and quantity, and fish populations and habitat with appropriate NEPA analysis conducted by the Pacific Northwest Research Station for decision by the Forest Service officer with delegated authority.

Watershed Resource Improvement: SW4

A. Soil and water treatment measures may occur if they are compatible with experimental forest's establishment objectives. Different treatments may occur to provide information on benefits, costs, and effects of such treatments.

SUBSISTENCE

Subsistence: SUB

A. Allow subsistence activities.

THREATENED ENDANGERED, and SENSITIVE

Threatened, Endangered and Sensitive: TES

Sensitive Species

A. Sensitive species habitats may be manipulated with planned research activities to assess the impacts of forest management activities/programs upon sensitive species habitats and populations with appropriate NEPA analysis and decision by the Forest Service officer with delegated authority.

TIMBER

Timber Resource Planning: TIM4

A. Forest lands are classified as unsuitable for timber production. Timber harvested for experimental and demonstration purposes will not count toward the Allowable Sale Quantity. Timber activities, including harvest and cultural treatment, will only take place for demonstration and research purposes as specified in the Experimental Forest Development Plan.

B. Personal use and Christmas tree cutting activities are limited to be consistent with the provisions of the experimental forest's development plan.

C. Administrative use of timber is permitted for structures needed to meet LUD objectives for research and interpretation projects.

TRANSPORTATION

Transportation Operations: TRAN

A. Provide and manage the transportation system as needed to accomplish the experimental forest objectives.

B. Roads and trails may be developed to facilitate and interpret the ongoing research.

C. Roads may be constructed through the experimental forest to access other LUDs, unless the roads would interfere with research objectives.

D. During construction, operation, and maintenance of roads, apply standards and guidelines and Best Management Practices, as appropriate.

WETLANDS

Wetlands: WET

A. Wetlands may be managed differently than identified in the Wetlands and Riparian Forest-wide Standards and Guidelines to help meet the experimental forest's research objectives with appropriate NEPA analysis and decision by the Forest Service officer with delegated authority. The appropriate permits will be acquired when needed.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Wildlife habitat management and research will be identified in the Experimental Forest's Development Plan.

B. Wildlife habitats may be treated to assess the impact of vegetation management upon wildlife populations. Use the Tongass Young-Growth Strategy to help prioritize treatment needs and scheduling.

SCENIC VIEWSHED

Goals

To provide a sustained yield of timber and a mix of resource activities while minimizing the visibility of developments as seen from Visual Priority Travel Routes and Use Areas.

To recognize the scenic values of suitable forest lands viewed from selected popular roads, trails, water travel routes, recreation sites, bays, and anchorages, and to modify timber harvest practices accordingly.

To seek to provide a supply of timber from the Tongass National Forest that meets the annual and planning-cycle market demand, consistent with the standards and guidelines for this LUD.

Objectives

Within this LUD, apply the Scenic Integrity Objective of High in the foreground distance zone and Moderate in the middleground and background distance zones, as seen from the Visual Priority Travel Routes and Use Areas (see Appendix F). Apply the Very Low Scenic Integrity Objective to all other areas.

Suitable forest lands are available for timber harvest. Utilize appropriate silvicultural systems consistent with the adopted Scenic Integrity Objectives. Other timber management considerations include:

- Seek to reduce clearcutting when other methods will meet land management objectives;
- Identify opportunities for diversifying the wood products industry (e.g., special forest products and value-added local production);
- Use forest health management to protect resource values;
- Improve timber growth and productivity on commercial forest lands;
- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production; and
- Emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Perform viewshed analysis in conjunction with project development to provide direction for retaining or creating a scenically attractive landscape over time, and for rehabilitation of areas overly modified in the past.

Provide a spectrum of recreation and tourism opportunities consistent with the capabilities of this LUD. Semi-primitive to roaded experiences may be offered.

Design roads and trails to be compatible with the characteristic landscape.

Extend rotations, as necessary, to meet the Scenic Integrity Objectives.

Desired Condition

In areas managed under the Scenic Viewshed LUD, forest visitors, recreationists, and others using identified popular travel routes and use areas will view a natural-appearing landscape (refer to Appendix F). Management activities in the foreground will not be evident to the casual observer. Activities in the middleground and background will be subordinate to the characteristic landscape. Areas topographically screened from Visual Priority Travel Routes and Use Areas may be heavily modified. Within these viewsheds, even-aged timber harvest units are typically small and affect only a small percentage of the seen area. At any given point in time, roads, facilities, and other structures are either not visually evident

or are subordinate to the landscape. A variety of successional stages providing wildlife habitat occur, although late successional stages predominate. Recreation and tourism opportunities in a range of settings are available. In the areas managed for High or Moderate Scenic Integrity Objectives, timber yields will generally be obtained through the use of small openings or uneven-aged systems. A yield of timber is produced, which contributes to Allowable Sale Quantity.

Scenic Viewshed Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD and Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Meet the Scenic Integrity Objectives for this LUD when siting and constructing facilities for administrative use.
   1. High: Structures and activities should not be visually evident to the casual observer from sensitive viewpoints.
   2. Moderate: Structures and activities should be subordinate to the landscape character of the area.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards for the LUD (e.g., soil, water quality, and scenery).

Fuel Improvements: FIRE2

Prescribed Fire

A. Management-ignited prescribed fire must meet the Very High Scenic Integrity Objective and meet all soil and water quality standards.
   1. Treat all activity fuels to meet the Very High Scenic Integrity Objective within 1 year following timber harvest.

B. Do not use prescribed natural fire.

FISH

Fish Habitat Improvements: FISH3

A. Meet the Scenic Integrity Objectives in the design and construction of fish habitat improvements and aquaculture facilities.
   1. Construct facilities from materials which blend with, and are compatible with, the immediately surrounding landscape.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Design Timber Stand Improvement, sanitation, salvage, and insect and disease management activities to be consistent with scenery and forest health objectives.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring, and protection of heritage resources during activities.
   1. Heritage resource inventory will be accomplished during project planning. State Historic Preservation Office concurrence and Forest Supervisor approval is required prior to implementation.
   2. Heritage resource specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
   3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Allow construction of structures only when Scenic Integrity Objectives can be achieved.
   1. Permit only structures that will not be evident to casual observers when viewed in the foreground distance from Visual Priority Travel Routes and Use Areas. In the middle to background distance, design structures to be subordinate to the characteristic landscape.

2. Specify that materials and fabrication techniques for all new facilities be compatible with form, color, and texture found in the immediate surrounding landscape.

B. This LUD represents a Transportation and Utility Systems (TUS) "Window," and provides opportunities for the future designation and location of transportation and utility sites or corridors.

Landline Location and Maintenance: LAND4

A. Provide adequate landline marking for Forest Service contractors.
   1. Prior to Forest Service management activities, survey, mark, and post the boundary of National Forest System lands to Forest Service Standards, where there is a risk of trespass.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Require a scenic assessment and scenery resource assistance with site planning and design of minerals activities.
B. Prepare geologic, paleontologic, and historic mining interpretations, where appropriate.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA, and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.
D. Manage mineral activities to be compatible with the emphasis of this LUD. Apply the following management practices to meet Visual Quality Objectives:
   1. Recognize the effects of color, tone, form, texture, line, size, and edge on the scenic viewshed.
   2. Locate material disposal sites and marine transfer facilities outside this LUD if reasonable alternatives exist.
   3. Take maximum advantage of topographic and vegetative screening when locating drill rigs and pumps, roads, rock quarries, structures, and marine transfer facilities.
   4. Ensure that vegetation removed from the project area is hauled away, buried, burned, or scattered when such vegetation is located adjacent to sensitive viewpoints.
   5. Minimize the scale of spoil/disposal areas in relation to the surrounding landscape as seen from sensitive viewpoints.
   6. Approve use of colors that simulate those found in the characteristic landscape. Avoid use of reflective materials in project facilities.
   7. Ensure that landform modifications simulate naturally occurring forms.
   8. Ensure that disturbed areas are revegetated in accordance with project plans.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Provide a spectrum of recreation and tourism opportunities consistent with the objectives of this LUD.
   1. Where possible, management activities should avoid change to inventoried Recreation places unless analysis indicates a need to provide a different recreation opportunity.
   2. In locations where approved activities occur, the recreation setting may change to the Semi-Primitive Motorized, Roaded Natural, and Roaded Modified ROS classes.
   3. Seek to maintain recreation opportunities along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.
   4. Seek to minimize impacts to areas directly adjacent to developed recreation and tourism facilities (e.g., cabins and campgrounds) through scheduling and location of timber harvest activities.

B. In those areas identified as inventoried Recreation places, seek to maintain the existing ROS setting. When scheduled activities nearby may result in a change in the ROS setting, minimize the impacts so they maintain a Roaded Natural, or more natural setting.

C. Motorized routes for off-highway vehicles in Scenic Viewshed may be allowed and will be planned in accordance with 36 CFR 212.

Recreation Special Uses

A. Major and minor developments are compatible with this LUD; applicants are encouraged to examine these areas first. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Manage areas to maintain scenic quality as seen from Visual Priority Travel Routes and Use Areas.
   1. Apply the High Scenic Integrity Objective for lands in the foreground distance zone and the Moderate Scenic Integrity Objective for lands in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas of this allocation not seen from the Visual Priority Travel Routes and Use Areas, apply the Very Low Scenic Integrity Objective. These objectives define the maximum limit of allowable change to the scenic character of the area; less visible evidence of activities is acceptable.
   2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities and mining development, may be considered on a case-by-case basis.
   3. Perform viewshed analysis in conjunction with project development to provide guidance for retaining or creating a visually attractive landscape over time.

B. The following guidelines provide direction for timber harvest activities to meet Scenic Integrity Objectives and Visual Absorption Capability (VAC) settings.
   1. High - Timber harvest activities are not evident to the casual Forest visitor.
   2. Moderate - Although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
   3. Very Low - Timber harvest activities may dominate the area.

C. The following guidelines provide specific scenery mitigation measures appropriate to timber management.

1. The ability to attain the adopted Scenic Integrity Objective is dependent on many variables. Visual Absorption Capability (VAC) is an estimate of the relative ability of a landscape to absorb management activities. VAC ratings of High, Intermediate, and Low were derived from the Revision Database for analysis purposes. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
2. The unit sizes listed below provide guidance to the project Interdisciplinary Team. Each landscape setting is different, and should be evaluated on a case-by-case basis. There may be instances where the scenery objective can be attained while the unit size is greater than the guideline, and there also may be instances where the unit size must be smaller to meet the intent of the Scenic Integrity Objective.
3. Typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the Scenic Integrity Objectives adopted in this LUD are described below.

a) Scenic Integrity Objective High:

- Low VAC: Single tree or group selection (less than 2 acres)
- Intermediate VAC: Single tree or clearcut (openings approximately 5 to 15 acres)
- High VAC: Clearcut (openings approximately 15 to 30 acres)

b) Scenic Integrity Objective Moderate:

- Low VAC: Group selection or clearcut (openings approximately 2 to 10 acres)
- Intermediate VAC: Clearcut (openings approximately 10 to 40 acres)
- High VAC: Clearcut (openings approximately 40 to 60 acres)

c) Scenic Integrity Objective Very Low:

- Low VAC: Clearcut (openings approximately 50 to 75 acres)
- Intermediate VAC: Clearcut (openings approximately 80 to 100 acres)
- High VAC: Clearcut (openings approximately 80 to 100 acres)

SOIL AND WATER

Watershed Resource Planning: SW3

A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to insure their recognition, proper consideration, and protection on the sale area.

B. Manage state classified public water supply source watersheds for multiple use, while providing water suitable for human consumption in compliance with the Safe Drinking Water Act, State of Alaska Drinking Water Regulations, and Water Quality Standards. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

C. Apply Best Management Practices (BMPs) to all land-disturbing activities as a process to protect the beneficial uses of water from non-point sources of pollution. (BMPs are found in the Alaska Region Soil and Water Conservation Handbook, 2509.22). Also consult Forest Service Manual (FSM) 2530, Transportation Forest-wide Standards and Guidelines, U.S. Army Corps of Engineers Regulations (33 CFR 323.4) and the Clean Water Act.

Watershed Resource Improvements: SW4

A. Accomplish soil and water improvement projects on non-designated domestic water use watersheds to prevent degradation of water quality below the State of Alaska's Water Quality Standard for domestic use.

TIMBER

Timber Resource Planning: TIM4

A. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.

B. Scenery objectives will be emphasized in the analysis, in the development of environmental documents, and in the design and implementation of silvicultural activities.

Timber Sale Preparation: TIM5

A. Timber harvest activities may include all applicable silvicultural systems. Project analysis will recognize the effects of color, tone, form, texture, line, slope, size, and edge on the scenic viewshed.

B. Tree limbs, root wads, and tree stumps may require secondary treatment to meet the High and Moderate Scenic Integrity Objective. For timber sales and road construction contracts, use appropriate clauses that address these concerns. Brush disposal funds may be appropriate to use in these settings.

C. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (e.g., cabins and campgrounds) through scheduling and location of harvest activities.

Other Forest Products: TIM7

A Personal use sawtimber, firewood, and Christmas tree cutting activities are compatible with this LUD provided that LUD objectives are met.

TRANSPORTATION

Transportation Operations: TRAN

A. Develop and manage cost-effective transportation systems that integrate resource requirements consistent with LUD direction.

1. To meet the Scenic Integrity Objectives, give special consideration to minimizing apparent landform modification (as seen from sensitive travel routes) during road and log transfer facility location, design, and construction.
2. Perform integrated logging system and transportation system analysis to determine the least cost facility (considering cost of construction, maintenance, and hauling) and design standards necessary to meet LUD objectives.
3. Give special emphasis to maintaining fish and wildlife habitat values, especially during road location and development of road management objectives.
   a) If the need to restrict access is identified during project interdisciplinary review, roads may be closed, either seasonally or year-long. (Consult Transportation Forest-wide Standards and Guidelines.)
4. Provide recreational access, where appropriate.
5. Seek to avoid road crossings on existing trails unless the road provides improved access to the trail or locating roads parallel to trails. Should no other feasible alternative exist, minimize site disturbance visible from the trail. Locate rock source developments away from trails to the extent possible, while meeting the objectives of this LUD.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.
   1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (Consult Wildlife Forest-wide Standards and Guidelines).

B. Coordinate all activities with consideration for the needs of wildlife, within the overall objectives of this LUD.
   1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife.
   2. In project planning, consider opportunities to allow for the elevational migration of wildlife.
   3. Consider silvicultural techniques that establish and prolong understory forb and shrub production in important habitat areas. Such techniques can include prescribed burning, precommercial thinning, canopy gaps, and uneven-aged management. Use the Tongass Young-Growth Strategy to help prioritize treatment needs and scheduling.

C. Coordinate road management with the needs of wildlife.

Wildlife Habitat Improvement: WILD2

A. Design and implement wildlife habitat improvement projects to meet the Scenic Integrity Objectives.

MODIFIED LANDSCAPE

Goals

To provide a sustained yield of timber and a mix of resource activities while minimizing the visibility of developments in the foreground distance zone.

To recognize the scenic values of suitable forest lands viewed from identified popular roads, trails, marine travel routes, recreation sites, bays, and anchorages, and to modify timber harvest practices accordingly.

To maintain and promote wood production from suitable forest lands, providing a continuous supply of wood products to meet society's needs.

To seek to provide a supply of timber from the Tongass National Forest that meets the annual and planning-cycle market demand, consistent with the standards and guidelines for this LUD.

Objectives

Within this LUD, apply the Scenic Integrity Objective of Moderate in the foreground distance zone and Low in the middleground and background distance zones, as seen from the Visual Priority Travel Routes and Use Areas (see Appendix F). Apply the Very Low Scenic Integrity Objective to all other areas.

Suitable forest lands are available for timber harvest. Utilize appropriate silvicultural systems consistent with the adopted Scenic Integrity Objectives. Other timber management considerations include:

- Seek to reduce clearcutting when other methods will meet land management objectives;
- Identify opportunities for diversifying the wood products industry (e.g., special forest products and value-added local production);
- Use forest health management to protect resource values;
- Improve timber growth and productivity on commercial forest lands;
- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production;
- Emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Provide a spectrum of recreation and tourism opportunities consistent with the capabilities of this LUD. Semi-Primitive Non-Motorized to Roaded experiences may be offered. Avoid changing Semi-Primitive Non-Motorized settings to Roaded when feasible.

Design roads and associated rock quarries to meet the applicable Scenic Integrity Objective.

Desired Condition

In areas managed under the Modified Landscape LUD, forest visitors, recreationists, and others using popular Travel Routes and Use Areas will view a somewhat modified landscape (refer to Appendix F). Management activities in the visual foreground will be subordinate to the characteristic landscape, but may dominate the landscape in the middle and backgrounds. Within the foreground, timber harvest units are typically small and affect only a small percentage of the seen area at any one point in time. Roads, facilities, and other structures are also subordinate to the foreground landscape. Recreation opportunities associated with natural-appearing to modified settings are available. A variety of successional stages provide a range of wildlife habitat conditions. A yield of timber is produced, which contributes to Forest-wide sustained yield.

Modified Landscape Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Locate and construct facilities for administrative use that meet the Scenic Integrity Objective.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards and guidelines for this LUD (e.g., soil, water quality, and scenic quality).

Fuel Improvements: FIRE2

Prescribed Fire

A. Management-ignited prescribed fire must meet the Moderate Scenic Integrity Objective and meet all soil and water quality standards and guidelines.
    1. Treat all activity fuels to meet the Moderate Scenic Integrity Objective within 1 year following timber harvest.
B. Do not use prescribed natural fire.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Forest insect and disease management activities emphasize forest health through achieving beneficial populations of insects and diseases.
   1. Encourage Timber Stand Improvement, sanitation, and salvage.
   2. Manipulate insects and diseases to desirable levels by evaluating chemical, cultural, mechanical, biological, or "no action" alternatives.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Provide heritage resource assistance to all developmental proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring, and protection of heritage resources during activities.
   1. Heritage resource inventory will be accomplished during project planning. State Historic Preservation Office concurrence and Forest Supervisor approval is required prior to implementation.
   2. Heritage resource specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
   3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

B. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Authorize only those development activities compatible with LUD objectives. Avoid issuing, or limit the duration of, permits for uses that require natural surroundings.
   1. Permit only activities that can be designed to meet the Scenic Integrity Objectives for this LUD.

B. This LUD represents a Transportation and Utility Systems (TUS) "window," and provides opportunities for the future designation and location of transportation and utility sites or corridors.

Landline Location and Maintenance: LAND4

A. Provide adequate landline marking for Forest Service contractors.
   1. Prior to Forest Service management activities, survey, mark, and post the boundary of National Forest System lands, to Forest Service Standards, where there is a risk of trespass.

MINERALS AND GEOLOGY

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Provide a spectrum of outdoor recreation and tourism opportunities consistent with the objectives of the LUD.
    1. Manage for the existing recreation settings and opportunities until approved activities and practices change the ROS setting(s). Manage recreation and tourism use in a manner that is compatible with the timber harvest objectives.
    2. In locations where approved activities change the recreation setting(s), manage the new setting(s) with the appropriate ROS guidelines (generally Roaded Modified).
    3. Seek to maintain the recreation opportunity along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.
    4. Seek to minimize impacts to areas directly adjacent to developed recreation and tourism facilities (e.g., as cabins and campgrounds) through scheduling and location of project activities.
B. In those areas inventoried as Recreation places, seek to maintain the existing ROS setting. When approved activities nearby may result in a change to the ROS setting, minimize the impacts so they maintain a Roaded Natural or more natural ROS setting.

Recreation Special Uses

A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. In foreground settings, design management activities to be subordinate to the characteristic landscape. Management activities may dominate areas seen in the middleground and background distance. In all settings, activities should utilize existing form, line, color, and texture found in the characteristic landscape.
    1. Apply the Moderate Scenic Integrity Objective in the foreground distance zone and the Low Scenic Integrity Objective in the middleground and background distance zones, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). In areas of this allocation not seen from the Visual Priority Travel Routes and Use Areas, apply the Very Low Scenic Integrity Objective. These objectives define the maximum limit of allowable change to scenic character of the area; less visible evidence of activities is acceptable.

2. Exceptions for small areas of non-conforming developments, such as recreation sites, transportation developments, log transfer facilities, and mining development, may be considered on a case-by-case basis.

B. The following guidelines provide direction for timber harvest activities to meet Scenic Integrity Objectives and Visual Absorption Capability (VAC) settings. The guidelines define the maximum allowable disturbance for timber harvest. Ground conditions may indicate a need to be more or less restrictive in scheduling harvest to meet the intent of the Scenic Integrity Objective.
   1. Moderate - Although timber harvest activities are evident, they must remain subordinate to the characteristic landscape.
   2. Low - Timber harvest activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally- occurring landscape.
   3. Very Low - Timber harvest activities may visually dominate the original characteristic landscape. This Scenic Integrity Objective should be met within 1 year in the foreground distance zone and within 5 years in the middle and background distance zones.

C. The following guidelines provide specific scenery mitigation measures appropriate to timber management.
   1. The ability to attain the adopted Scenic Integrity Objective is dependent on many variables. Visual Absorption Capacity (VAC) is an estimate of the relative ability of a landscape to absorb management activities. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
   2. The unit sizes listed below provide guidance to the project Interdisciplinary Team. Each landscape setting is different and should be evaluated on a case-by-case basis. There may be instances where the scenery objective can be attained while the unit size is greater than the guideline. There also may be instances where the unit must be smaller to meet the intent of the Scenic Integrity Objective.
   3. Typical regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the Scenic Integrity Objective s adopted in this LUD are described below.
      a) Scenic Integrity Objective Moderate:
      - Low VAC: Group selection or clearcut (openings approximately 2 to 10 acres)
      - Intermediate VAC: Clearcut (openings approximately 10 to 40 acres)
      - High VAC: Clearcut (openings approximately 40 to 60 acres)

      b) Scenic Integrity Objective Low:
      - Low VAC: Clearcut (openings approximately 15 to 40 acres)
      - Intermediate VAC: Clearcut (openings approximately 40 to 60 acres)
      - High VAC: Clearcut (openings approximately 60 to 100 acres)

      c) Scenic Integrity Objective Very Low:
      - Low VAC: Clearcut (openings approximately 50 to 75 acres)
      - Intermediate VAC: Clearcut (openings approximately 80 to 100 acres)
      - High VAC: Clearcut (openings approximately 80 to 100 acres)

SOIL AND WATER

Watershed Resource Planning: SW3

A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to ensure their recognition, proper consideration, and protection on the sale area.

B. Manage state classified public water supply source watersheds for multiple use, while providing water suitable for human consumption in compliance with the Safe Drinking Water Act, State of Alaska Drinking Water Regulations, and Water Quality Standards. Conduct watershed analysis (Appendix C) and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

C. Apply Best Management Practices (BMPs) to all land-disturbing activities as a process to protect the beneficial uses of water from non-point sources of pollution. (BMPs are found in the Alaska Region Soil and Water Conservation Handbook, 2509.22). Also consult Forest Service Manual (FSM) 2530, Transportation Forest-wide Standards and Guidelines, U.S. Army Corps of Engineers Regulations (33 CFR 323.4), and the Clean Water Act.

Watershed Resource Improvements: SW4

A. Accomplish soil and water improvement projects to prevent degradation of water quality.

TIMBER

Timber Resource Planning: TIM4

A. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.

B. Personal use wood cutting activities are compatible with this LUD, provided that management objectives are met.

Timber Sale Preparation: TIM5

A. Timber harvest activities may include all applicable silvicultural systems. Recognize the effects of color, tone, texture, line, slope, size, and edge on the characteristic landscape.

B. Tree limbs, root wads, and tree stumps may require secondary treatment to meet the Moderate Scenic Integrity Objective in the foreground distance. For timber sales and road construction contracts, use clauses that address these concerns. Brush disposal funds may be appropriate to use in these settings.

C. Seek to provide for a reasonable assurance of windfirm boundaries. To design for windfirmness, consider conditions such as soils, local wind patterns, tree height and size, and other site-specific factors.

D. Manage even-aged timber stands at rotations beyond the age of Mean Annual Increment culmination (merchantable cubic foot basis).

Timber Stand Improvement: TIM10

A. Timber Stand Improvement activities that meet the scenery and timber objectives of the LUD may be used.

B. Continue evaluation of commercial thinning opportunities in young-growth stands on the Forest for enhancing timber growth and development, while improving the scenery quality and habitat conditions for wildlife. Evaluation will be provided as part of the Tongass Young-Growth Strategy development.

TRANSPORTATION **Transportation Operations: TRAN**

A. Develop and manage cost-effective transportation systems that integrate resource requirements consistent with LUD direction.
   1. To meet the Scenic Integrity Objectives, give special consideration to minimizing apparent landform modification (as seen from sensitive travel routes) during road and log transfer facility location, design, and construction.
   2. Perform integrated logging system and transportation system analysis to determine the least-cost facility (considering cost of construction, maintenance, and hauling) and design standards necessary to meet LUD objectives.
   3. Give special emphasis to maintaining fish and wildlife habitat values, especially during road location and development of road management objectives.
      a) If the need to restrict access is identified during project interdisciplinary review, roads may be closed, either seasonally or year-long. (Consult Transportation Forest-wide Standards and Guidelines.)
   4. Provide recreation access, where appropriate.
   5. Seek to avoid road crossings on existing trails or locating roads parallel to trails. Should no other feasible alternative exist, minimize site disturbance visible from the trail. Locate rock source developments away from trails to the extent possible, while meeting the objectives of this LUD.

WILDLIFE **Wildlife Habitat Planning: WILD1**

A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.
   1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (See Wildlife Forest-wide Standards and Guidelines.)

B. Consider wildlife habitat needs during project planning and implementation. Use the Tongass Young-Growth Strategy to help prioritize treatment needs and scheduling.
   1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife.
   2. In project planning, consider opportunities to allow for the elevational migration of wildlife.

C. Coordinate road management with the needs of wildlife.

TIMBER PRODUCTION

Goals

To maintain and promote wood production from suitable forest lands, providing a continuous supply of wood to meet society's needs.

To manage these lands for sustained long-term timber yields.

To seek to provide a supply of timber from the Tongass National Forest that meets the annual and planning-cycle market demand, consistent with the standards and guidelines for this LUD.

Objectives

Within this LUD, apply the Scenic Integrity Objectives of Low in the foreground distance zone, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F). Apply the Very Low Scenic Integrity Objective to all other areas.

Locate and design timber harvest activities primarily to meet timber objectives. Suitable forest lands are available for timber harvest; appropriate silvicultural systems may be used. Other timber management objectives include:

- Seek to reduce clearcutting when other cutting methods will meet land management objectives;
- Identify opportunities for diversifying the wood products industry (e.g., special forest products, and value-added local production);
- Use forest health management to protect resource values;
- Improve timber growth and productivity on commercial forest lands;
- Plan, inventory, prepare, offer, sell and administer timber sales and permits to ensure the orderly development of timber production;
- Emphasize the overall reduction of costs, increase of revenues, and improvement of public service within the timber program.

Provide a spectrum of recreation and tourism opportunities consistent with the capabilities of this LUD. Manage recreation and tourism use to be compatible with timber production objectives. Manage changed recreation settings in accordance with the appropriate Recreation Opportunity Spectrum (ROS) class.

Plan a transportation network of roads and helicopter access that will eventually access most of the suitable forest lands for standard logging or helicopter yarding systems and transition to young-growth management.

Desired Condition

Suitable forest lands are managed for the production of sawtimber and other wood products on an even-flow, long-term sustained yield basis; the timber yield produced contributes to Allowable Sale Quantity. An extensive road system provides access for timber management activities, recreation uses, hunting and fishing, and other public and administrative uses; some roads may be closed, either seasonally or year-long, to address resource concerns. Management activities will generally dominate most seen areas. Tree stands are healthy and with a mix of age classes from young stands to trees of harvestable age, often in 40- to 100-acre stands. Recreation opportunities, associated with roaded settings from Semi-Primitive to Roaded Modified, are available. A variety of wildlife habitats, predominantly in the early and middle successional stages, are present.

Timber production Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD and Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Permanent administrative facilities are constructed to be compatible with this LUD objective.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards and guidelines for the LUD (e.g., soil and water).

Fuel Improvements: FIRE2

Prescribed Fire

A. Management-ignited prescribed fire may be used for fuels management, insect and disease protection, silvicultural site preparation, and wildlife habitat improvement.
B. Do not use prescribed natural fire.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Forest insect and disease management activities emphasize forest health through manipulating insects and diseases to desirable levels.
   1. Encourage Timber Stand Improvement, sanitation, and salvage.

2. Evaluate chemical, cultural, mechanical, biological, and "no action" to manipulate insects and diseases to desirable levels.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring, and protection of heritage resources during activities.
   1. Heritage resource inventory will be accomplished during project planning. State Historic Preservation Office concurrence and Forest Supervisor approval is required prior to implementation.
   2. Heritage resource specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
   3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Authorize only those uses that are compatible with LUD objectives. Avoid issuing, or limit the duration of, permits for uses that require natural surroundings.
B. This LUD represents a Transportation and Utility Systems (TUS) "window," and provides opportunities for the future designation and location of transportation and utility sites or corridors.

Landline Location and Maintenance: LAND4

A. Provide adequate landline marking for Forest Service contractors.
   1. Prior to Forest Service management activities, survey, mark, and post the boundary of National Forest System lands, to Forest Service Standards, where there is a risk of trespass.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Coordinate the location of timber and mining transportation systems when feasible.
B. Coordinate with claimant to ensure the location of timber sale units and roads across mining claims do not interfere with mining activities, markers, and improvements.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.

B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Mining Regulations 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Provide a spectrum of outdoor recreation and tourism opportunities consistent with the objectives of this LUD.
   1. Manage for the existing recreation settings and opportunities until approved activities change the ROS setting(s). Manage recreation and tourism use in a manner that is compatible with the timber harvest objectives.
   2. In locations where approved activities change the recreation setting(s), manage the new setting(s) with the appropriate ROS guidelines (generally Roaded Modified).
   3. Seek to maintain the recreation opportunity along existing trail corridors by minimizing road crossings and clearing directly adjacent to the trail.
   4. Seek to minimize impacts to inventoried Recreation places and developed recreation and tourism facilities (such as cabins and campgrounds) through scheduling and location of project activities.

Recreation Special Uses

A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. Refer to the Recreation and Tourism Forest-wide Standards and Guidelines.

SCENERY

Scenery Operations: SCENE1

A. Timber management activities may dominate the scenic character of the landscape.
   1. Apply Forest-wide Standards and Guidelines for the Low Scenic Integrity Objective in the foreground distance zone of Visual Priority Travel Routes and Use Areas (see Appendix F) and the Very Low Scenic Integrity Objective for all other areas. This objective defines the maximum limit of allowable change to the scenic character of the area; less visible evidence of activities is acceptable.
   2. Consider roadside cleanup of construction debris and logging slash as a mitigation measure when recreational use is included as a road management objective for the proposed road.
   3. In areas visible from Visual Priority Travel Routes and Use Areas, incorporate landscape design techniques in the planning process to the extent that they are compatible with LUD objectives.
B. The following guidelines provide direction for timber harvest activities to meet Scenic Integrity Objectives and Visual Absorption Capability (VAC) settings. The guidelines define the maximum allowable disturbance for timber harvest. Ground conditions may indicate a need to be more or less restrictive in scheduling harvest to meet the intent of the Scenic Integrity Objective.

1. Low - Timber harvest activities may dominate the characteristic landscape, yet will be designed to borrow from form and line found in the naturally- occurring landscape.
2. Very Low - Timber harvest activities may dominate the seen area. In planning timber harvest, design activities to resemble natural occurrences as viewed in the background distance zone.

C. The following guidelines provide specific scenery mitigation measures appropriate to timber management:
1. The ability to attain the adopted Scenic Integrity Objective is dependent on many variables. Visual Absorption Capacity (VAC) is an estimate of the relative ability of a landscape to absorb management activities. A Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting is relatively flat and/or has a high degree of variety in the landscape.
2. The unit sizes listed below provide guidance to the project Interdisciplinary Team. Each landscape setting is different and should be evaluated on a case-by-case basis. There may be instances where the scenery objective can be attained while the unit size is greater than the guideline. There also may be instances where the unit must be smaller to meet the intent of the Scenic Integrity Objective.
3. Typical clearcut regeneration methods and approximate unit sizes for landscapes of different visual absorption capabilities for the Scenic Integrity Objectives adopted in this LUD are described below.

a) Scenic Integrity Objective Low:
- Low VAC: Clearcut (openings approximately 15 to 40 acres)
- Intermediate VAC: Clearcut (openings approximately 40 to 60 acres)
- High VAC: Clearcut (openings approximately 60 to 100 acres)

b) Scenic Integrity Objective Very Low:
- Low VAC: Clearcut (openings approximately 50 to 75 acres)
- Intermediate VAC: Clearcut (openings approximately 80 to 100 acres)
- High VAC: Clearcut (openings approximately 80 to 150 acres)

SOIL AND WATER

Watershed Resource Planning: SW3

A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to ensure their recognition, proper consideration, and protection on the sale area.

B. Manage state classified public water supply source watersheds for multiple use, while providing water suitable for human consumption in compliance with the Safe Drinking Water Act, State of Alaska Drinking Water Regulations, and Water Quality Standards. Conduct watershed analysis (Appendix C)), and consult with Alaska Department of Environmental Conservation and affected municipalities prior to authorizing activities that are likely to cause pollution.

C. Apply Best Management Practices (BMPs) to all land-disturbing activities as a process to protect the beneficial uses of water from non-point sources of pollution. (BMPs are found in the Alaska Region Soil and Water Conservation Handbook, 2509.22.) Also consult Forest Service Manual (FSM) 2530, Transportation Forest-wide Standards and Guidelines, U.S. Army Corps of Engineers Regulations (33 CFR 323.4) and the Clean Water Act.

Watershed Resource Improvements: SW4

A. Accomplish soil and water improvement projects on non-designated domestic water use watersheds to prevent degradation of water quality below the State of Alaska's Water Quality Standard for domestic use.

TIMBER

Timber Resource Planning: TIM4

A. Timber management is emphasized. Suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.

Timber Sale Preparation: TIM5

A. Locate and design timber harvest activities primarily to meet timber objectives. Include integration of other resources objectives, particularly wildlife and vegetative diversity, if they do not have a significant adverse impact on the timber resource goals. Timber harvest activities may include all applicable silvicultural systems.
B. Consult Timber Forest-wide Standards and Guidelines for maximum sizes of created openings.
C. Seek to provide for a reasonable assurance of windfirm boundaries. To design for windfirmness, consider conditions such as soils, local wind patterns, tree height and size, and other site-specific factors.

Timber Resource Coordination: TIM7

A. Personal use sawtimber and firewood harvesting and Christmas tree cutting activities are fully compatible with this LUD.
B. Administrative use of timber is fully compatible with this LUD.

TRANSPORTATION

Transportation Operations: TRAN

A. Develop and manage cost-effective LUD direction.
    1. Perform integrated logging system and transportation system analysis to determine the least-cost facility (considering cost of construction, maintenance, and hauling) and design standards necessary to meet LUD objectives.
    2. If the need to restrict access is identified during project interdisciplinary review, roads may be closed, either seasonally or year-long. (See Transportation Forest-wide Standards and Guidelines.)
    3. Consider future recreational access in location and design of roads.
    4. Seek to avoid road crossings on existing trails or locating roads parallel to trails. Should no other feasible alternative exist, minimize site disturbance visible from the trail. Locate rock source developments away from trails to the extent possible, while meeting the objectives of this LUD.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Use existing inventories and evaluate the need for further project-specific inventories of wildlife habitat conditions during project analysis.
    1. Select Management Indicator Species (MIS) appropriate to the project area for project analysis. (See Wildlife Forest-wide Standards and Guidelines.)
B. Consider wildlife habitat needs during project planning and implementation.
    1. Use the habitat needs of MIS to evaluate opportunities for, and consequences on, wildlife. Use the Tongass Young-Growth Strategy to help prioritize treatment needs and scheduling.

MINERALS

Goals

To encourage the prospecting, exploration, development, mining, and processing of locatable minerals in areas with the highest potential for minerals development.

To ensure minerals are developed in an environmentally sensitive manner and other high-valued resources are considered when minerals developments occur.

Objectives

Apply this management prescription to the project areas of currently approved Minerals Plan of Operations. Use the prescription as criteria in the planning and design of proposed mineral developments and Plan of Operations. During the period before approval of the Plan of Operations, the underlying (initial) LUD(s) continue to apply to the project area.

Use the following as guidance for minerals activities:

- Authorize special uses that facilitate such activities;
- Allow reasonable access, consistent with other resource values;
- Apply the Low Scenic Integrity Objective to foreground areas viewed from the Visual Priority Travel Routes and Use Areas (Appendix F); otherwise, the Very Low objective applies; and
- Maintain present and continued soil productivity and water quality to the extent feasible. Apply Best Management Practices (BMPs) and meet State Water Quality Standards.

Use the following as guidance for non-minerals activities:

- Authorize special uses that will not substantially conflict with present or anticipated mineral-related activities;
- Limit new recreation facilities to those compatible with mineral developments; and
- Manage recreation settings and opportunities to be as compatible as possible with the initial LUD.

Maintain the present and continued productivity of anadromous fish and other foodfish habitat, as well as wildlife habitats, to the maximum extent feasible. Stress the protection of fish and wildlife habitats to prevent or minimize the need for mitigation.

Rehabilitate soil and water resources and fish and wildlife habitats after the completion of mining operations.

After the completion of mining activities and restoration, manage the area according to the original LUD.

Desired Condition

During mining operations, mining activities are limited to the area necessary for their efficient, economic, and orderly development. Mining is carried out so that any effects on other resources are minimized to the extent feasible, all minimum legal resource protection requirements are met, and other resource uses and activities in the area do not conflict with mining operations. After the completion of mining, affected areas are reclaimed and, in most cases, the area once again provides the settings and opportunities of the original LUD.

Minerals Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM2, 5	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Administrative Facilities: FAC2 and FAC3

A. Generally, co-locate administrative facilities with facilities authorized in the Plan of Operations.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards and guidelines for this LUD.

Fuel Improvements: FIRE2

Prescribed Fire

A. Management-ignited prescribed fire may be used for fuels management, insect and disease protection, silvicultural site preparation, and wildlife habitat improvement.
B. Do not use prescribed natural fire.

FISH

Fish Habitat Planning: FISH2

Planning/Mitigation

A. Maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult the Alaska National Interest Lands Conservation Act of 1980 [ANILCA], Section 505 (a).)
B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation, and monitoring of mining impacts to fish habitat or populations shall be identified in environmental documents and the Plan of Operations.
C. Consider the need to maintain instream flows for fish during the development of minerals management activities.

FOREST HEALTH

Forest Health Management: HEALTH1

A. For underlying (initial) LUDs that permit timber harvest, emphasize Timber Stand Improvement, sanitation, salvage, and insect and disease management measures consistent with the LUD objectives.
B. For underlying (initial) LUDs that do not permit timber harvest, apply insect and disease management measures consistent with the underlying LUD to protect these and adjacent resources.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HSS1

Inventory

A. Provide heritage resource assistance to all development proposals. Coordination includes participation and support for environmental analysis, inventory, evaluation, assessment, monitoring, and protection of heritage resources during activities.
    1. Heritage resource inventory will be accomplished during project planning. State Historic Preservation Office concurrence and Forest Supervisor approval is required prior to implementation.
    2. Heritage resource specialists shall provide input on known or predicted heritage resource site density in proposed project areas and make recommendations to manage heritage resources.
    3. Should any heritage resources be discovered during project activity, all work within the vicinity of the discovery shall cease until a heritage resource specialist is able to evaluate the situation and resumption of activity is approved by the Forest Supervisor.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

A. Generally, authorize special uses to facilitate mineral-related activities.
    1. Evaluate alternative facility designs and locations (including off-site) that consider: 1) amount of land disturbance; 2) effects on other resources; and 3) effects resulting from human use.

B. Generally, authorize non-mineral development related uses if they do not substantially conflict with present or anticipated mineral-related activities or the underlying (initial) LUD.
   1. Use temporary or annual permits that maintain options for future mineral development.
C. This LUD represents either a Transportation and Utility Systems (TUS) "window" or "Avoidance Area," depending upon the TUS category of the initial LUD. Refer to the Transportation and Utility section for direction.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

Resource Preparation

A. Emphasize minerals management activities. Management should facilitate the prospecting, exploration, development, mining, and processing of mineral resources in areas with the highest potential for development.
B. Prior to the initiation of mineral activities, manage these lands under their initial LUD in the Forest Plan. With the initiation of mineral activities, apply reasonable regulation of surface occupancy and use to manage the mineral development to be as compatible as possible with the initial LUD.
C. The minerals land use prescription will apply upon approval of a Plan of Operations. Those portions of the initial LUD not identified for mineral activity in an approved Plan of Operations will continue to be managed under the initial LUD. After mineral operations are completed, lands allocated under the minerals prescription will revert to the initial LUD to the extent possible.

Minerals and Geology Administration: MG2

Forest Lands Open to Mineral Entry

A. Forest lands within this LUD are open to mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, ANILCA, and National Forest Mining Regulations 36 CFR 228.
C. Development of locatable mineral resources takes precedence in this LUD; however, leasable and salable minerals may also be developed at the authorized officer's discretion.
D. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mining Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Prior to the initiation of mineral development, provide recreation settings and opportunities consistent with the initial LUD.
   1. For any new investment in recreation facilities, consider the potential effects to those facilities by future minerals development.
B. With the initiation of mineral development, manage the recreation setting in a manner as compatible as feasible with the initial LUD.
   1. Manage for the existing recreation settings and opportunities until scheduled activities and practices change the ROS settings. Manage recreation use in a manner that is compatible with the mineral objectives.
   2. In locations where scheduled activities change the recreation setting(s), manage the new setting(s) with the appropriate ROS guidelines (generally Roaded Modified).

3. Seek to maintain the recreation experience along existing trail corridors by locating road crossings and clearing so they are not directly adjacent to the trail when feasible.
4. Seek to minimize impacts to areas directly adjacent to developed recreation facilities (e.g., cabins and campgrounds).
5. Consider regulating recreation use and access to mitigate for the minerals development.
6. Manage public use of mining access roads and development areas to be consistent with the new ROS class, unless recreation analysis indicates a need for a modified ROS class.
7. Where effects on existing maintained recreation facilities and trails cannot be avoided due to mineral development, analyze alternatives for reasonable substitute facilities.

Recreation Special Uses

A. Major and minor developments may be compatible with the LUD objectives depending on the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis. (See Recreation and Tourism Forest-wide Standards and Guidelines.)

SCENERY

Scenery Operations: SCENE1

A. Prior to the initiation of mineral development, manage for scenic quality according to the initial LUD.
B. With the initiation of mineral development, apply Forest-wide Standards and Guidelines for Low in the foreground distance, as seen from Visual Priority Travel Routes and Use Areas (see Appendix F) and for the Very Low Scenic Integrity Objective in all other areas. The objective defines the maximum limit of allowable change to the scenic character of the area; less evidence of scenic change is acceptable.
    1. Incorporate landscape design techniques to reduce adverse scenic impact in areas visible from sensitive travel routes.

SOIL AND WATER

Watershed Resource Planning: SW3

A. For use in designing mineral management activities, delineate the location of important soil and water protection areas on project maps to ensure their recognition, proper consideration, and protection on the project area.
B. Manage watersheds for beneficial uses consistent with State Water Quality Standards. Apply BMPs to control nonpoint sources of water pollution.
C. Design mineral management activities to maintain the present and continued productivity of soil and water resources to the extent feasible.
D. Stress protection of soil and water resources to prevent the need for mitigation. Identify mitigation, rehabilitation, and monitoring of mining impacts to soil and water resources in environmental documents and the Plan of Operations.

TIMBER

Timber Resource Planning: TIM4

A. Timber land suitability is based on the initial LUD.
B. For areas where the initial LUD allows timber harvest, suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.
C. For the portions of this LUD with initial direction that does not allow timber harvest, the forested land is classified as unsuitable for timber production and withdrawn from the timber base.

D. Personal use wood cutting activities will be based on the underlying management prescription until the mineral prescription is implemented. After implementation, access for personal use wood and Christmas trees will be subject to provisions compatible with the Plan of Operations.
E. Project analysis, development of environmental documents, and project design will facilitate the probable future mineral development to the maximum extent feasible.

Timber Sale Preparation: TIM5

A. Where possible, coordinate the location and design of timber harvest activities with planned or potential mineral development.

TRANSPORTATION

Transportation Operations: TRAN

A. Authorize reasonable access, consistent with other resource values, to allow for the exploration and development of mineral resources.
B. Any transportation development in association with minerals extraction will be in accordance with an approved Plan of Operations, and subsequent annual work plans.
C. Roads in this LUD may be closed to public use.
D. Apply BMPs in the development and maintenance of transportation facilities.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Maintain the present and continued productivity of wildlife habitat to the extent feasible while meeting the goals and objectives of this LUD.
B. Address protection of wildlife habitat and the need for mitigation. Identify any need for mitigation, rehabilitation, and monitoring of mining impacts to wildlife habitat or populations in environmental documents and the Plan of Operations.
C. Coordinate road management with the needs of wildlife.

Wildlife Habitat Inventory: WILD5

A. Prior to the development of minerals management activities, establish or use existing baseline wildlife inventories.

TRANSPORTATION AND UTILITY SYSTEM

Goals

To provide for, and/or facilitate the development of, existing and future major public Transportation and Utility Systems, including those identified by the State of Alaska and the Alaska Energy Authority.

Objectives

Apply this management prescription to existing major systems corridors. Use the prescription as criteria in the planning and design of future system corridors. The corridors shown on the Land Use Designations (LUD) Map (2007) do not include viable routes that may be considered during project analysis. Consideration of alternate routes that meet corridor objectives while reducing costs and/or minimizing resource impacts is encouraged. During the period before actual construction of new systems occurs, the management prescription(s) of the (initial) LUD(s) underlying the corridors will remain applicable. Upon initiation of construction, and during system operation, this management prescription will apply. The Transportation Utility System (TUS) LUD takes precedence over any underlying LUD (subject to applicable laws) regardless of whether the underlying LUD is a TUS Avoidance LUD or not. As such, it represents a “window” through the underlying LUD through which roads and/or utilities can be built.

For application of this LUD, "major systems" are defined as state and federal highways, railroads, public hydroelectric power projects and associated facilities, powerlines 66 kV or greater, and pipelines 10 inches or greater in diameter.

Allow special uses and facilities not related to transportation or utility systems, if compatible with present or future systems.

If the development of systems changes the Recreation Opportunity System (ROS) setting, manage recreation and tourism opportunities in accordance with the new setting. Consider the development of recreation and tourism facilities in conjunction with the planning of state or federal highways or reservoirs.

Following construction of systems, lands in the right-of-way, if permanently cleared, will be considered unsuitable for timber production.

Transportation and utility corridors, to the extent feasible, should follow the same route.

Transportation Utility Systems may dominate the seen foreground area, yet are designed with consideration for the existing form, line, color, and texture of the characteristic landscape.

Minimize and/or mitigate adverse effects to wildlife habitat and populations to the extent feasible.

Maintain the present and continued productivity of anadromous fish and other fish habitat to the extent feasible.

Desired Condition

Transportation Utility Systems have been constructed in an efficient and economic manner, and have been designed to be compatible with the adjacent LUD to the maximum extent feasible. The minimum land area consistent with an efficient, safe facility is used for their development. Effects on other resources have been recognized and resource protection has been provided. Other resources uses and activities in the area do not conflict with utility operations. State and federal highways and reservoirs offer new developed recreation opportunities, as appropriate.

Transportation and Utility Systems Land Use Designation
Apply the following Forest-wide Standards and Guidelines located in Chapter 4:

Category	Section	Subsections
Air	AIR	All
Beach and Estuary Fringe	BEACH	All
Facilities	FAC	All
Fire	FIRE	All
Fish	FISH	All
Forest Health	HEALTH	All
Heritage Resources/Sacred Sites	HSS	All
Invasive Species	INV	All
Karst and Cave Resources	KC	All
Lands	LAND	All
Minerals and Geology	MG	All
Plants	PLA	All
Recreation and Tourism	REC	All
Riparian	RIP	All
Rural Community Assistance	RUR	All
Scenery	SCENE	All
Soil and Water	SW	All
Subsistence	SUB	All
Timber	TIM2, 5, 7, 8	All
Trails	TRAI	All
Transportation	TRAN	All
Wetlands	WET	All
Wildlife	WILD	All

Apply the following LUD Standards and Guidelines:

FACILITIES

Facilities Improvements: FAC2 and FAC3

A. Allow administrative facilities that are compatible with present and/or future site uses.

FIRE

Fire Suppression: FIRE1

Suppression Action

A. Suppress wildfires using the suppression option identified in the Southeast Alaska/Prince William Sound Fire Management Plan.
B. Suppression tactics are limited only by the standards and guidelines for this LUD, (e.g., soil, water quality, and scenery).

Fuel Improvements: FIRE2

Prescribed Fire

A. Management ignitions may be used as an acceptable means of fuels management as long as its use is compatible with the standards and guidelines for this LUD.
B. Do not use prescribed natural fire.

FISH

Fish Habitat Planning: FISH2

Planning/Mitigation

A. Design TUS activities to maintain the present and continued productivity of anadromous fish and other fish habitat to the extent feasible.
B. Stress protection of fish habitat to prevent the need for mitigation. Mitigation, rehabilitation, and monitoring of impacts to fish habitat or populations shall be identified in environmental documents.

Enhancement

A. Allow fish enhancement activities where consistent with the underlying LUD.

FOREST HEALTH

Forest Health Management: HEALTH1

A. Encourage insect and disease management activities to maintain or improve forest health in this and adjacent LUDs.
B. Permit timber sanitation and salvage.

Forest Insect and Disease Survey and Inventory: HEALTH2

A. Survey and inventory visible outbreaks annually.

HERITAGE

Heritage Resource Activities: HSS1

Inventory/Evaluation

A. Develop priorities and schedule management activities to implement heritage resource inventory, evaluation, protection, and interpretation within this LUD.
    1. Identify, classify, and evaluate known heritage resources.
    2. Identify heritage properties to be nominated to the National Register of Historic Places.
    3. Identify heritage properties that require stabilization or other protective measures.
    4. Identify opportunities for interpretation of heritage resources for public education and enjoyment.

KARST AND CAVES

Cave Management Program: KC2

A. Identify opportunities for interpretation of caves for public education and enjoyment. Interpretation may occur inside or outside of this LUD.

LANDS

Special Use Administration (Non-Recreation): LAND2

Transportation and Utility Systems

A. Manage Special Use Authorizations related to Transportation Utility Systems according to the standards and guidelines below:
    1. Coordinate special use proposals with state and federal agencies, such as the Federal Energy Regulatory Commission (FERC), the Federal Highway Administration, or Alaska Department of Transportation. Analyze new proposals on a case-by-case basis, using an interdisciplinary process. Obtain input from local communities and other affected publics.
    2. Use designated corridors for multiple compatible Transportation Utility Systems to the extent feasible.
    3. Require proponents of hydroelectric power projects to obtain a license or exemption from FERC as a condition of project approval by the Forest Service.

4. Leave transportation and utility corridors open to public use unless special considerations (e.g., public safety or resource damage, warrant closures, or restrictions).
5. Bury or submerge powerlines where feasible.

Other Special-Use Authorizations

A. Allow special uses not related to utilities, if compatible with present or future utility uses.
   1. Determine through an interdisciplinary process on a case-by-case basis, if non-related uses are compatible.
   2. Consult with current authorization holders to consider compatibility of new uses.

MINERALS AND GEOLOGY

Minerals and Geology Resource Preparation: MG1

A. Coordinate with claimant to ensure the location of roads, transmission lines, and pipelines across mining claims do not interfere with mining activities, markers, or improvements.

Minerals and Geology Administration: MG2

Mineral Entry

A. Depending on the underlying LUD, sites and corridors may or may not be open to mineral entry. Apply Minerals and Geology Forest-wide Standards and Guidelines appropriate to either open or closed mineral entry.
B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Minerals Regulations under 36 CFR 228.
C. Permit reasonable access to mining claims, leases, and material sites and authorization of orderly mineral resource development with the provisions of an approved Plan of Operations in accordance with National Forest Mineral Regulations 36 CFR 228 and FSM 2800.

RECREATION AND TOURISM

Recreation Use Administration: REC3

Recreation Settings

A. Prior to the construction of a TUS, provide recreation settings and opportunities consistent with the initial LUD.
   1. For any new investment in recreation facilities, consider the potential effects to those facilities by TUS development.
B. When TUSs are developed, consider construction of recreation facilities in conjunction with the planning of state and federal highways and reservoirs.
   1. Manage the changed recreation setting with appropriate ROS guidelines.
   2. If necessary, discourage or restrict recreation use to prevent damage to facilities or to provide for public safety.
   3. Manage recreation use in a manner compatible with adjacent LUDs.

Recreation Special Uses

A. Major and minor developments may be compatible with the LUD objectives, depending on the scope, purpose, and magnitude of the proposal and underlying LUD. Proposals will be evaluated on a case-by-case basis.

SCENERY

Scenery Operations: SCENE1

A. The landscape may be dominated by activities associated with Transportation Utility Systems. Although TUS developments may dominate the seen area, they are designed with consideration for existing form, line, color, and texture found in the characteristic landscape.
   1. Apply Forest-wide Standards and Guidelines for the Low Scenic Integrity Objective. Perform viewshed analysis in conjunction with project development to provide direction for retaining or creating a visually attractive landscape over time.
   2. Work with topographic and vegetative features to screen the development when seen from Visual Priority Travel Routes and Use Areas (see Appendix F).
   3. Consider the following during the design phase of routes, which are, or are seen from, Visual Priority Travel Routes and Use Areas (see Appendix F):
      a) Vegetation of slopes seen from the road
      b) Providing "planting pockets" or terraces or slopes, where needed
      c) Maintaining landforms through road location and design
      d) Breaking up the straight line effect of linear corridors by considering special treatment of vegetation on clearing slopes or application of other design techniques and principles
      e) Requiring roadside cleanup of construction debris and logging slash on all roads receiving general public use or expected to have such future use

SOIL AND WATER

Watershed Resource Planning: SW3

A. Delineate the location of high hazard soils, riparian, and other sensitive areas on project maps to ensure their recognition, proper consideration, and protection during the project.

TIMBER

Timber Resource Planning: TIM4

A. Prior to the construction of transportation or utility corridors, base timber suitability on the underlying (initial) LUD. Following construction, if the rights-of-way are permanently cleared, lands in the right-of-way are considered unsuitable for timber production.
B. For areas where the initial LUD authorizes timber harvest, suitable forested land is available for harvest and is included in the Allowable Sale Quantity calculation.
C. For initial LUDs that do not allow timber harvest, forested land is classified as unsuitable for timber production and withdrawn from the timber base. Any timber harvest associated with facility development will not count toward the Allowable Sale Quantity.
D. Following the construction of a TUS in an area with initial direction authorizing timber harvest, the right-of-way is considered unsuitable for timber production unless the utility is buried in the ground or is suspended above the maximum height of the trees.
E. Personal use sawtimber, firewood, and Christmas tree cutting activities are compatible with this LUD provided that LUD objectives are met.

TRANSPORTATION

Transportation Operations: TRAN

A. Locate and design Transportation Utility Systems using opportunities to be compatible with the theme of the underlying and adjacent LUDs to the maximum extent feasible.

B. Follow existing and planned future land transportation routes with corridors for future utilities to the extent feasible.
   1. Consider potential conflicts and opportunities with future roads, timber harvest, and other management activities.

WILDLIFE

Wildlife Habitat Planning: WILD1

A. Reduce impacts to wildlife habitat and populations to the extent feasible.
   1. Use the habitat needs of Management Indicator Species to evaluate opportunities for wildlife.
   2. In the design of projects, consider measures that reduce or eliminate electrocution of animals on powerlines, prevent road kills, and provide for public safety.

Wildlife Habitat Inventory: WILD5

A. Establish a baseline inventory, or use an existing inventory of wildlife habitat conditions, preceding or coinciding with Transportation Utility Systems development.

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CHAPTER 4
STANDARDS AND GUIDELINES

CONTENTS

Chapter 4

Forest-wide Standards and Guidelines

Introduction

Chapters 2, 3, and 4 of the Forest Plan present the direction for managing the Tongass National Forest. The components and priority of this direction are explained in Chapter 1. This chapter includes the Forest-wide Standards and Guidelines, which apply to all or most areas of the Forest and provide for the protection and management of forest resources. They are used in conjunction with the additional standards and guidelines given in the management prescriptions for each Land Use Designation (LUD) in Chapter 3. Each management prescription (Chapter 3) includes a table indicating which of these Forest-wide Standards and Guidelines apply to that LUD. The Forest-wide Standards and Guidelines are organized by resource or category, as shown in the table of contents of this Plan.

4 Standards and Guidelines

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AIR
Forest-wide Standards and Guidelines

Air Resource Inventory: AIR1

I. Baseline Quality and Values

A. During project planning, assess air quality conditions on National Forest System lands by following direction in Forest Service Manual (FSM) 2580.

B. Establish inventory and monitoring sufficient to follow legislative requirements (Forest and Rangeland Renewable Resources Act of 1974 [16 U.S.C. 1601], as amended by the National Forest Management Act [16 U.S.C. 1602], and Federal Land Management Policy Act of 1976 [43 U.S.C. 1701 et seq.]), and to meet national policy and direction (Chief's 10-Year Wilderness Stewardship Challenge 2005, National Strategy for Air Resource Management 1994).

C. Coordinate air climate change inventory, monitoring, and modeling efforts with National Park Service programs, Forest Health Monitoring and Forest Inventory and Analysis programs, and other Forest Service regions.

Air Resource Planning: AIR2

I. Objective

A. The objective for the air resource, which is to be managed as a part of the Forest ecosystem, is to maintain or improve National Forest air quality by preventing significant deterioration from Forest activities or other sources (Clean Air Act, as amended [42 U.S.C. 7401 et seq.]).

II. Planning for the Maintenance of Air Quality

A. Plan to maintain current air quality Forest-wide.

1. Manage on-Forest resource activities to control and minimize air pollution impacts and to ensure that predicted emissions from all pollution sources do not exceed Ambient Air Quality Standards specified under the Alaska Administrative Code, Title 18, Chapter 50.
   a) Obtain burning permits from the Alaska Department of Environmental Conservation (ADEC) for all prescribed fire projects.
2. Require permittees, contractors, and mine operators to apply for applicable state permits and meet state Air Quality Standards when conducting work on the Forest.
3. Cooperate with regulatory authorities to prevent adverse effects of air pollutants and atmospheric deposition on the Forest ecosystems.

Air Coordination: AIR3

I. Coordination with the State of Alaska

A. Cooperate with ADEC to protect the air resource on the National Forest. Join in the assessment of air quality monitoring needs and in the development or revisions of air quality standards and regulations, as needed.

B. Review and comment on both proposed and existing sources of off-Forest pollution that may significantly affect ambient air quality on National Forest System lands.

C. Review the requirements for proposed new emission sources under the Prevention of Significant Deterioration permitting process.

BEACH and ESTUARY FRINGE
Forest-wide Standards and Guidelines

Beach and Estuary Description: BEACH1

I. Objectives and Identification

A. Management objectives of the beach and estuary fringe habitat.

1. To maintain the ecological integrity of beach and estuary fringe forested habitat to provide sustained natural habitat conditions and requirements for wildlife, plants, fish, recreation, heritage, scenery, wilderness, and other resources.
2. To provide a relatively continuous forested corridor linking terrestrial landscapes.
3. To provide a variety of recreation opportunities, normally of a Primitive or Semi-Primitive nature and retain the scenic quality.
4. To maintain an approximate 1,000-foot-wide beach fringe of mostly unmodified forest to provide important habitats, corridors, and connectivity of habitat for eagles, goshawks, deer, marten, otter, bear, and other wildlife species associated with the maritime-influenced habitat. Old-growth forests are managed for near-natural habitat conditions (including natural disturbances) with little evidence of human-induced influence on the ecosystem.
5. To maintain an approximate 1,000-foot-wide estuary fringe of mostly undisturbed forest that contributes to maintenance of the ecological integrity of the biologically rich tidal and intertidal estuary zone. Habitats for shorebirds, waterfowl, bald eagles, goshawks, and other marine-associated species are emphasized. Old-growth conifer stands, grasslands, wetlands, and other natural habitats associated with estuary areas above the mean high tide line are managed for near-natural habitat conditions with little evidence of human-induced disturbance.

B. Beach fringe identification.

1. The beach fringe is an area of approximately 1,000 feet slope distance inland from mean high tide around all marine coastline.

C. Estuary fringe identification.

1. The estuary fringe is an area of approximately 1,000 feet slope distance around all identified estuaries. Estuaries are ecological systems at the mouths of streams where fresh and salt water mix, and where salt marshes and intertidal mudflats are present. The landward extent of an estuary is the limit of salt-tolerant vegetation (not including the tidally influenced stream or river channel incised into the forested uplands), and the seaward extent is a stream's delta at mean low water.

Beach and Estuary Management: BEACH2

I. Coordination

A. Coordinate activities that affect the Coastal Zone with the State of Alaska Department of Natural Resources to ensure consistency, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.

II. Management

A. Management is governed by the Land Use Designation (LUD) in which the beach or estuary area is located. Some LUDs (such as Wilderness and most of the Natural Setting LUDs) highly restrict development. Where the LUD permits development (e.g., moderate and intensive Development LUDs), the standards and guidelines discussed below will apply.

1. Allow facility developments that require in-water access (e.g., docks, floats, or boat ramps).
   a) Locate facilities more than 300 feet from the mouths of intertidal channels of known Class I anadromous fish streams, or tidal or subtidal beds of aquatic vegetation to avoid significant impairment.
   b) Avoid filling of intertidal and subtidal areas to the extent feasible.
2. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Lands Conservation Act of 1980 (ANILCA), and National Forest Mining Regulations 36 CFR 228.

a) Take advantage of topographic and vegetative screening when locating drill rigs, pumps, roads, rock quarries, structures, and marine transfer facilities.
b) Consider timing restrictions to minerals activities to avoid adverse impacts to fish and wildlife resources during critical periods.

3. Emphasize natural recreation settings and continue to provide the spectrum of outdoor recreation and tourism opportunities.
   a) Where feasible, schedule activities to avoid change to the existing Recreation Opportunity Spectrum (ROS) class in marine recreation settings. Emphasize the more primitive ROS class when activities are considered in the Wilderness or Wilderness Monument LUD.
   b) In locations where scheduled activities change the recreation setting(s), manage the new setting(s) in accordance with the appropriate ROS guidelines with emphasis on marine-related recreation activities.
   c) Design and locate recreation-related structures (e.g., recreation cabins, lodges, and wildlife viewing structures) to be compatible with beach and estuary fringe objectives.
   d) Manage off-highway vehicle (OHV) use as documented in the Travel Management Plan.
   e) Manage recreation and tourism use to maintain fish, wildlife, and rare plant habitats.
4. Allow subsistence and other personal use of timber in accordance with ANILCA, Title VIII, and other standards and guidelines (e.g., the 330-foot buffer around bald eagle nests). Personal use is generally inconsistent with beach and is only allowed when the accessibility of other suitable lands are not feasible, such as when the eligible permittee lives in an unroaded area with no feasible access to designated "suitable timber" lands, and when the LUD objectives can be met. Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.
5. Beach log salvage is permitted.
6. Areas within the beach and estuary fringe are classified as unsuitable for timber harvest. Timber harvest that counts toward the Allowable Sale Quantity is not allowed; however, timber harvest that does not count toward the Allowable Sale Quantity could be allowed. Reasons for timber harvest that does not count toward the Allowable Sale Quantity include timber sold as part of a salvage sale (see 7. below), for specialty wood products, as products of habitat restoration treatment, for customary and traditional uses, and for landings, roads, or timber harvest necessary to access timber in adjacent suitable areas where there are not feasible alternatives in project design.
   a) Timber harvest necessary to access timber in adjacent areas allocated for timber production, where there are no feasible alternatives in project design (e.g., landings for logical yarding settings), will be considered only on the landward edges of the fringe.
   b) Silvicultural prescriptions for any harvest must address beach fringe management objectives.
7. Allow salvage of dead standing and/or down material if the salvage activity is consistent with long-term beach and estuary management objectives. This salvage will not contribute to the Allowable Sale Quantity. Small amounts of standing green timber may be harvested during salvage operations for safety and operational considerations.
8. Road construction is discouraged in the beach and estuary fringes. Where feasible alternatives are not available, road corridors may be designated.
   a) Provide or maintain recreation or community access where needed as identified through project analysis.
9. Log transfer facilities may be constructed.
   a) Use the Alaska Timber Task Force Siting Guidelines (see Appendix G and the log transfer facility standards and guidelines in the Transportation Forest-wide Standards and Guidelines section).
10. Wildlife habitat restoration of young-growth conifer stands is encouraged to accelerate development of advanced seral stand structure. Treatments may include thinning of young stands, release, pruning, and fertilization.
11. Other permitted activities (e.g., powerlines, fish camps) may be allowed in the beach and estuary fringe where feasible alternative locations are not available.

FACILITIES
Forest-wide Standards and Guidelines

The recreation and administrative facilities needed to support the management, protection, and utilization of the National Forests, including buildings, utility systems, dams, and other constructed features.

Facilities Operations: FAC1

I. Administration and Maintenance

A. Assess and document the ability of Forest Service facilities to support planned activities.
B. Assess the historic and cultural values of these facilities.
C. Provide maintenance and safety inspections on major structures on the Forest in compliance with Forest Service Manual (FSM) requirements.
D. Maintain current operation and maintenance plans for Forest Service-owned recreation facilities. (Consult FSM 2330.)
E. Maintain facilities to meet codes applicable at the time of construction, unless otherwise required by law.
F. Perform accessibility surveys on all existing facilities. Implement improvements to provide barrier-free, accessible facilities appropriate to the site development and ROS level as funding and opportunity allow. (Also see Recreation and Tourism Forest-wide Standards and Guidelines.)

Facilities Improvement Preparation: FAC2

I. Plan Development

A. Complete site development plans for all facility needs identified in the Forest Plan implementation schedule or the Forest Facility Master Plan. (Consult FSM 7311.)
B. Maintain a description of the desired future condition for facilities that reflect needs, future development opportunities, and long-term management in the Forest Facility Master Plan. Document the extent and management of these facilities, including:
    1. Number of buildings by type and age.
    2. Number of dams by classification.
    3. Developed recreation sites, such as National Forest campgrounds, picnic areas, and trailheads with recreation facilities.
    4. Number and types of permitted facilities, including dams, ski areas, fences, buildings, etc.
    5. Number (and/or miles) of systems including sewage, water, electrical, and communication networks needed within recreation, permitted, and administrative sites.

Facility Construction: FAC3

I. Construction Requirements

A. All remodeling, new construction, or building leasing should be constructed in accordance with an approved site development plan in order to provide safe, functional, aesthetically pleasing, energy efficient, and cost-effective facilities.
B. Ensure consistency with LUD direction.
C. Access for persons with disabilities is required for all new facilities (administrative and recreation).
D. Consult Forest Service Handbook (FSH) 7309.11 for gender-related design standards.
E. Consider additional public use cabins and/or shelters in the Wilderness only when needed for health and safety purposes (Alaska National Interest Lands Conservation Act of 1980, Section 1315(d)).
F. Develop a revegetation plan using approved plant species. (Consult FSH 2080.)

FIRE
Forest-wide Standards and Guidelines

Fire Suppression: FIRE1

I. Protection Options

A. Due to climate conditions, fire suppression is not a common need on the Tongass National Forest. Under normal conditions, the period of time for fire starts and spread is short. All suppression actions will provide for the safety of fire fighters and be applied at a minimum suppression cost, commensurate with the values at risk. Fire suppression shall fall into one of four optional categories: "Critical" (control strategy), "Full" (control strategy), "Modified" (contain strategy), or "Limited" (confine strategy). These options and strategies are further defined and discussed in the Alaska Interagency Wildland Fire Management Plan. Complete a Wildland Fire Situation Analysis (WFSA) for all suppression actions that fail to confine, contain, or control the fire's spread following the first initial attack shift. (Consult Forest Service Manual [FSM] 5132.)

1. Critical Protection Option (control). This option is specifically created to differentiate the protection of human life and inhabited property and improvements from natural resource protection. The designation of a site or area with this option is the discretion of the land manager responsible for the fire protection. Fires occurring in or immediately threatening lands in this designation will receive highest priority for immediate initial attack and continuing aggressive actions dependent upon availability of suppression resources.
2. Full Protection Option (control). Areas assigned this designation will receive aggressive initial attack and aggressive suppression actions consistent with availability of suppression resources until the fire is declared out. This option was designed for the protection of high resource values, cultural sites, historical sites, and those resources that require wildland fire protection, but do not involve protection of human life and habitation.
3. Modified Protection Option (contain). This designation is intended to be the most flexible option available to land managers. The intent of the Modified management option is to provide a higher level of protection when fire danger is high, probability of significant fire growth is high, and probability of containment is low. A lower level of protection is provided when fire danger decreases, potential for fire growth decreases, and the probability of containment increases. The Modified designation provides a management level between Full and Limited. Generally, early in the season fire starts on lands under this designation are treated more aggressively and then after the conversion date, they are treated like Limited designation lands. The conversion date is determined by the Alaska Wildland Fire Coordination Group each fire season. The intent of this designation is to reduce suppression costs and increase resource benefits where possible during the entire fire season. Some portions of the fire may require aggressive action and others may only require a containment action.
4. Limited Protection Option (confine). This category recognizes areas where the cost of suppression may exceed the value of the resources to be protected and the environmental impacts of fire suppression activities may have more negative impacts on the resources than the effects of the fire. Wildland fires occurring within this designation will be allowed to burn under the influence of natural forces within predetermined areas while continuing protection of human life and site-specific values within the management option. Generally, this designation receives the lowest priority for allocations of initial attack resources; however, surveillance may be a high priority. Suppression actions may be initiated to keep a fire within the boundary of the management option.

Fuels Improvements: FIRE2

II. Prescribed Fire

A. The use of prescribed fire as a tool for resource management is often undependable due to shortness of burning opportunities and weather limitations during the burning season. Use

prescribed fire, as appropriate, for silvicultural site preparation, wildlife habitat improvement, invasive plant control, or slash hazard treatment.

1. All prescribed fires must have an approved burn plan signed by the appropriate line officer with a designated burn boss, contingency options, and a process for monitoring and evaluating results. All prescribed fires will have a qualified organizational structure, including personnel, to suit the complexity of burn. (Consult FSM 5140.)
2. For silvicultural site preparation, wildlife habitat improvement, and slash hazard treatment, the District Ranger will ensure appropriate interdisciplinary specialist participation during planning, executing, monitoring, and evaluation phases of prescribed fire use. (Consult FSM 5140, FSH 5709, and FSM 6740.)
3. Because of the absence of fire as a natural disturbance agent in Southeast Alaska, prescribed fire is expected to play little to no role within the Wilderness or Wilderness Monument LUD.

FISH
Forest-wide Standards and Guidelines

Fish Habitat Inventory and Monitoring: FISH1

I. Fish Habitat Inventory

A. Maintain the channel type and stream class (see Glossary) based inventory of all Forest streams.
   1. Maintain and update the stream inventory (and geographic information system [GIS] mapping) during site-specific project planning and analysis.
      a) Consult publication R10-TP-26, A Channel Type Users Guide for the Tongass National Forest, Southeast Alaska (as revised), for descriptions of the channel types.
      b) Consult the Aquatic Habitat Management Handbook FSH 2090.21 for descriptions of Region 10, stream survey methodologies.

B. Maintain the inventory of Forest streams and watersheds for fish enhancement opportunities.

C. Maintain, and further develop as necessary, the fish habitat objectives database used to measure changes in the natural range and frequency of aquatic habitat conditions. (See FISH2,IV(B) and Appendix B.)

Fish Habitat Planning: FISH2

I. Fish Habitat and Channel Processes

A. Recognize watershed function and channel processes when planning for the protection, restoration or enhancement of fish habitat. (Consult Riparian Forest-wide Standards and Guidelines RIP2 and Soil and Water Forest-wide Standards and Guidelines SW3.)
   1. Consider the effects of upstream and upslope activities during site-specific planning.
   2. Consider the condition of upstream and upslope areas during site-specific planning.
   3. Consider topics such as erosion processes, watershed hydrology, vegetation, stream channel morphology, water quality, wilderness designation, recommendations for inclusion into the Wild and Scenic River System, species and habitats, and human uses, during analyses.

II. Channel Classification and Process Groups

A. Use channel type inventories to categorize stream reaches into channel process groups. Use channel types and process groups to plan management activities affecting fish and fish habitat along all lakes and streams. Process groups and the channel types included in each process group are shown in Appendix D and publication R10-TP-26, A Channel Type Users Guide for the Tongass National Forest, Southeast Alaska. These groups may be redefined as more information about channel types becomes available.
   1. Map and field-verify streams, lakes, and estuaries by channel type and stream class for project planning and implementation.

III. Fish Stream Classification (reference FSH 2090.21 (2001) Chapter 10, Section 12)

A. Determine fish/water quality value class of all streams in the affected area prior to or during site-specific project planning. (Consult Riparian Forest-wide Standards and Guidelines.)

B. Use the following classification system across the Forest:
   1. 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 known to provide reasonable enhancement opportunities for anadromous fish.
   2. 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.
   3. 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, for the majority of its length, the bankfull stream width is greater than 1.5 meters (5 feet) and the channel incision (or entrenchment) is greater than 5 meters (15 feet).

Streams that do not meet both the width and incision criteria may be classified as Class III streams based on a 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 mobile fine sediments, sand deposits, or deep soils that can provide an abundant source area for sedimentation.
b) Very steep gradient channels (greater than 35 percent slope).
c) Recently transported bedload or woody debris wedges (especially if deposited outside high water mark).
d) High water indicators (scour lines, drift lines etc) that greatly exceed observed wetted stream width.
e) Large sediment deposits stored amongst debris that could be readily transported if debris shifts.

4. Class IV: Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capacity to directly influence downstream water quality or fish habitat capability. Class IV streams do not meet the criteria used to define Class I, II, or III streams. Class IV streams must have bankfull width of at least 0.3 meter (1 foot) over the majority of the stream segment. For perennial streams, with average channel gradients less than 30 percent, special care is needed to determine if resident fish are present (resident fish presence dictates a Class II designation).
5. Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in width, little or no incision into the surrounding hillslope, and with little or no evidence of channel scour. (Note: These micro-drainage features are not mapped in GIS hydrography layers.)

IV. Objectives/Guidelines for Management Affecting Fish Habitat

A. Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.
B. Use (and update) baseline fish habitat objectives as a reference to evaluate the relative health or condition of riparian and aquatic habitat. Use baseline fish habitat objectives, listed below (and others as developed), (Anadromous Fish Habitat Assessment Team 1995, Bryant et al. 2004, Woodsmith et al. 2005) to characterize the natural range of habitat conditions by channel types and process groups. Specific measurement protocols are described in the Alaska Region Aquatic Management Handbook (FSH 2090.21 – 2001-1).
    1. Width-to-depth ratio—Relationship between bankfull width and average bankfull depth, expressed as bankfull width / average bankfull depth.
    2. Large woody debris (LWD)—Frequency of qualifying large wood pieces per kilometer of stream.
    3. Total key pieces of LWD—Frequency of large, structurally integral pieces of wood scaled to channel size per kilometer of stream.
    4. Pools per kilometer—Frequency of qualifying pools per kilometer of stream.
    5. Pool spacing—Frequency of qualifying pools per unit area of channel, length of channel surveyed / average channel bed width / number of pools.
    6. Residual pool depth per channel bed width—Residual pool depth scaled to channel size, residual pool depth / average channel bed-width.
    7. Median particle size.
    8. Pool length per meter—Total qualifying pool length divided by length of survey.
    9. Pool size (relative depth)—Average residual pool depth / average bankfull depth.
    10. Relative submergence—Expressed as average bankfull depth.

C. Maintain or restore stream banks and stream channel processes.
   1. Stream Class I, and Class II streams that flow directly into Class I streams. Maintain, restore, or improve anadromous, adfluvial, and high-value resident fish habitat capability by providing natural or improved cover/pool ratio, pool-riffle sequences, and habitat features, such as stable LWD. Design management activities to maintain stream bank, channel, and flood plain integrity.
   2. Other Stream Class II. Maintain or restore habitat capability for resident fish populations by providing natural or improved cover/pool ratio, pool-riffle sequences, and habitat features, such as stable LWD. Design management activities to maintain stream bank, channel, and flood plain integrity. Avoid impacts to downstream Class I streams.
   3. Stream Class III. Design management activities to maintain or restore stream bank, channel, and flood plain integrity. Avoid impacts to downstream Class I and Class II streams.

D. Maintain or restore natural and beneficial quantities of LWD over the short and long term.
   1. Stream Class I, and Class II streams that flow directly into Class I streams. Maintain or restore anadromous, adfluvial, and high-value resident fish habitat capability by providing for natural and beneficial volumes of LWD for rearing, stream energy dissipation, and sources of organic matter to the stream ecosystem. Use biological and physical characteristics of the stream to determine size classes and distribution of LWD. Limit navigational clearing of large wood to the minimum necessary for safety.
   2. Other Stream Class II. Maintain or restore habitat capability for resident fish populations by providing LWD, and by designing for future sources of LWD at volumes determined by channel type biological and physical characteristics.
   3. Stream Class III. Maintain or restore LWD in channels and banks to prevent changes in natural stream bank and stream channel processes.

E. Maintain or restore water quality to provide for fish production.
   1. Stream Classes I, II, and III. Prevent adverse effects to rearing and spawning habitat. Maintain or restore anadromous, adfluvial, and high-value resident fish habitat capability. Maintain or restore capability for other resident fish populations to the extent feasible. Ensure no chronic sediment input following soil-disturbing activities. Prevent adverse impacts to fish habitat downstream by minimizing siltation.
   2. Implement applicable Best Management Practices (BMPs) (FHS 2509.22).

F. Maintain or restore optimum water temperatures for salmonids, considering both winter and summer habitat requirements, climate, and natural watershed characteristics.
   1. Stream Class I, and Class II streams that flow directly into Class I streams. Maintain or restore optimum salmonid summer stream temperatures at between 50 and 68°F or at natural levels.
   2. Other Stream Class II. Maintain water temperatures below 68°F, or at natural levels, to maintain or restore habitat capability for resident fish populations. Manage watersheds and riparian streamsides to maintain appropriate water temperature for downstream Class I streams as described in F.1.
   3. Stream Class III. Manage watersheds and riparian streamsides to maintain water temperature standards and guidelines for downstream Class I and II streams.

G. Maintain, restore, or improve, where feasible (see Glossary), stream conditions that support the migration or other movement of aquatic organisms inhabiting a waterbody.
   1. If a stream crossing cannot be avoided, the best solution for aquatic organism passage is generally to maintain the natural stream form and processes from the inlet, through the crossing, and into the downstream channel. Bridges, open-bottom culverts, and stream-simulated culverts designed and installed to applicable BMPs (Soil and Water Conservation Handbook, FSH 2509.22) and design standards (Aquatic Habitat Management Handbook, FSH 2090.21) to best meet this objective.
   2. Some stream conditions, engineering constraints, or cost may make it desirable to install culverts that use a variety of weir/baffles or roughened channel to provide for passage. These hydraulically designed culverts rely on matching culvert hydraulic conditions at a specified design flow to the swimming performance of a specified design fish (Aquatic Habitat Management Handbook, FSH 2090.21).

3. Stream crossing structures requiring aquatic organism passage will be designed to current standards by qualified professionals.
4. Consult applicable BMPs (see FSH 2509.22).
5. Consult and improve the inventory of identified fish stream crossings.
6. As per the Memoranda of Understanding (MOU) between the Forest Service and the Alaska Department of Natural Resources, culvert installation, stream alignment, or diversions; dams; low-water crossings; and construction, placement, deposition, or removal of any material or structure below ordinary high water may require State of Alaska concurrence.
7. Overall, the intent is to not disrupt the migration or movement of aquatic organisms, but occasionally it is not feasible to protect some sections of habitat and movement will be restricted. In determining feasibility, consider the following:
   a) Presence of known sensitive, isolated, or unique fish populations.
   b) Extent and quality of available habitat and how it is affected by the location of the stream crossing.
   c) Cumulative impacts of restricting fish passage at multiple sites in the same watershed.
   d) Upstream and downstream linkages between the anadromous and resident life strategies of the same species.
   e) Advice from the Alaska Department of Fish and Game (ADF&G) and ADNR.
   f) Length of time that a stream structure will restrict movement.
   g) Cost of providing ideal passage conditions compared to less than ideal conditions.
   h) Availability of suitable, cost-effective compensatory mitigation projects.
8. The discharge of dredge or fill material from normal silviculture activities such as timber harvest is exempt from Clean Water Act Section 404 permitting requirements in waters of the United States (404(f)(1)(A). Forest roads qualify for this exemption only if they are constructed and maintained in accordance with BMPs specified in 33 CFR 323.4(a). These BMPs have been incorporated into BMP 12.5 in the Alaska Region's BMP Handbook (FSH 2509.22).

V. Management Indicators

A. Use Forest Plan management indicators to evaluate the potential effects of proposed project management activities affecting fish habitat.

VI. Management Activities

A. Maintain a fish program schedule that includes anticipated inventory needs, proposed habitat improvement and maintenance projects, and monitoring requirements.

VII. Coordination

A. Coordinate activities that affect fish resources with other Forest disciplines through the Interdisciplinary Team process, and with state, other federal, and local agencies and groups.
   1. Develop and maintain Memoranda of Understanding/Agreements with appropriate state, federal, and local agencies, and aquaculture associations.
   2. Coordinate with the state and federal agencies, and the Pacific Northwest Research Station, to maintain a continuous program for research, monitoring, and assessment of impacts of land-use activities on fish habitat.

B. Consider the influence of proposed management activities on fishing use patterns.

C. Consider effects of off-highway vehicle (OHV) travel and road closures on fish habitat and populations.

VIII. Projects

A. Use the following priority for fish habitat project work: mitigation for unplanned impacts, rehabilitation/restoration, and enhancement. For both mitigation and rehabilitation, consider alternatives for cost efficiency of performing off-site enhancement (enhancement of a different area than where the impact actually occurs).

1. Location of off-site enhancement shall be governed by the following priorities:
    a) First priority: same stream reach (same species)
    b) Second priority: same stream (same species)
    c) Third priority: same watershed (same species)
    d) Fourth priority: same anadromous fish harvest area (same species)
    e) Fifth priority: differing species, using above priority order

B. Enhance fish habitat to meet the objectives identified in this Plan. Opportunities may include, but are not limited to, instream enhancement, lake fertilization, cooperative bio-enhancement (e.g., stocking), incubation boxes, and fishway construction.
    1. Use the Cooperative Fisheries Planning process (consult ANILCA, Section 507) and/or other cooperative agreements for developing priorities for the enhancement of fish resources.
    2. Determine habitat capability on streams and lakes identified for enhancement in the Cooperative Fisheries Planning process prior to construction of fish projects.
    3. Update the fish habitat enhancement list (Cooperative Fisheries Planning process) periodically.

C. Recognize bio-enhancement (e.g., stocking of juveniles, use of egg incubation boxes, transferring of adult fish to seed stream systems) as part of the fish improvement project costs when appropriate. Cooperate/coordinate with state and federal agencies and aquaculture associations to facilitate bio-enhancement.

D. Fishpass projects abide by the standards and best practices for colonization projects included in the Comprehensive Salmon Enhancement Plan for Southeast Alaska, Phase III.

E. Coordinate new projects to enhance the use of National Forest System lands with the recreation program managers.

Fish Habitat Restoration and Improvement: FISH3

I. Planning

A. Improve or restore fish habitat to work toward the habitat objectives of the Forest Plan. Give priority to restoration projects.

B. Construct projects using the most cost-efficient methods, while achieving desired results consistent with the Land Use Designation.

C. During project planning consider the need to monitor the accomplishment of project objectives. Need shall be governed by the type of project, with high interest/high investment projects being monitored more intensively.
    1. Where needed, develop cooperative agreements with fish/aquaculture agencies and other groups to assess the effectiveness of Forest Service habitat improvement.

D. Coordinate habitat restoration and improvement projects with ADF&G and other appropriate agencies and groups.

II. Construction Coordination

A. Coordinate all fish habitat restoration and improvement using an interdisciplinary process.

III. Monitoring

A. Conduct monitoring of fish habitat restoration and improvement projects to ensure their continued function at the design level of operation.

B. Monitor fish production on a representative sample of restoration and improvement projects to evaluate effectiveness of individual projects, categories of similar projects, and the effectiveness of the overall improvement program.

Fish Habitat Maintenance: FISH4

I. Maintenance

A. Provide for the maintenance of fish habitat enhancements.
    1. Fund maintenance of existing projects prior to the construction of new ones.
    2. Include funding for maintenance in the planning and budgeting for all projects.

3. Maintain restoration and improvement projects to ensure that investment objectives are met.
4. When maintenance and operation of an improvement become inefficient, reconstruct or remove the project.
5. If a project becomes inoperable, reconstruct or remove the improvement.

B. Develop a written maintenance responsibilities agreement with project cooperators prior to project construction.

Threatened, Endangered, and Sensitive Fish Species: FISH5

Consult FSM 2670 and R10 supplemental directions for Threatened, Endangered, and Sensitive species.

I. Threatened or Endangered Species

A. Currently there are no Threatened or Endangered fish species within the territorial boundaries of the Tongass National Forest.

II. Sensitive Fish Species

A. Island King Salmon
1. Provide for the protection and maintenance of runs of king salmon that naturally occur on islands, including the runs in King Salmon and Wheeler creeks on Admiralty Island.
2. Coordinate with ADF&G and National Marine Fisheries Service (NMFS) on commercial, sport, and subsistence fish use, hatchery egg take programs, and other activities affecting the viability of king salmon runs in order to conserve these unique populations.
3. Avoid the placement of facilities or issuing of permits for activities near these streams that would increase harvest pressure on these king salmon runs.
4. Include culvert replacement as a conservation and restoration tool.

B. Northern Pike
1. Provide for the protection and maintenance of northern pike found in the Pike Lakes on the Yakutat Forelands. This population of northern pike is unique to Southeast Alaska.
2. Avoid the placement of facilities near the Pike Lakes that would increase harvest pressure to the point where the viability of these species is affected.
3. Coordinate with ADF&G on any activities that would affect the viability of the northern pike.
4. Include culvert replacement as a conservation and restoration tool.

C. Fish Creek Chum Salmon
1. Provide for the protection and maintenance of chum salmon in Fish Creek near Hyder. This population of chum salmon is characterized by their extraordinary large size.
2. Coordinate with ADF&G and NMFS on commercial, sport, and subsistence fish use, hatchery egg take programs, and other activities affecting the viability of the chum salmon runs in Fish Creek in order to preserve these populations.
3. Provide habitat improvement and maintenance including culvert replacement to sustain this run of salmon, as necessary.

FOREST HEALTH
Forest-wide Standards and Guidelines

Forest Health Management: HEALTH1

I. Forest Health Management

A. Achieve desired future condition of forest health by manipulating insect and disease populations to beneficial levels. Desirable forest health conditions are expected to vary according to different resource goals.
   1. Create ecological conditions that improve the health of vegetation by incorporating forest health principles into forest planning, decisionmaking, and implementation of project activities.
   2. Consider forest health management information dealing with insects, diseases, and invasive species of flora and fauna, and recommendations on management alternatives. These recommendations will include analyses of the ecological effects of insects and diseases and management alternatives, including no action, chemical, cultural, mechanical, and biological methods.
   3. For direction on the use of pesticides in forest management, consult the Pesticide Use and Vegetation Management guidelines in the Timber Forest-wide Standards and Guidelines.

B. Evaluate insect, disease, and invasive species impact(s) to resources.
   1. Conduct on-site evaluations to assess past, current, and future insect, disease, and invasive species impacts and their effect upon desired forest health.
   2. Use data from these evaluations to assist project planning and analysis.

C. Provide training, technology transfer, and technical assistance to area and district personnel to assist in the management of forest insects and diseases.

Forest Insect and Disease Survey and Inventory: HEALTH2

I. Insect and Disease Detection Survey

A. Conduct an annual insect and disease detection aerial survey in cooperation with the areas and districts.
   1. Resource managers will establish survey priorities based on planning needs and current management concerns.
   2. Conduct aerial surveys of a variety of forest cover types and LUDs, concentrating on those areas identified as having the highest management priority.

HERITAGE RESOURCES and SACRED SITES
Forest-wide Standards and Guidelines

Heritage Resource Activities: HSS1

I. Management

A. Maintain a heritage resource management program to identify, evaluate, preserve, and protect heritage resources on a Forest-wide and project-specific level in compliance with the National Historic Preservation Act, the National Environmental Policy Act (NEPA), the American Indian Religious Freedom Act (AIRFA), the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), Executive Order 13287, their amendments and implementing regulations. (Consult 36 Code of Federal Regulations [CFR] 800 and Forest Service Manual [FSM] 2361.)

B. Coordinate management of heritage resources with the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), Alaska Native tribes and corporations, and interested members of the public. Consult 36 CFR 800, FSM 2361, and the Programmatic Agreement #02MU-111001-076 (as amended) between the USDA Forest Service, Region 10, ACHP, and Alaska SHPO.

C. Identify and develop appropriate interpretive messages for heritage resource sites and activities that relate the historical value and contributions of natural and heritage resource management to the Tongass National Forest. Work closely with all interpretive services programs to ensure accurate and effective interpretation of heritage resources.

D. Coordinate the management, access, and use of Forest products to perpetuate Alaska Native culture and art forms. (See Standards and Guidelines for Plants and Timber.)

E. Develop a heritage resource management assessment that provides a framework for management decisions. Its objectives are to display the schedule of management activities, summarize current status, and identify priorities for future heritage resources inventory, evaluation, and protection.

1. Update the heritage resource assessment annually, for budget implementation and to fulfill requirements of the annual report to SHPO as stipulated in the Programmatic Agreement.
2. The assessment/annual report should include:
   a) An overview of new data and data management.
   b) Identification of projects reviewed under 36 CFR 800 or the Programmatic Agreement and areas requiring intensive site inventory, including non-project areas of the Forest.
   c) Identification, classification, and evaluation of heritage resources located.
   d) Re-evaluation and update of the heritage resource sensitivity zone system based on new data and/or understandings of each area's heritage resources and their locations.
   e) Identification of measures and priorities for the protection of heritage resources from vandalism, theft, and natural deterioration.
   f) Identification of prioritized needs for the stabilization, restoration, and repair of damaged sites.
   g) Identification of the need for maintenance of sites on, or eligible for inclusion in, the National Register of Historic Places.
   h) Identification of opportunities for interpretation of heritage resources for public education and recreation values.
   i) Identification of the interaction of heritage resources and other multiple uses, including consideration of management activities, and their impacts on heritage resource management.
   j) Identification of the coordination efforts with appropriate state heritage resource plans and planning activities of the SHPO, State Archaeologist, and other state and federal agencies.

II. Project Clearance/Inventory

A. Project Clearance. Any project, activity, or program that can result in changes in the character or use of historic properties and is under the direct or indirect jurisdiction of the Forest, licensed

or assisted by the Forest, including new or continuing projects, activities, or programs and any of their elements not previously considered under Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended, shall be considered an undertaking and may require evaluation through inventory and survey.

1. Ensure that compliance with the Alaska Programmatic Agreement and/or 36 CFR 800 has been accomplished before a NEPA Decision Notice, Record of Decision, or Finding of No Significant Impact is signed prior to implementation of an undertaking (FSM 2361-04b-R10 Supplement).

III. Project Implementation

A. Inventory and evaluation may be accomplished at the operator's discretion and cost provided that the inventory and evaluation are accomplished under the supervision of a qualified heritage resources specialist authorized by a Special Use Authorization. Ultimate determinations under 36 CFR 800 are made by the appropriate Forest Service line officer.

B. Include as part of the Section 106 project report specific protective and/or mitigative measures to be taken by the operator who is responsible for the cost of any such protective or mitigative measures.

C. When appropriate, mark known heritage resource sites within or adjacent to the project area prior to project implementation.

D. Include in each contract, permit, or lease a statement of the operating conditions required to protect heritage resources in the project area. Also include the pertinent clause notifying the operator of his or her responsibility to protect marked sites when working in the project area and the operators liability for damage.

E. Provide training in the recognition, site inspection, and protection of heritage resources for all persons responsible for on-the-ground administration of contracts, permits, or leases.

1. If a site, human remains, or funerary object is discovered during project implementation, work shall be suspended by the project administrator to avoid potential site damage. The Forest Supervisor shall notify the SHPO and appropriate Alaska Native tribe and corporation contacts, and resumption of work will be authorized only after the consultation process has been completed. The project administrator shall keep the contractor, permittee, or lessee informed of anticipated delays in work resumption.

IV. Mitigation

A. In cases where in-place preservation of heritage values is the objective, the Forest Supervisor shall consider management options such as project design, location, or cancellations in meeting the objective. Consult 36 CFR 800 and the Programmatic Agreement for procedures to be followed in reaching a management decision.

B. The preferred management of sites listed in, nominated to, or eligible for the National Register of Historic Places is avoidance and protection.

1. When feasible, sites listed in, nominated to, or eligible for the National Register of Historic Places shall be managed to achieve a "No Adverse Effect" finding, in consultation with the SHPO and the Advisory Council on Historic Preservation. (Consult 36 CFR 800.)
2. The recovery (collection) of heritage resources can occur during the inventory, evaluation, or mitigation (data recovery) phases. Standard requirements include documentation of the resource, labeling of the artifacts, and curation of the recovered materials and resultant records.
3. Collection of artifacts, except under emergency circumstances, must be accomplished or directly supervised by a professional heritage resources specialist. A qualified heritage resources specialist may recover artifacts for purposes of evaluation.
4. Requirements for heritage resource collection include the following:
   a) Emergency collection. Artifacts collected in emergency situations shall be turned over to the Unit Heritage Resources Specialist for appropriate curation.
   b) Special agents and other law enforcement officers conducting criminal investigations may collect artifacts as evidence. Any material collected must be cataloged and stored in a secure area.

c) Artifact samples may be collected from heritage resource sites, when they can be systematically recovered and properly recorded for further evaluation (caution must be exercised to ensure that the collection of artifact samples is adequate for the purpose intended without causing unacceptable impacts to the resource). The sample size collected should be no more than the minimal amount necessary for the proposed analysis.

d) Data recovery (including collection of artifacts and photographic/archival recordation) must be conducted in accordance with a Forest Service/SHPO-approved Data Recovery Plan, which shall conform to the published guidelines in the Advisory Council on Historic Preservation, Handbook for the Treatment of Archaeological Properties.

5. Disinterment of human remains, associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony should occur only when consultation has been completed per NAGPRA with the direct lineal descendants or the representative tribe. A signed Memorandum of Understanding shall be in place prior to any planned disinterment activities. Inadvertent discoveries shall follow the procedures set forth in 43 CFR 10.

V. Enhancement

A. Identify opportunities and priorities for interpretation of heritage resources for public education and recreation. Public education efforts should emphasize the importance of heritage site stewardship and leaving in place what they find.

1. Manage significant and suitable heritage resource sites to realize their recreational and educational values to the public. Enhancement programs, including Passport In Time and Heritage Expeditions, should include in-service funding as well as opportunity for establishing partnerships with the private sector. The measure of suitability should be based upon accessibility, feasibility for protection, condition of the property, compatibility with other management activities, and value to the public.
2. Enhance suitable heritage values through interpretation, restoration, and the publication of reports, brochures, signs, films, videos, slide, and other interpretive programs. Interpretive services and facilities should be compatible with the nature, quality, and integrity of the resource selected for enhancement.
3. Cooperate with museums, universities, Indian tribes, and other recognized institutions, agencies, and knowledgeable persons in planning and constructing heritage resource exhibits and providing opportunities for scholarly/scientific use.
4. Manage heritage resources to ensure that properties and their records are protected to prevent degradation or unauthorized use under authority of the Archaeological Resources Protection Act of 1979 and the regulations in 36 CFR 296 and 36 CFR 79.

VI. Site Inspection

A. Assess condition, and document restoration or stabilization needs of cultural sites. Use this information for reporting the success of mitigation measures and other actions taken to ensure site preservation.

1. Frequency of inspection should seek to include one documented visit per selected site per year as available resources allow. If site damage is observed, additional inspections may become necessary. If an area is damaged through suspected human disturbance, inspect other sites in that vicinity. (Consult the Forest Heritage Resource Program Manager and/or Special Agent.)
2. Coordinate the assessments with District Rangers, the Forest Heritage Resource Program Manager, and the Special Agent.

B. Assessment procedures should include observations documenting the current site condition. Document assessments through a signed, written report that verifies which site was inspected and the observed condition.

C. Damage Assessment Report. If site damage is observed and it has not been previously recorded, a site damage assessment report will be prepared by the Forest Heritage Resource Program Manager or Unit Heritage Resource Specialist. The purpose of the damage assessment report is to identify the damage using quantitative measures, make

recommendations to stabilize the site from further deterioration, determine the archaeological or commercial value and the cost of restoration and repair, and evaluate the actions needed to prevent further damage.

D. Remain alert to cultural damage potentially attributable to criminal acts and safeguard investigation by avoiding further disturbance of the area.

E. Prioritize heritage sites to be assessed on a yearly basis as coordinated by the District Ranger, Forest or Zone Heritage Resource Program Manager, and Special Agent.

F. Include resource inspection in the measures for the protection of heritage resources from vandalism, natural destruction, or project activity. Evaluate and recommend measures such as stabilization, data recovery, or no action, for resources that have sustained damage from natural forces. Vandalism, collecting, illicit excavation, or project damage shall be evaluated for protective measures, such as signing, administrative closure, remote sensing, increased inspection, investigation, stabilization, data recovery, or other measures under the authority of the American Antiquities Act of 1906, the Archaeological Resources Protection Act of 1979 and regulations in 36 CFR 261, 36 CFR 296, and 36 CFR 800.

G. Complete or update condition assessments for 20 percent of all priority heritage assets each year based on field visits and updated cost information.

Sacred Sites Protection Activities: HSS2

I. Management

A. The Tongass National Forest will manage sacred sites as an integral part of its land management. To the extent practicable, accommodate access to and ceremonial use of sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sites. Provide reasonable notice of proposed actions or policies that may restrict access to or adversely affect the physical integrity of sacred sites. When there is a conflict among potential uses, we will prioritize the protection of sacred sites above other land uses.

The active participation of Indian tribes and Indian religious practitioners is critical to the success of sacred sites management. If a tribal government chooses not to consult, the Forest will rely on the best available information to make decisions about sacred sites.

Use the collective authorities and provisions of these laws and Executive Orders: Executive Order 13007, Indian Sacred Sites; Executive Order 12898, Environmental Justice; Executive Order 13175, consultation and coordination with tribal governments; American Indian Religious Freedom Act; National Historic Preservation Act (NHPA), as amended; Archaeological Resources Protection Act (ARPA), as amended; Religious Freedom Restoration Act; and Native American Graves Protection and Repatriation Act. Guidance on traditional cultural properties is presented in National Register Bulletin 38.

Executive Order 13007 defines a 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 tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.”

B. The Forest Supervisor, Deputy Forest Supervisor, and District Rangers will be responsible for sacred sites management. Heritage resource and tribal government relations specialists will collaborate to provide the Forest’s line officers information necessary to make decisions related to sacred sites management. These specialists will coordinate consultation between the Forest’s line officers, tribal government officials, and authoritative representatives.

1. Conduct sacred sites discussions with tribal government officials and authoritative representatives.

C. Regularly review proposed federal actions with tribal government officials and authoritative representatives and document their comments. This review should occur as early as possible

before the public scoping occurs. Ensure adequate time is provided to assess the potential effect of a proposed action on the access, use, and physical integrity of sacred sites.

D. Develop a knowledge base about sacred sites and develop a record of any tribal protocols, management recommendations, proposed guidelines, policy, or concerns about a proposed federal action regarding potential effects to sacred sites within the Indian tribe's areas of cultural concern.

E. Protect the physical integrity of sacred sites by considering limits to public access and use, while accommodating access and use by authorized tribal representatives.
   1. Use voluntary closures to the greatest extent possible to provide seclusion and privacy whenever requested by tribal government officials and their authorized representatives.
   2. Identify specific locations and time frames in the closure order and provide notification to the unit Law Enforcement Officer.

F. Use alternative dispute resolution processes regarding sacred sites management to resolve differences between the Forest Service and tribal government officials and their authorized representatives. (Consult FSM 1563.2.)

II. Project Planning

A. As early as possible, consult with Indian tribal governments and authoritative representatives and conduct formalized government-to-government consultation with Indian tribes to develop agreements regarding the access, use, protection, and management of sacred sites.

B. Develop site-specific management strategies that detail protection issues and enforcement mechanisms for identified sacred sites within the area of potential effects in consultation with tribal government officials and authoritative representatives.

C. Protect the confidentiality of sacred sites information, which will not be shared with the public or media. Be respectful of traditional rock art, totemic and clan crests, icons, stories, and tribal words or language. The Forest Service will not use tribal knowledge, stories, rock art, totemic, or clan crests without permission.
   1. Implement procedures to protect confidential information related to sacred sites to the maximum extent permitted by law. (Consult FSM 1563.03.7; NHPA, Section 304; ARPA, Section 9.)

III. Project Implementation

A. Maintain and protect the natural environment surrounding an identified sacred site while consulting with Indian tribes and Indian religious practitioners to seek agreement for further protection and site treatment measures.
   1. When a sacred site is identified, meet with tribal government officials and authoritative representatives to determine if a site visit is advisable.
   2. Consider tribal recommendations for protection until an assessment of management alternatives is made. When human remains or other funerary items are involved, follow the inadvertent discovery or intentional excavation requirements of the Native American Graves Protection and Repatriation Act.

B. Develop a protection plan that, as much as practicable, incorporates specific standards and methods as recommended by tribal government officials and authoritative representatives before authorizing federal actions, including the issuance of permits.
   1. Employ management strategies and protective measures that are least disturbing to sacred sites and invite participation of tribal government officials and authoritative representatives.

C. Notify the affiliated tribal government(s) within 24 hours (or as soon as possible) should an activity inadvertently disturb a sacred site, or in the event that any sacred or burial object is observed through the action of water, weather, or other causes beyond the control of the Forest Service.

IV. Mitigation

A. Management strategies to lessen adverse effects to cultural properties generally follow the model outlined in the NHPA and its implementing regulations (36 CFR 800). Line officers

should be aware that mitigation in that sense might not appropriately address concerns expressed by religious practitioners about the consequences of federal actions.

B. Determine in advance with tribal government officials and authoritative representatives what kinds of activities in or around a sacred site would constitute contamination or violation of sacredness.

C. Identify what kinds of mutually acceptable solutions are available (on a case-by-case basis) should a sacred site be potentially contaminated or violated.

V. Enhancement

A. Educate Forest Service personnel about the Tlingit, Haida, and Tsimshian people who associate spiritual qualities with the land, wildlife, and other natural and cultural resources. Encourage the participation of Indian tribes and Alaska Native individuals in this educational effort.

B. The Forest Service will make available information to tribal government officials and authoritative representatives about the distinctions between the provisions of NHPA and Executive Order 13007, Indian Sacred Sites.

C. Allow opportunities for tribal government officials and authoritative representatives to reconnect with their traditional homelands and sacred sites.

VI. Monitoring

A. Invite tribal government officials and authoritative representatives to collaborate in monitoring sacred sites and to evaluate the effectiveness of sacred sites protection measures and other management strategies.

1. The Tongass National Forest will accomplish site monitoring in a careful and respectful manner according to professional standards and tribal government recommendations. Tribal government officials and authoritative representatives will be encouraged to participate in site monitoring.
2. Establish standard protocols for site monitoring and for maintaining confidentiality. Established or known sacred sites shall be treated with dignity, care, and respect.
3. Establish a format to record implemented protection measures and to document sacred site condition after each monitoring event.

INVASIVE SPECIES
Forest-wide Standards and Guidelines

Invasive Species Prevention: INV1

I. Invasive Species Inventory

A. Maintain consolidated invasive species inventory for the Forest and Districts in the appropriate corporate database in accordance with Forest Service Manual (FSM) 2083 and the most current and appropriate inventory protocols.

II. Project Planning

A. For all proposed projects or activities, the responsible line officer will determine the risk of invasive species (flora and fauna) introduction or spread and the need to implement appropriate mitigation measures.

B. Ensure that contracts, permits, and project design documents contain appropriate provisions concerning the prevention and/or spread of invasive species.

Invasive Species Early Detection and Rapid Response: INV2

I. Invasive Species Management

A. At the Forest level, evaluate new non-native species for risk of invasion and update Priority Species List as needed. (Consult FSH 2000 Noxious Weed Management, Chapter 2080, Supplement No.: R10 TNF – 2000-2007 – 1F H80, R10 TNF 2000-2007-1.)

B. Treat priority species infestations as practicable, using an integrated pest management approach.

Invasive Species Control and Management: INV3

I. Invasive Species Management

A. Reduce population sizes and/or limit the spread of Priority Invasive Species on the Tongass National Forest through the use of an integrated pest management approach. (Consult FSM 2080 for the list of Priority Invasive Species.)

Invasive Species Rehabilitation and Restoration: INV4

I. Rehabilitation and Restoration of Native Flora and/or Fauna

A. Rehabilitation of habitats impacted by invasive species will emphasize the use of native plant species in restoration activities.

KARST and CAVE RESOURCES
Forest-wide Standards and Guidelines

Karst Resources: KC1

I. Strategy

A. Maintain, to the extent practical, the natural karst processes and the productivity of the karst landscape while providing for other land uses where appropriate.

B. Strive to maintain the productivity of the soils of the karst landscape after harvest, to maintain the quality and quantity of the waters issuing from karst hydrologic systems, and to protect the many resources values within underlying significant cave systems as per the requirements of the Federal Cave Resources Protection Act of 1988 (FCRPA).

C. See Appendix H for additional guidance.

II. Management

A. Evaluate karst resources as to their vulnerability to land uses affecting karst systems, as described in the Karst and Cave Resource Significance Assessment, Ketchikan Area, Tongass National Forest, Alaska (Aley et al. 1993), Karst landscapes and associated resources: a resource assessment (USDA Forest Service Gen. Tech. Rep. PNW-383) (Baichtal and Swanston 1996), Karst Management Standards and Implementation Review, Final Report of the Karst Review Panel (Griffiths et al. 2002), and the information provided herein.

B. Seek participation from interested individuals and organizations, such as caving groups, scientists, recreationists, and development interests in managing the karst resources.

C. Integrate and coordinate karst management with the management of other resources. Consider the function and biological significance of the entire karst landscape; recognize the importance of protection of karst systems, not solely specific karst features.

D. Public education and interpretative programs should be developed to ensure an increased understanding of the components and function of the karst landscape.

E. Work with universities and other appropriate research facilities to foster partnerships to study and characterize the function and biological significance of karst landscapes.

F. Manage the karst lands with an adaptive management approach.

G. **Low Vulnerability Karst Lands.** Low vulnerability karst lands are those areas where resource damage risks associated with land management activities are negligible from a karst management perspective. No special direction is needed.

H. **Moderate Vulnerability Karst Lands.** Moderate vulnerability karst lands are those areas where resource damage risks associated with land management activities in the areas are appreciably greater than those posed by similar activities on low vulnerability karst lands adjacent to areas of high vulnerability.

1. Road Construction
   a) Existing roads shall be utilized in preference to the construction of new ones.
   b) Roads shall avoid sinkholes and other collapse features and sinking or losing streams.
   c) Roads shall not divert water to or from karst features. Measures shall be taken to reduce erosion and sediment transport from the road surface and cut slopes. Sediment traps, cut and fill slope revegetation, and road closure and revegetation may be appropriate.
   d) Because subsurface drainage networks may be more open to the surface in moderate vulnerability areas, additional design criteria may be required.
2. Quarries
   a) Existing quarries will be utilized in preference to the construction of new ones.
   b) No quarry shall be developed atop karst without adequate site survey and design.
   c) Quarries should be properly closed after abandonment.
3. Karst Feature Buffers
   a) No surface disturbing activity such as timber harvest, road construction, and/or quarry development shall occur within a minimum of 100 feet of the edge of a cave, sinkhole,

collapse channel, doline field, or other collapse karst feature. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness (RAW) of that zone (see Reasonable Assurance of Windfirmness Guidelines, Tongass National Forest, June 2006.

b) No surface disturbing activity such as timber harvest, road construction, and/or quarry development will occur on lands that overlie a known "significant" cave. "Overlie" is defined here as the area between lines projected from the outside walls of the cave passage at a 45-degree angle to the surface.

c) As cave discoveries are made and those caves are mapped and inventoried, it is quite probable that very significant cave systems will be discovered Consider a Geologic Special Area on a case-by-case basis for such caves.

d) Protect all sinking or losing streams and their tributaries irrespective of whether the channels carry perennial, ephemeral, or intermittent flows. A non-harvest buffer is required of a minimum of 100 feet from the edge of a sinking or losing stream within no less than 0.25 mile (1,320 feet) upstream of their swallow hole or loss point.

e) The area surrounding resurgences should be protected to maintain the environment surrounding the springs and the quality of the waters flowing from them.

f) If at any time during project development or implementation an un-inventoried karst feature (or features) discovered, all activity in the vicinity of the feature (or features) shall cease until a karst vulnerability assessment can be conducted.

I. **High Vulnerability Karst Lands.** High vulnerability karst lands are those areas where resource damage risks associated with land management activities are appreciably greater than those posed by similar activities on low or moderate vulnerability karst lands. These areas shall be managed to ensure conservation of karst values through the implementation of a high level of protection.

1. Karst lands found to be of high vulnerability shall be identified and removed from the commercial forest lands suitable land base. Timber management and related activities are excluded from these lands.
2. Limited recreational development may be appropriate.
3. Roads are considered inappropriate unless no other route or option is feasible. Small expanses of these areas may be crossed by roads to access areas where harvest is appropriate (i.e., low or moderate vulnerability karst lands and non-carbonate areas). If roads must be built across areas of high vulnerability, the following guidelines will apply:
   a) Minimize clearing limits and grubbing. Flush cut stumps to the ground. Do not deck logs pioneered from the road clearing limits outside the clearing limits.
   b) Use a fill-type construction rather than a balanced cut and fill design. This will most likely be possible because the slope gradient in these areas is generally less than 15 percent.
   c) Utilize log stringer bridges or similar structures to span across collapse features, if necessary. Geotextile should be used to keep aggregate overlay from falling into the collapse feature.
   d) Sediment traps and erosion control measures will be needed in most cases.
   e) Same-season revegetation of the cut and fill slopes should be required to minimize sediment production potential.
   f) No quarry development would be allowed on these lands.

III. Catchment Area Management

A. The catchment areas for karst systems, comprised of carbonate or non-carbonate substrate, are an integral portion of those systems. Catchment area management measures can be most effectively developed if both catchment types are delineated, and their sensitivity to cumulative land use activities is evaluated. Use the karst vulnerability assessment procedures to approximate the sensitivity of specific autogenic recharge areas.

IV. Young-Growth Management on Karst

A. On lands underlain by carbonate substrate, where either pre-commercial or commercial thinning is proposed, a karst resource inventory shall be conducted as described above.

B. The openness of the underlying karst system, that system's vulnerability to surface disturbance, and the likelihood of additional sediment production or runoff by thinning the young-growth timber shall be determined.
C. Pre-commercial thinning is appropriate on all karst lands when the karst management objectives can be met.
D. No slash or debris may fall or be placed in identified high vulnerablility karst features.
E. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand.
F. Commercial thinning is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met.
G. Generally, no thinning shall be permitted on lands determined to be of high vulnerability, such as within 100 feet of a cave entrance, a karst feature accepting surface flow, or on the edge of a sinking or losing stream within 0.25 mile upstream of their swallow hole or loss point. A zone equal to one tree height should be left untreated to ensure that no material will be placed in these features.

V. Salvage of Windthrown Timber on Karst

A. Salvage is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no salvage shall be permitted on lands determined to be of high vulnerability, within 100 feet of a losing stream, a karst feature, or on lands that overlie a "significant cave." For relatively minor, isolated features surrounded by low to moderate vulnerability karst, if the logging system to salvage the windthrown timber can be designed to not disturb the timber spanning or blown into the feature, salvage shall be permitted within 100 feet of the lip or edge of the feature.

VI. Mineral Development

A. The impacts of any proposed mineral development within the karst landscape can be analyzed through the environmental analysis that is triggered once a Plan of Operations is received.

Cave Resources: KC2

I. Management

A. Manage lands in a manner that, to the extent feasible, protects and maintains significant caves and cave resources. See direction in 36 CFR 290.3 and "definitions" for guidance determining cave significance. See Appendix H for specific guidance.
B. Locate, map, and describe caves, and evaluate and document the resource values discovered when appropriate. Although the word "inventory" is not used in FCRPA, it is clear that the significant cave designation process is an inventory process for identifying caves that will require some form of management. Carry out data storage and collection in a manner that is consistent, at a minimum, with the processes outlined in 36 CFR 290.3 and FSM 2881.42 for nomination, evaluation, and designation of significant caves.
C. Develop a comprehensive Cave Resource Management Strategy on known cave resources. Strategies for cave resource management are suggested in Appendix H and within these guidelines.
    1. **Class 1. Sensitive Caves**. Caves considered unsuitable for exploration by the general public either because of their pristine condition, unique resources, or extreme safety hazards. These caves will be closed by a Forest Supervisor Order and entry allowed by permit only.
    2. **Class 2. Directed Access Caves**. Caves with directed public access and developed for public use. These caves are shown on maps or have signs directing visitor access; public visitation is encouraged.
    3. **Class 3. Undeveloped Caves**. Caves that are undeveloped, but are suitable for exploration by persons who are properly prepared. Location of these resources will not be advertised or shown on maps.
D. Develop public education and interpretative programs to foster an increased appreciation of the function and biological significance of the cave resources, caving ethics and safety, and safe and responsible uses of these resources for research and recreation purposes.

E. Specific information concerning Significant Caves on the Forest will not be made available to the public (FCRPA). This information is also not available under Freedom of Information Act requests. Treat this information as confidential and secure it in such a manner as to prevent access by unauthorized individuals.

F. Search and rescue in caves is the primary responsibility of the Alaska State Troopers. Supply appropriate support and equipment where needed and available.

G. The following are prohibited in caves:

1. In bat caves, or caves with sensitive species, it is prohibited to go into or be upon any area that is closed for the protection of threatened, endangered, rare, unique, or vanishing species of plants, animals, birds, or fish.
2. Applicable to all caves, except for purposes of research and exploration, it is prohibited to:
   a) Build, maintain, attend, or use a campfire or stove fire; fires may be allowed in regard to traditional native ceremonies in compliance with the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act, their amendments, and implementing regulations;
   b) Smoke;
   c) Camp;
   d) Possess, discharge, or use any kind of fireworks or other pyrotechnic device;
   e) Discharge a firearm, air rifle, or gas gun; or
   f) Allow domestic animal access.

LANDS
Forest-wide Standards and Guidelines

Lands Preparation: LAND1

I. Land Status

A. Perform a land ownership review during early project planning stages, prior to management activities, to ensure protection of state, private, and other federal agency rights and interests.
   1. Consult sources, such as BLM Master Title Plats (MTPs), in addition to the land status atlas, to identify land encumbrances that do not appear in the land status atlas.

II. Coordinating with Others

A. Coordinate activities, including environmental analysis on National Forest System (NFS) land, with adjacent state and private landowners. Solicit and consider their input when analyzing proposals that might affect them.

B. Coordinate activities that affect the Coastal Zone with the State of Alaska Department of Natural Resources (ADNR), to ensure consistency, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.

C. Cooperate with the State of Alaska and local communities in their land and resource planning efforts.

D. Coordinate activities on encumbered lands with interest holders, as appropriate.

Special Use Administration (non-Recreation): LAND2

I. Special Use Authorizations

A. Manage Special Use Authorizations to best serve the public interest, in accordance with the standards and guidelines discussed below. (Consult 36 CFR 251.)
   1. Do not authorize private uses of NFS lands when such uses can be reasonably accommodated on other lands.
   2. Review new special use requests for their compatibility with Land Use Designations (LUDs), based on a consideration of environmental values, economic feasibility, and a determination of social and economic benefits. (Consult FSM 2700.)
   3. In addition to the above criteria, special use applications may be denied if the authorizing officer determines that:
      a) The proposed use would not be in the public interest;
      b) The applicant is not qualified;
      c) The proposed use would otherwise be inconsistent with applicable federal or state law; or
      d) The applicant does not or cannot demonstrate technical or financial capability. (Consult 36 CFR 251.54.)
   4. Review and adjust special use fees on a planned basis to comply with U.S. Office of Management and Budget (OMB) directives and Forest Service policy. (Consult OMB Circular No. A-25, and FSM 2700.)
   5. Upon renewal or transfer of a permit, terminate or bring into conformance existing uses that are not compatible with the Forest Plan.
   6. On lands encumbered by state selections, obtain concurrence from ADNR prior to granting a Special Use Authorization, in accordance with the ANILCA, Section 906 (k), and FSM policy. (Consult FSH 5509.11, R-10 Supplement.)
   7. Do not issue Special Use Authorizations on lands selected or withdrawn for selection by a Native corporation without the consent of that Native corporation, unless waived by the Regional Forester. (Consult FSH 5509.11, R-10 Supplement.)
   8. Do not issue Special Use Authorizations on lands for which there is a Native Allotment application without consent from the applicant and the Bureau of Indian Affairs (or their designees), unless the application has been adjudicated by BLM as being invalid and the case has been closed. Contact the Regional Forester prior to granting a Special Use

Authorization within an active claim area, because Regional Forester authorization may also be required. (Consult FSH 5509.11, R-10 Supplement.)

9. Coordinate all Special Use Authorization proposals that affect the Coastal Zone with ADNR to ensure consistency, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program. The Coastal Zone excludes all federal lands.
10. Require that structures be constructed and maintained in a manner to blend with the surrounding environment, and be consistent with management objectives and other allowed activities. To the extent feasible, locate new structures hidden from areas of concentrated visitor use, such as rivers, roads, trails, and public recreation cabins.
11. Manage authorized uses to maintain a neat and sanitary condition of the permit area. The preferred method of litter disposal is to remove all litter from NFS lands and dispose of it at appropriate sanitary facilities. If this is not feasible, require the permit holder to burn all burnables on site, at a location designated by the responsible Forest Service officer, and remove all materials that cannot be burned (including ash residue) for disposal at an approved disposal site.
12. Locate outdoor toilets away from lakes, rivers, and streams. Follow guidelines in the State Wastewater Disposal Regulations. Outdoor toilet locations will be approved by the Forest Service prior to construction. (Consult 18 AAC 72.)
13. To the extent allowed by law, regulation, and policy, allow permit applicants to conduct environmental analyses and supporting activities (such as cultural resource surveys), and submit them to the responsible official for consideration in Forest Service decisions.
14. Have electronic site proponents submit technical data required in Section 48 of the Special Uses Handbook (FSH 2709.11) for site designation, including demand for the site, consideration of alternate locations, compatibility with other electronic uses, interference with other uses, areas of electronic signal coverage, signal paths, and relationship of the proposed site to other sites.
15. Motorized access may be authorized as part of the Special Use Authorization. Use of off-highway vehicles may be allowed and must be in accordance with 36 CFR 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use.

II. Cabins and Related Structures

A. Manage cabins and related structures that were existing but unauthorized prior to ANILCA (December 2, 1980), in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the standards and guidelines discussed below. (In Wilderness, consult FSM 2320 and the Wilderness and Wilderness Monument LUD prescriptions.)

1. Allow the continuation of customary and traditional uses of cabins and related structures that were existing but unauthorized on December 2, 1980, in accordance with a nontransferable, renewable, five-year Special Use Permit until the death of the last immediate family member of the original permittee, when such uses are compatible with LUD direction, and are otherwise in compliance with ANILCA, Section 1303(b).
2. Prior to issuing a permit, in accordance with ANILCA, Section 1303(b)(3), require the permit applicant to:
   a) Reasonably demonstrate by affidavit, bill of sale or other documentation, proof of possessory interest, or right of occupancy;
   b) Submit a sketch or photograph of the cabin and a map showing its location;
   c) Agree to vacate the cabin and remove all personal property from it within a reasonable time period following nonrenewal or revocation of the permit; and
   d) Acknowledge in the permit application that the applicant has no interest in the real property on which the cabin is located.
3. When issuing these permits, list all qualifying immediate family members along with the original claimant, and require that one person be designated to represent all permit holders. The original claimant is the resident of record, as of December 2, 1980.

B. Manage cabins and related structures that were authorized on December 2, 1980, in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH

2709.11) and the standards and guidelines discussed below. (For Wilderness cabins and related structures, consult FSM 2320 and the Wilderness Prescription.)

1. Allow the continued use of cabins, homesites, and similar structures that were authorized on December 2, 1980, in accordance with the terms of the original permit. Generally renew these permits (if the terms of the permit in effect on December 2, 1980 allow for renewal), subject to reasonable regulations and provisions of the Alaska National Interest Lands Conservation Act, Section 1303(d), unless continuation of the use would constitute a direct threat or significant impairment to the purposes for which the National Forest or conservation system unit was established. A reasonable fee may be imposed on cabins previously under free use, or existing fees may be increased by a reasonable amount, to keep pace with inflation, or for other justifiable purposes.
2. These permits may be transferred to one other person at the election or death of the permittee of record on December 2, 1980, if the conditions of the original permit allow for such transfer.
3. Names of immediate family members of the holder may be added as additional permit holders. Immediate family members are defined in the Regional Supplement to the Special Uses Handbook (FSH 2709.11).

C. Manage new cabins and related structures, in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the standards and guidelines discussed below. (For Wilderness, consult FSM 2320.)

1. The construction of new cabins is prohibited with the following limited exceptions. A nontransferable, five-year Special Use Permit may be issued in some circumstances, following a determination that:
   a) The proposed use, construction, and maintenance of the cabin are compatible with LUD objectives;
   b) Use of the cabin is directly related to administration of the area or is necessary for continuation of an ongoing activity, allowed within the area; and
   c) The permit applicant has no reasonable alternative.
2. Do not permit construction of new cabins for private recreational or residential uses. Consider permitting new cabins for some commercial uses, when a cabin is necessary to provide a needed public service (generally, public need is identified in a prospectus) or within areas where such commercial use of cabins was an established customary and traditional use prior to December 2, 1980. Consider permitting new cabins for administrative use by other agencies, such as Alaska Department of Fish and Game, when no feasible alternatives exist.
3. All new cabins will be deeded over to, and become the property of, the United States Government, as provided in the ANILCA, Section 1303(b)(4).
4. Prior to issuing a permit, in accordance with ANILCA, Section 1303(b)(3), require the permit applicant to:
   a) Submit a sketch or photograph of the proposed cabin and a map showing its location;
   b) Agree to vacate the cabin and remove all personal property from it, within a reasonable time period following nonrenewal or revocation of the permit;
   c) Acknowledge in the permit application that the applicant has no interest in the real property on which the cabin will be constructed; and
   d) Quit claim deed the cabin to the United States Government.

D. Provide for subsistence uses by authorizing temporary facilities, such as tent platforms, rather than new cabins. Follow procedures and design standards for temporary facilities, found in Section 1316 of the ANILCA, the following section on temporary facilities, and the FSM. (Consult FSM 2720.)

III. Temporary Facilities

A. A temporary facility is defined as “any structure or other human-made improvement which can be readily and completely dismantled and removed from the site when the authorized use terminates." (Consult FSM 2720.)

B. Permit temporary campsites, tent platforms, shelters, and other temporary equipment, directly and necessarily related to the taking of fish and wildlife, subject to:
   1. Reasonable regulation to ensure compatibility;
   2. Conditions of the ANILCA, Section 1316;
   3. FSM direction; and
   4. Consistency with management prescriptions direction. (Consult FSM 2720. In Wilderness, consult FSM 2320.)

C. When issuing new permits for subsistence-related facilities, authorize tent platforms and associated temporary facilities only.

D. To the extent feasible, locate subsistence camps out of sight of high use areas such as rivers, roads, trails, public recreation cabins, and other user facilities.

IV. Aquatic Farming Permits

A. For direction on the management of aquatic farm permits, consult the Regional Supplement to the Special Uses Handbook (FSH 2709.11).

B. "Aquatic farming" should not be confused with "aquaculture." Aquatic farming is provided for in Alaska State Law (AS 16.40.100 - 16.40.199, June 9, 1988). It involves growing aquatic plants or shellfish for sale, either in captivity or under positive control. Typically shellfish are pen-reared. Finfish are generally not included and release of the organism does not result in a product becoming available as a common property resource. Aquaculture is provided for in ANILCA, Section 1315(b). It involves the maintenance or improvement of fish stocks. It includes facilities such as fish hatcheries and projects such as fish stocking or lake fertilization. It includes finfish and release results in a product becoming available as a common property resource.

C. Cooperate with state and other federal agencies to meet industry and public needs for aquatic farming programs and ensure compatibility with other resources and activities.
   1. During evaluation of requests for Forest Service permits, carefully analyze the effects of aquatic farming activities on other resources and other activities, such as recreational uses marine access points including log transfer facilities, and access to adjacent uplands. Oppose aquatic farm development in or adjacent to National Forest System Wilderness.
   2. Coordinate responses to aquatic farming proposals with ADNR.
   3. Initially, issue permits only for low investment, minimum development, temporary support facilities (not to include cabins) that can be readily removed from the site if the project ceases to be viable for the operator. Consider permitting additional support facilities on National Forest System lands, only after a viable business is established and need for the facilities can be demonstrated.

V. Floathouses

A. Manage residential floathouses in accordance with the standards and guidelines discussed below.
   1. Issue Special Use Authorizations for floathouse shore ties only at locations where the activity is specifically provided for in the Alaska Coastal Zone Management Plan or approved coastal zone area plans.
   2. Cooperate with the State of Alaska and local communities to help develop criteria that address floathouse placement. In developing new state or city plans, encourage locating floathouses near communities or adjacent to private uplands. Avoid locating them:
      a) Adjacent to designated Wilderness or other areas where they would be incompatible with upland management objectives;
      b) Where they may adversely affect forest resources; or
      c) Where they may conflict with higher priority public uses.
   3. As a condition of the Forest Service Special Use Authorization, require applicants to obtain all necessary authorizations from other appropriate agencies, such as ADNR and the U.S. Army Corps of Engineers.

VI. Fish Camps

A. Manage Special Use Permits for commercial set net fish camps in accordance with direction in the Regional Supplement to the Special Uses Handbook (FSH 2709.11) and the standards and guidelines discussed below.

1. Where the use of commercial fish camps, including primitive cabins, is a customary and traditional use, allow this use to continue within traditional locations, at approximately traditional densities, as established prior to ANILCA (December 2, 1980), if compatible with LUD objectives.
2. New facilities will usually be tent platforms and associated temporary facilities unless a need can be demonstrated for a cabin.
3. New cabins, if authorized, will not exceed 500 square feet in size. Limit new cabin authorizations to one cabin per set net permit. If needed, authorize additional sites for use with a tent platform.
4. Assign a permit tenure of 5 years for cabins and 1 to 5 years for tent platforms with the provision that, unless revoked for violation of permit conditions, these permits may be renewed upon expiration.
5. Assign new fish camp permit holders areas up to 1/4 acre in size, based on need.
6. Within areas traditionally used for fish camps, allow existing privileges currently under permit to continue. Do not allow fish camp permit holders to engage in outfitter/guide or lodge/resort activities from their fish camps, unless already authorized by permit.
7. Consider authorizing requests for subsistence uses from fish camps; however, any authorization for subsistence uses from fish camps will be documented in writing to the permit holder, along with conditions, if any, that may be necessary to protect resources and the rights of other users. Do not permit residential uses of fish camps.
8. To obtain a fish camp permit, require applicants to hold a commercial set net permit from the Alaska Department of Fish and Game, valid for the area in which the proposed facility is to be located. Camp occupancy will generally correspond to the dates of the open set net season, with exceptions allowed for camp set up and take down (if necessary) and for subsistence uses, if authorized.
9. Some fish camp permits have traditionally been issued free of charge. In compliance with OMB directives and Federal Regulations (36 CFR 251 .57), assess appropriate fees in conjunction with all commercial fish camp uses.
10. Natural hydrologic changes may lead to use areas being relocated. This need is recognized and new use areas may be authorized, if necessary, following separate environmental analysis, as rivers change their course or other changes lead to shifts in the location of fish runs. Issue permits for tent platforms in new locations where cabin use is not already established.

VII. Right-of-Way Grants

A. Grant reasonable access across NFS land to allow inholders and other landowners use of their land without unnecessarily reducing Forest Service management options or damaging NFS lands or resources. (Consult FSM 2730.)

1. Ensure that all roads constructed through permits or leases are designed according to standards appropriate to the planned uses, considering safety, cost of transportation, and effects upon lands and resources. Ensure these roads are planned and designed to re-establish vegetative cover on the disturbed area within a reasonable period of time (not to exceed 10 years) after the termination of the permit or lease, unless the road is determined necessary as a permanent addition to the National Forest transportation system. (Consult 36 CFR 219.)

B. Apply the approval authorities discussed below, as applicable, when processing right-of-way grant requests.

1. Continue to use existing authorities such as the Federal Land Policy and Management Act (FLPMA), the Forest Road and Trail Act (FRTA), and the Highway Act of 1958, except when prohibited by other applicable law.

2. When proposed rights-of-way cross, or enter upon, a Conservation System Unit (as defined in ANILCA, Section 102(4)), follow procedural requirements found in ANILCA, Section 1104.
3. When proposed rights-of-way will provide access to state or private inholdings or valid occupancies (such as a mining claim or Special Use Authorization) surrounded by, within, or effectively surrounded by a Conservation System Unit, use authorities found in ANILCA, Section 1110(b).
4. When proposed rights-of-way will provide temporary access to non-federal lands, to or across a Conservation System Unit, for purposes of survey, geophysical, exploratory, or other temporary uses that will not result in permanent resource harm, use authorities found in ANILCA, Section 1111.
5. When proposed rights-of-way will provide access to non-federal inholdings, either within or outside of a Conservation System Unit, use authorities found in ANILCA, Section 1323(a).

C. Allow the following activities to occur without requiring a Special Use Authorization. (Consult ANILCA, Section 1110(a).)
1. The use of snowmachines, motorboats, fixed-wing airplanes, and non-motorized surface transportation methods for traditional activities that are permitted by law and for travel to and from villages and homesites, subject to reasonable regulations to protect resource values. These uses do not require a permit and may be prohibited only following a notice and hearing in the vicinity of the affected area, and a determination that such uses would be detrimental to resource values.
2. This direction does not authorize the construction or maintenance of improvements or facilities on NFS lands, nor does it authorize use of off-highway vehicles, other than snowmachines.

D. Apply the standards and guidelines discussed below to Transportation and Utility Systems (TUS). The primary purpose of these systems is to accommodate public transportation and energy transmission. These TUS include significant existing and proposed transportation and utility sites and corridors, and other rights-of-way necessary to accommodate use from a facility or other compatible right-of-way, when such rights-of-way cross NFS lands. Examples of facilities located within these corridors include, but are not limited to, state and federal highways, railroads, power lines 66 kV and above, and pipelines 10 inches or greater in diameter, constructed by holders of a Special Use Authorization. Water pipelines greater than 10 inches are included only if they are a public utility (i.e., if they service a community water supply). A portion of existing and proposed TUS have been allocated to the TUS LUD (see Chapter 3). This LUD gives additional emphasis to major TUS.

These systems will generally include sites where associated facilities, such as dams, reservoirs, or generators, are located. Sites and corridors include the land directly under, and immediately adjacent to, the facilities. Sites have significant improvements located within a generally compact area, while corridors are linear in nature. Sites and corridors will generally be void of large vegetation, but may contain low-lying ground vegetation.

1. A TUS "window" is an area potentially available for the location of transportation or utility corridors and sites. Windows represent areas of future opportunity where the applied management direction will not conflict with future designation of a TUS. A site-specific analysis is still required during project-level planning, to identify resource protection needs within these areas. Windows are designated through the allocation of lands to TUS windows in their standards and guidelines.
2. A TUS "avoidance area" is an area where the establishment and use of transportation or utility corridors and sites is not desirable given the LUD emphasis. A search for "windows" should be exhausted before TUS facilities are considered in avoidance areas. When feasible, these areas should be avoided through site-specific analysis during project-level planning. Avoidance areas often include Congressionally and administratively designated areas. Although special environmental or procedural considerations may be required for these areas, these special designations do not preclude consideration and use as a TUS. Avoidance areas are designated through the allocation of lands to LUDs specifically identified as TUS avoidance areas in their standards and guidelines. In cases where

proposed or potential corridors are allocated to the TUS LUD that traverse other LUDs identified as TUS "avoidance areas," treat the corridors within such LUDs the same as TUS "windows" (subject to applicable laws). Refer to the Transportation and Utility System section for direction in Chapter 3.

3. A TUS "exclusion area" is a large area (large enough to cause significant barriers) that legislatively precludes TUS. There will be no exclusion areas on the Tongass National Forest due to special authorities provided in ANILCA, Title XI.
4. Accommodate new transportation and utility proposals within existing corridors, to the maximum extent feasible. (Consult 36 CFR 219.)
    a) Site-specific locations and mitigation measures for unconstructed TUS will be determined by project-level planning, which will analyze environment considerations, such as scenic resources, wildlife habitat, and soil conditions.

VIII. Military Training Activities

A. Authorize military training activities on NFS lands in accordance with the Master Agreement between the Department of Defense and the Department of Agriculture, which governs the use of NFS lands for these purposes. (Consult FSM 1530.)
    1. Authorize military training activities on NFS lands when these activities:
        a) Will be compatible with other uses;
        b) Conform to LUD direction; and
        c) After the Department of Defense has determined and substantiated that lands under its administration are either unsuitable or unavailable.
    2. Determine probable effects of proposed activities, necessary mitigation measures, and effective monitoring techniques, on a case-by-case basis, with a site-specific environmental analysis, conducted in accordance with the Master Agreement.
    3. When local supplemental agreements with military agencies exist, consult such agreements for additional direction.

IX. Sanitary Landfills

A. Manage landfills in accordance with the following national policy but subject to approved special provisions for Alaska.
    1. Require strict compliance with applicable Environmental Protection Agency (EPA) guidelines.
    2. Avoid authorizing new solid waste disposal sites and the expansion of existing sites on NFS lands, subject to exceptions approved for the Alaska Region.
    3. Provide for solid waste disposal sites through exchange, sale under the Townsite Act (7 U.S.C. 1012a; 16 U.S.C. 478a), or selection by the State of Alaska of NFS lands when there is no viable alternative on non-federal land and where there will be no adverse impacts to other National Forest resources or land. Encourage the State of Alaska to request conveyance of those areas suitable and needed for solid waste disposal near existing and proposed communities to eliminate the need to use NFS. Provide conditions for the conveyance document to ensure the land will be controlled by a government entity, and activities that interfere with the management and protection of adjacent NFS lands will not occur.
        a) Solid waste disposals must comply with EPA regulations in 40 CFR 257 and 258, and State of Alaska Administrative Code 18 AAC 60 et seq. These EPA regulations are very restrictive and may preclude continued operation of small landfills. Encourage close out of landfills on NFS lands. Those not closed prior to October 9, 1993, require continued monitoring and management of the landfill by the owner or operator for 30 years after landfill closure, in accordance with EPA regulations. Forest Service policy in FSM 2130 discourages waste disposal on NFS lands and allows this activity to occur only where it is determined to be the highest and best use of the land.

Land Ownership Administration: LAND3

I. Land Selections

A. When making land management decisions, appropriately consider valid state selections (pursuant to the Alaska Statehood Act), Native selections (pursuant to the Alaska Native Claims Settlement Act [ANCSA], as amended), and Native allotment claims (pursuant to the Alaska Native Allotment Act of 1906). Protect legal rights of the State of Alaska, Native corporations, and Native individuals when managing selected or withdrawn lands, or lands under Native claim. Apply the standards and guidelines discussed below to LUDs encumbered by state selections, Native selections or withdrawals, and Native allotment applications, until these lands are either conveyed into state or private ownership, or they revert back to unencumbered NFS land.

1. Cooperate with the State of Alaska, Native corporations, Native allotment applicants, BLM, the Bureau of Indian Affairs (or their designee), and other federal agencies, to assist in processing legitimate claims or applications. Encourage other parties involved to assist in finalizing conveyance of full legal entitlement in a timely manner.
2. Assess investment of Forest Service funds for improvements on lands encumbered by state selections, Native withdrawals or selections, or Native allotment applications.
3. Carefully review each selection, prior to conveyance, to identify third-party interests and needed right-of-way reservations that are allowed under applicable legislation.

B. Manage state selections, entered under authority of the Alaska Statehood Act, according to the standards and guidelines discussed below. (Consult 43 CFR 2627.)

1. Encourage conveyance of state selections adjacent to existing communities. Work with state agencies and local communities to substantially eliminate Forest ownership in and adjacent to communities where state, borough, or community governmental improvements and jurisdiction should logically preside.
2. Obtain concurrence from ADNR prior to any surface-disturbing activity or granting any occupancy permit, contract, easement, or other similar use authorization on state selected lands, in accordance with ANILCA, Section 906(k), and FSM policy. (Consult FSM 5450.)
3. Deposit 90 percent of all proceeds from contracts, leases, licenses, permits, rights-of-way, easements, or from trespass, on unconveyed state-selected NFS lands, into a suspense account, for future transfer to the state upon conveyance. (Consult Section 906(k)(2) of ANILCA.)

C. Apply the standards and guidelines discussed below to LUDs encumbered by Native selections or withdrawals, made under authority of ANCSA, as amended, until these lands are either conveyed into private ownership, or they revert back to unencumbered NFS land. (Consult 43 CFR 2650.)

1. Do not issue occupancy permits, contracts, easements, or similar authorizations on lands selected, or withdrawn for selection, by a Native corporation under authority of ANCSA, without coordination and consent from that Native corporation, unless permission is first obtained from the Regional Forester. (Consult FSM 5450.)
2. Deposit all proceeds from any contracts, leases, licenses, permits, rights-of-way, easements, or from trespass, on unconveyed NFS lands that are selected or withdrawn for selection under ANCSA, into an escrow account, for future transfer to the appropriate Native corporation, upon conveyance. (Consult Section 1411 of ANILCA.)

D. Apply the standards and guidelines discussed below to LUDs encumbered by Native allotment applications, submitted under authority of the Alaska Native Allotment Act of 1906, until these lands are either conveyed into private ownership, or they revert back to unencumbered NFS land. (Consult 43 CFR 2561.)

1. Do not issue use authorizations, such as permits, contracts, or easements, on lands for which there is a Native allotment application, without consent from the applicant and the Bureau of Indian Affairs (or their designee), unless the application has been adjudicated by BLM as being invalid and the case has been closed. Contact the Regional Forester prior to granting use authorizations within a valid claim area, because authorization from the Regional Forester may be required. Do not authorize construction of new roads on a valid claim area unless a deed of further assurance has been obtained and recorded, or clearance has been received from the Regional Forester. (Consult FSM 5450.)

Lands Activity Maintenance and Landline Location: LAND4

I. Establishing Forest Boundaries

A. Apply the standards and guidelines discussed below when maintaining established National Forest property boundary lines and corners, or when locating, surveying, and posting new National Forest property boundaries and corners.

1. Coordinate with BLM for original boundary line survey. Encourage cooperative work with the BLM to mark and post original National Forest/state and National Forest/Native boundaries to Forest Service standards. The Forest Service will maintain these boundary lines and corners after the original survey. These boundaries should not be surveyed, marked, or posted until after conveyance of the land.
2. Maintain the existing inventory of surveyed and unsurveyed boundary lines to establish survey priorities. Establish program priorities to coincide with FSM direction. (Consult FSM 7150.)

II. International Boundaries

A. Apply the standards and guidelines discussed below when locating or maintaining international boundary lines and corners.

1. Ensure compliance with the United States/Canada Treaty of 24 February 1925. Coordinate the location, survey, posting, marking, and maintenance of the International Boundary with the United States/Canada International Boundary Commission, U.S. Department of State.
2. Ensure compliance with Presidential Proclamations of June 15, 1908 and May 3, 1912. Do not permit any occupancies or management activities, within 60 feet of the United States side of the United States/Canada International Boundary, without prior approval from the International Boundary Commission.

III. Legislated Boundaries

A. Apply the standards and guidelines discussed below when considering land-disturbing activities in LUDs adjacent to Wilderness, Wilderness and Nonwilderness National Monument, and legislated LUD II boundaries.

1. Boundaries should be surveyed, marked, and posted prior to implementing land-disturbing activities adjacent to Wilderness, Wilderness and Nonwilderness National Monument, and legislated LUD II. Approximate boundaries are not acceptable.
2. Locating and marking boundaries should be supervised by a professional surveyor with the benefiting function funding all necessary survey activities. Consult FSM 2320, FSH 2309.19, and FSM 7150 (including R10 Supplement) for additional survey and marking standards.
3. The District Ranger or Forest Supervisor who approves a project will ensure adjacent legislated boundaries are located and marked, making certain there is no encroachment.

Rights-of-Way (ROW): LAND5

I. Rights-of-Way Acquired

A. Acquire across non-NFS land, road, and trail rights-of-way that are adequate for the protection, administration, and utilization of the Tongass National Forest. (Consult FSM 5460.)

1. Generally acquire rights-of-way identified in project plans at least 1 year prior to scheduled activity.
2. Generally acquire unlimited easements, granted in perpetuity. Limited easements (e.g., those authorizing administrative use, but not public use) may be acquired when public use is not desirable, as determined through the project planning process.
3. Encourage the use of cost-share agreements, when feasible, to avoid economic and resource impacts associated with duplicate road systems and log transfer facilities (LTFs).
4. Monitor compliance with stipulations of existing rights-of-way to ensure long-term retention of needed rights-of-way. Dispose of rights-of-way that are no longer needed. Review easements acquired under Section 17(b) of ANCSA, and take appropriate steps toward construction of transportation facilities prior to easement expiration dates.

5. Identify and request all needed rights-of-way across lands selected by the state or Native organizations, as provided by federal law. Carefully review selections prior to conveyance.
6. Secure adequate rights-of-way before issuing contracts or constructing facilities in intermingled land ownerships. (Consult FSM 5400.)
7. Follow the BLM/Forest Service Memorandum of Understanding on ANCSA 17(b) easement administration.

B. Acquire LTF authorizations on tidelands in accordance with the following standards and guidelines.
1. Coordinate LTF activities (location, construction, operation, etc.) with the U.S. Army Corps Engineers, U.S. Environmental Protection Agency, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Alaska Department of Natural Resources, Alaska Department of Fish and Game, ADNR, local communities, and adjacent landowners, as appropriate. (Also see the Transportation Forest-wide Standards and Guidelines in this chapter.)
2. Ensure LTF activities that affect the Coastal Zone are coordinated with ADNR to ensure consistency, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.
3. Acquire long-term leases (preferably at least 25 years) for permanent LTF sites.

Land Ownership Adjustment: LAND6

I. Priorities

A. Land acquisition priorities have been described and summarized in the document, Alaska Submerged Lands Act Report, Analysis of Inholdings, Acquisition Priorities and Recommendations to Reduce Impacts on Conservation System Units in Alaska, dated August 1990, by the U.S. Fish and Wildlife Service, BLM, National Park Service, and USDA Forest Service. Base acquisition decisions on this analysis and report, as updated by future revisions. Maps identifying the location of parcels are available from USDA Forest Service, Alaska Regional Office lands personnel. federal lands available for conveyance are lands approved by the Regional Forester for selection by the State of Alaska, lands selected by Native corporations under ANCSA, and Native allotment claims adjudicated valid by the BLM. These lands are available only to the respective applicants described above, as provided by federal law. If applications or claims are relinquished or declared invalid, the affected lands are no longer available for conveyance. Consider proposals for other lands not described above, on a case-by-case basis, using the following criteria. (Consult FSM 5400.)
1. Work cooperatively with the State of Alaska and Native corporations to improve land ownership patterns and management opportunities resulting from state and Native land conveyances.
2. Retain NFS lands that best serve the public interest in federal ownership.
3. Consolidate NFS lands, when feasible. Attempt to reduce miles of property boundary lines and number of corners to locate and maintain.
4. Generally acquire and convey land with as few reservations and outstanding rights as feasible. (Consult FSM 5420, 5430, and 5470.)
5. Avoid separating the surface and subsurface estate, unless it is clearly in the public interest. (Consult FSM 5430.)
6. Consider wetland and flood plain values.
7. Pursue land adjustments that reduce administrative costs or increase the output of goods and services. Avoid land adjustments that do not enhance Forest Service programs. (Consult FSM 5430.)
8. Generally pursue land exchanges on an equal value basis. Exchanges may be made for other than equal value if the parties agree and the exchange is determined to be in the public interest, as provided in Section 1302(h) of ANILCA and Section 22(f) of the Alaska Native Claims Settlement Act, as amended by Section 17 of Public Law 94-204. (Consult FSM 5430.) When considering land exchanges of unequal value, submit the proposal through proper channels, for Congressional oversight, as appropriate, prior to entering into any binding agreements.
9. Major discretionary land adjustment proposals will be considered if the proposed exchange of lands maintains the conservation strategy, ensures public access for subsistence uses,

and at least a portion of the timber volume from the lands conveyed from the Tongass National Forest contributes to the timber manufacturing industry in Southeast Alaska.

II. Acquisition

A. Apply the standards and guidelines discussed below for land acquisition activities.

1. Acquire isolated inholdings at critical locations if public benefits will occur.
2. Within Congressionally designated areas, such as Wilderness, acquire private inholdings as opportunities permit. Wilderness inholdings are priority acquisitions until after the state and Native selection process is completed.
3. Within administratively designated areas, such as Special Interest Areas, generally acquire private inholdings, as opportunities arise.
4. Acquire private lands necessary for efficient management of the Forest.
5. Generally acquire lands by exchange or donation. Attempt to purchase lands on a willing seller/willing buyer basis when exchange or donation is not feasible and funds are available for purchase.
6. In any land adjustment proposal, consider performing a watershed and other resource condition assessment to determine resource restoration needs. Where rehabilitation is needed to comply with federal Law such as the Clean Water Act, prepare a cost estimate for rehabilitation prior to the land acquisition.
7. Evaluate parcels proposed for acquisition for the presence of hazardous substances, and document the findings in conformance with established regulatory guidelines for conducting these evaluations.

III. Conveyance of Federal Lands

A. Apply the standards and guidelines discussed below for conveyance of federal lands to non-federal owners.

1. Do not exchange NFS lands selected by the State of Alaska, or a Native corporation, or lands under Native allotment application, which have not yet been conveyed, unless specifically provided for in legislation. If the party holding the encumbrance desires ownership adjustments, they may relinquish their selection. The Forest Service may then pursue land ownership adjustment, if otherwise appropriate.
2. Convey NFS lands that would best serve the public interest in private ownership, provided the action will not decrease ability to meet NFS management objectives. Examples may include:
   a) Isolated small parcels that are impractical to manage;
   b) Parcels where a greater general public value can be derived in private ownership; or
   c) Areas necessary for community expansion. (Consult 36 CFR 254.)
3. Within Congressionally designated areas, retain existing NFS lands unless exchanging out of these lands to acquire new lands, or interest in lands, for the purposes of ANILCA (Consult ANILCA Section 1302(h)). Within administratively designated areas, generally retain NFS land, unless there are compelling reasons for conveyance.

MINERALS and GEOLOGY
Forest-wide Standards and Guidelines

Minerals and Geology Resource Preparation: MG1

I. Resource Inventory

A. Maintain the Mineral Resource Inventory. Include historic and current mining activity, regional and local geology, access routes, and geologic and mineral terrains. Continue to work with the United States Geological Survey (USGS) to update and map the geology on the Forest and incorporate the new data into the Tongass Geology Layer. Geologic inventory includes the collection, analysis, and interpretation of geologic data necessary for identification and solution of management problems, and for the assessment and development of the geologic resources. The creation of geologic inventories is basic to carrying out geologic resources and services. Geologic inventory includes bedrock geology, surficial geology, stratigraphy, hydrogeology, geomorphic features, geological hazards, karst features, caves, and paleontology, including potential for geologic formations to yield fossil resources of scientific and other values. (Consult Forest Service Manual [FSM] 2881 for specific direction.)

II. Resource Planning

A. Assemble and provide minerals and geology information as needed for project planning. Conduct inventories and assessments of geologic resources and hazards, paleontologic resources, and mineral resources for use in land management planning (FSM 2884.11). Geologic reports written for specific projects as the result of geologic inventory and/or investigation may include some combination of the geologic history; location and extent of locatable, leasable, and salable minerals; location and extent of aquifers; groundwater quality and quantity; structural features; geologic and geomorphic processes affecting the area; cave and karst resources; and paleontological resources.

III. Resource Preparation

A. Conduct compliance checks, validity and patent exams, and review operating plans, lease proposals, and applications. Provide expert testimony or opinions for contests, hearings, or appeals. Conduct geotechnical engineering and interpretive geology investigations as required.

IV. Resource Coordination

A. Coordinate minerals and geology inventories and minerals administration with state and other federal agencies, including the Bureau of Land Management (BLM) and USGS.

Minerals and Geology Administration: MG2

I. Forest Lands Withdrawn from Mineral Entry

A. Claimants with claims located in areas withdrawn from mineral entry retain valid existing rights, if such rights are established prior to the withdrawal date.

B. Conduct on-the-ground validity examinations by a certified minerals examiner to establish or reject valid existing rights on active mining claims within Wilderness areas and other areas withdrawn from mineral entry.

C. Permit reasonable access to mining claims in accordance with the provisions of an approved Plan of Operations. Motorized access to sites may be authorized as part of the Plan of Operations. Use of off-highway vehicles may be allowed and must be in accordance with 36 CFR 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use.

II. Forest Lands Open to Mineral Entry

A. Encourage the exploration, development, and extraction of locatable, salable, and leasable minerals and energy resources.

B. Assure prospectors and claimants their right of ingress and egress granted under the General Mining Law of 1872, Alaska National Interest Land Conservation Act of 1980 (ANILCA), and the National Forest Mining Regulations (36 CFR 228).
C. Permit reasonable access to mining claims and mineral leases in accordance with the provisions of an approved Plan of Operations.

III. Locatable Mineral Operations

A. A Notice of Intent and/or a Plan of Operations is required for locatable operations. (Consult FSM 2810 and 36 CFR 228.)
   1. A Plan of Operations will receive prompt evaluation and action within the time frames established in 36 CFR 228.
   2. Conduct an environmental analysis with appropriate documentation for all operating plans.
   3. Locatable mineral exploration and/or development situated in areas identified in the Forest Plan for intensive development (minerals overlay) must be consistent with standards and guidelines for mineral development.
   4. Following locatable mineral exploration and/or development site rehabilitation and restoration will be designed to return the site to as near as practicable to a condition consistent with the underlying non-mineral Land Use Designation (LUD).

B. Work with claimants to develop a Plan of Operations that adequately mitigates adverse impacts to LUD objectives. Include mitigation measures for locatable actions that are compatible with the scale of proposed development and commensurate with potential resource impacts.
   1. Maintain the habitats, to the maximum extent feasible, of anadromous fish and other foodfish, and maintain the present and continued productivity of such habitats when such habitats are affected by mining activities. Assess the effects on populations of such fish in consultation with appropriate state agencies. (Consult ANILCA, Section 505(a).)
   2. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location and construction of mining roads and facilities.
   3. Reclaim disturbed areas in accordance with an approved Plan of Operations. Apply approved seed mixtures as needed (see Standards and Guidelines for Plants and FSH 2080).
   4. Apply Best Management Practices (BMPs) to maintain water quality for the beneficial uses of water. (Consult FSH 2509.22.)
   5. Periodically inspect minerals activities to determine if the operator is complying with the regulations of 36 CFR 228 and the approved Plan of Operations.

IV. Leaseable Mineral Operations (Oil and Gas, Coal, Geothermal)

A. Leasing may occur on a case-by-case basis following site specific analysis.
B. Include mitigation measures for leaseable mineral operations and include standard and special stipulations in leasing actions that are compatible with the scale of proposed development and commensurate with potential resource impacts.
C. Operating plans will be reviewed and approved by the authorized officer. (Consult FSM 2820 and 36 CFR 228.)
D. Areas determined to be available for leasing all operations, including site restoration and rehabilitation, must be consistent with the standards and guidelines for the LUD as displayed in the Forest Plan.
E. During exploration, consider alternatives that minimize encumbrance and disturbance of National Forest System lands, such as permitting in lieu of leases for exploration.

V. Salable Mineral Operations (Mineral Material Sales and Free-use)

A. Operator shall have an operating plan that includes a development or quarry plan with a map. Quantity estimates shall be included.
B. Permit mineral material sites only after an environmental analysis assures other resources are adequately protected, the site location and operating plan are consistent with the LUD emphasis, and such resources are not reasonably available on private land. Require bonds and reclamation as appropriate. (Consult FSM 2850 and 36 CFR 228.)

C. Where the opportunity exists, design, excavate, and reclaim material sites to facilitate their use for dispersed recreation or other desirable uses such as conversion to salmonid rearing ponds and spawning channels.
D. Include mitigation measures for salable mineral operations and include standard and special stipulations in permitted actions that are compatible with the scale of proposed development and commensurate with potential resource impacts.

VI. Bonds

A. A bond will be required for locatable, leasable, and salable mineral operations to ensure operator performance and site reclamation are completed. (Consult 36 CFR 228.)

VII. Split Estates

A. Seek to avoid separating the surface and subsurface estates. Coordinate with BLM, the state, Native corporations, and private landowners to manage split estates in accordance with individual patents or deeds.

VIII. Paleontologic Resources

A. Develop and maintain a paleontological resource program that identifies, inventories, facilitates research, emphasizes protection of the resources. Protect paleontological resources from loss due to threat, vandalism, or the natural elements through responsible planning, management, partnerships with qualified museums and other institutions, and collaboration with Forest Service law enforcement (FSM 2882.03). Elements of this program may include:
    1. Inventory paleontological resources. Develop Fossil Yield Potential Classification (FYPC) values. These values rank the degree to which a bedrock unit, usually at the formation or member level, is likely to yield scientifically significant fossil resources. FYPC values are assigned to geologic units on the basis of empirical data gathered through literature or database research and field research by USDA Forest Service paleontologists or the Forest Geologist (FSM 2881.3).
    2. Protect and preserve known significant paleontological resources. Actively promote partnerships with museums and other institutions having professional paleontologists and appropriate facilities to evaluate these resources. Coordinate all excavation or collection with the appropriate state agencies. Ensure that appropriate terms and conditions are included in Special Use Authorizations for paleontological resources on their Forest to minimize resource conflicts. Protect and preserve collections curated in non-federal repositories.
    3. Develop a monitoring program to protect paleontological resources from loss due to threat, vandalism, or the natural elements. If, through monitoring, it is determined that fossil theft and/or vandalism is occurring, collaborate with Forest Service law enforcement.

PLANTS
Forest-wide Standards and Guidelines

Threatened, Endangered, Sensitive, and Rare Plants: PLA1

Consult Forest Service Manual (FSM) 2670 and R10 supplemental directions for Threatened, Endangered, and Sensitive Species.

I. Threatened or Endangered Plants

A. Collecting or disturbing any threatened or endangered plant or plant parts is prohibited unless authorized by the responsible official. There are no threatened and endangered plants on the Tongass National Forest at this time.

II. Sensitive Plants

A. Consider providing protection around the plant population that meets the habitat needs of the species. Protection measures can include, but are not exclusive to, avoiding known sensitive plant populations during project activities, directional falling and yarding of trees away from sensitive plants, and partial retention of forest structure (25 to 50 percent of the basal area) in the area around sensitive plants in forested habitats. Apply adaptive management principles.

B. Where it is necessary to protect sensitive plant species or communities from a proposed project, implement a Monitoring and Evaluation Plan to include a review of the implementation and effectiveness of conservation actions, and apply adaptive management principles (see Chapter 6).

C. No herbicide may be applied from the air within 600 feet, nor ground-applied within 60 feet, of any identified population of a sensitive plant species.

III. Rare Plants

A. Implement national (NFMA, Ecosystem Management) and regional Forest Service policy and direction (FSM 2670 and 36 CFR 219.27 (g)) for the conservation, management, inventory, and monitoring of rare plant species.

B. Collecting or disturbing rare plants or plant parts is prohibited unless authorized by the responsible official. In cases of legitimate scientific or educational use, permits will be required to collect rare plants. Such collections must not adversely affect the continued existence or vigor of a rare plant population.

C. Avoid, minimize, or mitigate adverse affects to rare plants and populations during project planning to maintain known distributions throughout the Tongass National Forest.

D. Where desirable, rehabilitate and/or restore rare plant populations that have been adversely affected by management or natural disturbances.

E. Coordinate with appropriate federal and state agencies as well as other entities to support monitoring, research, and inventory for rare plants.

F. Consider providing protection around the plant population that meets the habitat needs of the species. Protection measures can include, but are not exclusive to, avoiding known rare plant populations during project activities, directional falling and yarding of trees away from rare plants, and partial retention of forest structure (25 to 50 percent of the basal area) in the area around rare plants in forested habitats. Apply adaptive management principles.

G. When a population or habitat decline for a rare plant species or subspecies indicates that long-term viability is at risk, evaluate the particular species for designation as a Region 10 Sensitive Species by the Regional Forester. (Consult the Threatened, Endangered, and Sensitive Species Forest-wide Standards and Guidelines and FSM 2670.)

Invasive Plants: PLA2

I. Invasive Plants

A. See Invasive Species Forest-wide Standards and Guidelines.

B. Follow established guidance on the use of plant materials for revegetating an area and habitat restoration.

Plant Surveys and Vegetation Mapping: PLA3

I. Plant Surveys and Vegetation Mapping

A. Plant survey protocols for National Environmental Policy Act (NEPA) and other projects should follow FSM 2670, R10 protocols, and Tongass Forest-wide Standards and Guidelines.

B. When implementing any invasive and sensitive species field surveys or inventories, a complete list of vascular plants found should be created for each survey.

C. For biological evaluations, consult FSM 2670 and R10 supplemental directions for Threatened, Endangered, and Sensitive.

D. Resource report should be prepared to document the findings or absence of rare plants during field surveys for NEPA projects.

E. Use the Existing Vegetation Classification and Mapping Technical Guide FSM 1940 and the most current and available methods to develop baseline vegetation types Forest-wide.

F. Identify vegetation inventory needs for all Wildernesses to meet the “minimum stewardship levels” per the Wilderness Act of 1964. Accomplish baseline vegetation inventory needs commensurate with other Forest inventory efforts.

G. Accomplish baseline vegetation inventory needs commensurate with other forest inventory efforts.

Non-Timber Forest Products: PLA4

I. Non-Timber Forest Products

A. See Tongass National Forest Interim Special Forest Products Resource Management Policy for non-timber forest product direction.

B. Make non-timber forest products (see Plants Standards and Guidelines) available and consistent with LUD management objectives. Consult the Tongass National Forest Interim Special Forest Products Resource Management Policy for guidance on non-timber forest products' permitting and NEPA issues.

C. Address requests for green saw-timber personal use wood as soon as feasible.

D. Designate personal use wood planned for harvest.

II. Commercial Program

A. Allow harvest of non-timber forest products in ways that ensure the continued integrity of the forest stand.

B. Permits shall be required for commercial collection of any non-timber forest products.

C. Commercial harvest shall occur only where adequate quantities of the resource are known to be available on harvestable sites.

D. Selling units (bushels, pounds, sacks, etc.) for specific non-timber forest products shall be consistent across the Forest to make record-keeping, reporting, and monitoring more accurate and efficient.

E. Collection of special forest products adjacent to trails and roads shall be avoided where scenic quality would be impaired. Collection should be no closer than 20 to 50 feet from the trail or road. Site-specific prescriptions will vary by class of trail or road.

RECREATION and TOURISM
Forest-wide Standards and Guidelines

Recreation Resource Inventory: REC1

I. Recreation Resource Opportunities

A. Maintain an inventory of recreation resource opportunities throughout the Forest.
   1. Use the Recreation Opportunity Spectrum (ROS) system and Tongass National Forest Recreation Places Inventory. (Consult Forest Service Manual [FSM] 2310 and national/ regional ROS handbooks.)
   2. Update existing ROS inventories as a part of specific project planning and implementation, and whenever project activities cause a change in recreation setting conditions significant enough to reclassify the affected area.
   3. Maintain the necessary data to determine the individual and/or cumulative changes in ROS class distribution throughout the Forest.

Recreation Resource Planning: REC2

I. Interagency Planning

A. Accomplish outdoor recreation planning by providing opportunities and programs that are appropriate to the Forest environment, dependent upon natural settings, and help participants experience and understand nature.
   1. Determine the appropriate role of the National Forest System (NFS) lands in providing natural resource-based recreation opportunities, sites, facilities, and experiences. Within the context of national policy, cooperate and coordinate with national, state, and local agencies in providing a balance of outdoor recreation opportunities throughout Southeast Alaska.
   2. Use the ROS framework of settings and experience opportunities to define the capabilities of NFS lands to meet identified recreation needs and services. (Consult ROS handbooks and Forest ROS maps.)

B. Provide recreation opportunities on NFS lands in concert with, and supplemental to, those opportunities that are located on other land ownerships and jurisdictions. Generally, recreation areas, sites, and facilities located on NFS lands should:
   1. Complement commercial public services (i.e., resorts, marinas, stores, service stations) within communities or on private or other public land.
   2. Support a system of anchorages suitable for recreation boats along small boat waterways that connect communities or provide access to popular recreation attractions.
   3. Provide other appropriate facilities to meet specific identified recreation needs on a case-by-case basis.

C. Cooperatively participate with local communities and user groups when implementing recreation development projects. Implementation should:
   1. Involve the public and affected communities, landowners, and other affected interest groups in the project planning process.
   2. Recognize that recreation use by residents and tourists radiate from communities and service centers to use lands and facilities under a variety of ownerships and jurisdictions.
   3. Verify the local role of the Forest Service in providing recreation opportunities, services, and facilities.
   4. Verify the basis for developing Forest Service recreation-related projects.
   5. Identify sites and activities where joint or cooperative development or management is desirable. Include opportunities for such things as on-site interpretation of natural and cultural resources, particularly on lands of mixed ownership; providing public information through joint publications; joint cabin reservation systems; or construction, operation, and maintenance agreements.
   6. Consult FSM 2300 and internal Forest-wide handbooks.

II. Integrated Resource Planning

A. During non-recreation project planning, assess the effects of these projects on the diversity and quality of recreation settings and activity opportunities within, and adjacent to, the project area.
   1. Where recreation resources may be affected, analyze the opportunities foregone due to resource management actions. During project planning and design, consider valid substitutes for recreation settings and activity opportunities.

B. Identify opportunities to enhance existing, and provide additional, recreation activities, opportunities, and services where desirable to meet local or Forest-wide recreation demands. Give particular attention to opportunities that are in relatively short supply within the day-use travel distance of communities, are important to local users, are important to tourism and commercial service providers, provide a base for visitor use of Primitive and Semi-Primitive areas, compliment recreation programs of communities, the state, and private landowners, contribute to the supply of Semi-Primitive Motorized opportunities, and are related to the unique combination of marine, wildlife, and fish resources characteristic of Southeast Alaska.

C. Coordinate, to the extent feasible, recreation project development with fish and wildlife habitat improvement, and road projects.

D. Coordinate OHV use through travel management planning.
   1. Off-highway vehicle (OHV) planning will be in accordance with 36 CFR 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use. Each Ranger District will designate the roads, trails, and areas open to motor vehicle use on a motor vehicle use map. All operations must be in accordance with those designations.
   2. Coordinate OHV planning and management with other resource concerns, the State of Alaska, and adjacent landowners.
   3. Provide a diversity of OHV recreational opportunities across the Forest where consistent with the criteria in FSM 2355 and 36 CFR 212, which includes:
      a) The use is compatible with established land management and resource objectives.
      b) The use is consistent with the capability and suitability of the resource.
      c) There is demonstrated demand that cannot be better satisfied elsewhere.
   4. Develop access and travel management plans by areas and/or districts as the need arises. Identify specific areas, roads, trails, and water surfaces that are open, restricted, or closed to motorized and non-motorized mechanical conveyance, watercraft, and conditions of use. Recreation, subsistence, and authorized uses may be considered separately depending on the circumstances.

III. Tourism

A. Tourism is a major industry in Southeast Alaska. The Forest provides the backdrop as well as the land base for many tourism activities, including several of the state's leading attractions. The size and extent of the Forest has a profound influence on the amount and nature of opportunities for the tourism industry.
   1. Work with the tourism industry and government agencies in assessing the value and contribution of the industry to the economy of Southeast Alaska. Identify the role and contribution made by the Tongass National Forest to the industry and the region.
   2. Cooperate with the tourism industry and appropriate government agencies in conducting and assessing visitor studies. These studies include identification of activities, attractions, and attributes visitors seek; response to management activities; demographic traits; and detection of changing trends.
   3. Coordinate information and marketing efforts with tourism providers and promoters to complement efforts, target markets for new and existing opportunities, and to meet Forest Service management objectives.
   4. Work with government agencies, organizations, and the private sector to identify, facilitate, and develop tourism opportunities.
   5. Consider access, infrastructure, and other needs of the tourism industry at the project planning level. Incorporate these needs into project design and implementation.
   6. Commercial services may be performed within the Wilderness to the extent necessary for activities that are proper for realizing the recreational or other Wilderness objectives for the area.

Recreation Use Administration: REC3

I. Coordination with Wilderness Management

A. Evaluate the effects of location, design, and operation of developed sites and roads adjacent to Wilderness. Develop and operate projects to complement Wilderness management objectives and to avoid degradation of Wilderness character.

B. Ensure that special use activities and facilities adjacent to Wilderness are located, designed, and operated in a manner that complements Wilderness management objectives and avoids degradation of Wilderness character.

II. Recreation Special Uses

A. Commercial Recreation Opportunities

1. Work with recreation service partners and the tourism industry in identifying and developing services and opportunities. Recreation service partners provide services and opportunities that supplement the use and enjoyment of the national forests by a variety of people.
   a) Identify opportunities for commercial recreation use, services, and developments.
   b) Facilitate authorizing commercial recreation use, services, and developments by:
      (1) Authorizing commercial recreational developments and services where there is a public need and no private lands are available or suitable for development. Refer to each Land Use Designation (LUD) management prescription to determine its appropriateness for development. Refer to the Tongass Needs Assessment when considering new or expanding uses of recreation special use within the Wilderness or Wilderness Monument LUD.
      (2) Managing recreation special uses in accordance with the direction in –LAND 2 – Special Use Authorizations (items A.1-15 apply to recreation special uses) and outfitter/guide services in this section.
      (3) Working with recreation service partners to provide agency identity, customer information and programs, natural resource education, and to instill a land stewardship ethic.
2. Use the following guidelines in addressing the appropriateness of recreation special use proposals in each of the LUDs after evaluating factors in 1.b. above. They provide a framework to guide major and minor development proposals. Four strategies (not allowed, discouraged, case-by-case, compatible) are identified for guidance; one is assigned to each LUD to address major and minor proposals (see next page). The definitions and strategies applied to major and minor developments are discussed below (also see the table at the end of Appendix I).
   a) Major Development. Major recreation and tourism developments provided by the private sector involve long-term commitment of the land base, with a moderate to high level of site modification. They involve large buildings or complexes of buildings and facilities, and often provide several services in a concentrated area. Comfort and convenience are provided for guests, and facilities can generally accommodate more than 12 people. The proposals are typically Development Scale 3, 4, or 5, and Roaded Natural or Rural ROS settings. Site reclamation involves extensive removal of facilities and improvements, revegetation, recontouring, etc.; a natural appearance usually takes more than 5 years to attain. Examples include destination resorts and lodges, food and beverage services, downhill ski areas, marinas and gas stations, and full-service campgrounds.
   b) Minor Development. Minor recreation and tourism developments provided by the private sector involve only minor site modifications. They involve small rustic facilities and/or improvements, generally with a single purpose or service, and may involve several sites or an extensive area. Basic essentials are typically provided, and can generally accommodate 12 or fewer people per site. The proposals are typically Development Scale 1 and 2, with a Semi-Primitive ROS setting. Site reclamation involves simple removal of facilities and little or no revegetation; a natural appearance can be attained in a few years. Examples include cabins, huts,

small docks, cross-country ski trails with simple facilities, temporary or portable camps, and simple and rustic campgrounds.

3. Public Outfitter/Guide Services
   a) Authorize the services of qualified outfitters and guides to the public where the need for the service has been identified and is compatible with the objectives and management direction of the affected LUDs. The services of outfitters and guides should facilitate the use, enjoyment, understanding, and appreciation of National Forest recreation settings.
   b) Manage outfitter and guide services as partnerships with the Forest Service, as a way to nurture and encourage assistance and support for attaining the objectives of the LUD, and to assist in increased public understanding and appreciation of the Forest Service's mission and goals.
   c) Administer outfitter/guide Special Use Authorizations in accordance with the direction in FSM 2720, FSH 2709.11, and Regional Supplements.
      (1) Outfitting and guiding operations should not require permanent improvements occupying NFS lands. Encourage operations that require only temporary facilities that are easily removed at the end of the use season.
      (2) Authorize outfitter/guide operations on the basis of the following criteria:
         (a) The affected ecosystem(s) have the capability to accommodate the expected kinds of activities and amounts of use without degradation of ecosystem composition and structure.
         (b) Existing or proposed operations and activities are appropriate for the specific ROS settings within the LUD.
         (c) Adverse impacts to popular or high-valued local areas with outfitter/guide operations are minimized.
         (d) There is a demonstrated public need for the services to be offered and/or the services will enhance the objectives of the LUD.
         (e) The operations can be carried out in a manner that is compatible with existing or expected use by the non-guided public.
         (f) Adverse impacts to subsistence users are minimized.
      (3) Authorize outfitter/guide operations through the issuance of priority use permits, whenever possible, supplemented with temporary permits. Assign priority use and temporary use permits within a LUD based on the following:
         (a) Generally allocate no more than one-half the appropriate capacity of the LUD to outfitter/guide operations. For specific locations, consider different allocations based on historical use, changing demand, spatial zoning, or temporal zoning.
         (b) Party size and distribution of groups.
            (i) **Wilderness, Monument, and Wild River LUDs**. Group size is limited to no more than 12 persons for commercial or general public use of a Wilderness, unless otherwise approved by the appropriate line officer. Refer to REC3 in Chapter 3 for exceptions. Encounters should be less than three groups per day as to maintain the more primitive experience.
            (ii) **Semi-Primitive ROS settings outside of Wilderness**. Party size should generally be limited to 12 to 20 people. Within the LUD II, Old-growth Habitat, and Semi-Remote LUDs, larger party sizes may be allowed in limited locations for up to 15 percent of the primary use season for nature-based interpretive activities if there is no degradation to the physical site conditions. Larger party sizes may be allowed to go ashore at one location and split up into smaller parties not within sight or sound of each other.
            (iii) **Other ROS settings**. Consider site capacities and impacts to other users and resource values to establish party size limits.

(4) Where there is surplus capacity not being used by the general public, temporary use for specific periods of time (not to exceed 1 year) may be authorized. Such temporary use does not qualify for credit toward priority use by a permit holder.

d) Motorized access to sites may be authorized as part of the Special Use Authorization. Use of OHVs may be allowed and must be in accordance with 36 CFR 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use.

e) Cooperate with state and local authorities and user organizations to resolve situations where illegal outfitters are known to be operating. (Consult FSM 5300.)

B. Non-Commercial Recreation Uses

1. Issue no authorizations to construct new private recreation facilities, such as private recreation cabins.
2. Maintain non-commercial recreation Special Use Authorizations except as provided for in FSM 2347. Allow replacement of existing facilities with similar facilities.
3. Manage cabins and related structures that were existing, but unauthorized, prior to the Alaska National Interest Lands Conservation Act of 1980 (December 2, 1980), in accordance with the direction in LAND2 - Cabins.
4. Manage recreation special uses in accordance with the direction in LAND 2 – Special Use Authorizations.

III. Recreation Settings

A. Provide a broad spectrum of outdoor recreation opportunities in accordance with the existing capabilities of the National Forest, and in accordance with the ROS in Appendix I.

1. Manage recreation use in a manner that is compatible with the long-term objectives of the LUD. Maintain the capability of all LUDs to provide appropriate quality recreation opportunities on a sustained basis.
2. In LUDs where non-recreation resource management activities are emphasized, continue providing the current settings and opportunities until scheduled activities and practices cause a change in the ROS setting. The ROS settings for these LUDs may also change to accommodate new recreation facilities or increases in commercial recreation use when this use is compatible with the desired condition for that LUD. When there is a decision that results in a change to the recreation setting, the management decision should adopt the appropriate ROS class. The adopted ROS call will provide the direction for the design of any new facilities.

B. Manage recreation resource activities and facilities in accordance with the established regional guidelines and the ROS guidelines in Appendix I, or Wilderness-specific ROS guidelines approved by the Forest Service officer with delegated authority. All recreation planning and management activities will address the setting indicators. They are described by ROS class in the guidelines in Appendix I.

C. Use the ROS charts in Appendix I for project planning and analysis, and as guidelines to establish appropriate levels of use, scale, and kinds of facilities, Scenic Integrity Objectives, types of access, and services to meet local and regional needs and desired recreation setting conditions.

IV. Developed Site Management

A. Manage the Forest's recreation infrastructure in alignment with the resources available to operate and maintain it to standard. The Forest recreation infrastructure includes all recreation sites and the facilities associated with them.

V. Recreation Construction and Rehabilitation

A. Provide development facilities appropriate to the ROS setting after determining that the private sector is not able or willing to meet the demand.

B. Maintain cost-effective developed recreation facilities that complement non-Forest Service developments in the same community home range or service center area.

C. Provide barrier-free, accessible facilities appropriate to the site development level and area ROS setting.

D. Evaluate the location and need for recreation facilities that lie within identified 100-year flood plains as to the specific hazards and values involved with the site and its use. Thoroughly explore viable alternatives. (Consult FSM 2527.)
E. Use the regional recreation capital investment process and criteria for the identification of recreation construction and reconstruction projects.

VI. Interpretive Services

A. Provide an Interpretive Services Program that is designed to accurately and adequately develop an interest and understanding of the environments of the Forest and Southeast Alaska, and the mission of the Forest Service in managing the National Forest.
B. Conduct on-site interpretive activities to a level consistent with LUD objectives.
C. Assist visitors and users to understand the role of natural and cultural resources in the development of industry, heritage, and culture in Southeast Alaska. Relate these roles to the rest of the state, Canada, and the nation.
D. Promote visitor understanding of the NFS, forest research, and state and private forestry programs.
    1. Emphasize understanding of stewardship of public lands and their productivity through professional forest management with balanced use of natural resources.
    2. Develop Interpretive Services programs for all principal resource management programs. Information should emphasize the integration of management activities designed to achieve the goals and objectives developed for specific areas.
E. Inform visitors of the distribution, differences, and roles of the federal, state, and private lands found in Southeast Alaska and the range of recreation and cultural interest opportunities and facilities available.
    1. Continue to pursue and implement cooperative interpretive partnerships with other federal and state land management agencies consistent with the principal travel routes and activity centers used by forest visitors.
    2. Provide an array of imaginative and dynamic media by which interpretive messages are made available to the visitor. Use a spectrum of media and presentation designs that are appealing, appropriate for the setting, easily understood by the intended audience, and reflect the Forest Service as a professional and caring land management agency.
    3. Continue to provide accurate and timely information about Southeast Alaska and the Tongass National Forest. Continue the Forest Service's leadership role for the Southeast Alaska Discovery Center in Ketchikan.
    4. Continue to provide or improve interpretive services programs and facilities such as those at Mendenhall Glacier and aboard the Alaska Marine Highway ferries. Support shall include identification of current issues and events of interest to forest visitors, adequate staffing to meet program objectives, assistance in training the seasonal and volunteer staff, and objective evaluation of programs to ensure accurate and positive coverage of the natural and cultural resources on the Tongass National Forest and their management.
    5. Expand the use of the Alaska Natural History Association (ANHA) as an interpretive partner to provide forest visitors with a broad range of interpretive media. These may include, but are not limited to, publications, video and audio tapes, and other media that feature the natural and cultural resources of the Tongass National Forest and the heritage of Southeast Alaska. Encourage all types of support and donations to ANHA that can be used to develop additional materials and programs.
    6. In partnership with communities, organizations, and individuals, develop additional ANHA outlets at locations that will best serve Forest customers.
    7. Continue to support the Elderhostel Education Program in local communities and aboard the Alaska Marine Highway as budgets will allow.
F. Provide a coordinated program of awareness and training for all employees and partners (including outfitter/guides and other public service permit holders) to ensure a consistent program of public service.
    1. Encourage other agency participation in Forest Interpretive Services training programs.

2. Ensure that the Forest Service mission and image remain predominantly visible at all Forest Service facilities through the use of uniformed Forest Service personnel, the Forest Service shield, and other media.
3. To the extent feasible, provide training about National Forest resources, points of interest, and management to all interested outfitter/guides, industry representatives, and other partners.

VII. Recreation Use

A. Gather recreation use information to use in project and forest planning. Many sources of information should be used to gather data, such as cabin permits, campground, and visitor center use, trailhead registers, dispersed sampling, outfitter/guides, ferry and cruiseship arrivals, and employee or public observations.

B. Identify those recreation uses that may be in conflict with each other. Reduce recreation user conflicts and polarization. Work with affected publics in finding solutions to defuse or resolve conflicts or concerns.

RIPARIAN
Forest-wide Standards and Guidelines

Riparian area: RIP1

I. Definition

A. Riparian areas encompass the zone of interaction between aquatic and terrestrial environments associated with streamsides, lakeshores, and floodplains, and display distinctive ecological conditions characterized by high species diversity, wildlife value, and resource productivity.

II. Objectives

A. Maintain riparian areas in mostly natural conditions for fish, other aquatic life, old-growth and riparian-associated plant and wildlife species, water-related recreation, and to provide for ecosystem processes, including important aquatic and land interactions. For further direction, refer to the Fish, Wildlife, Recreation and Tourism, Beach and Estuary Fringe, and Soil and Water Forest-wide Standards and Guidelines, as well as the Riparian Standards and Guidelines criteria for each process group contained in Appendix D. The following is a list of objectives pertaining to riparian areas. (Consult Forest Service Manual [FSM] 2526.)

1. Protect riparian habitat.
2. Manage riparian areas for short- and long-term biodiversity and productivity.
3. Maintain natural streambank and stream channel processes.
4. Maintain natural and beneficial quantities of large woody debris over the short and long term.
5. Protect water quality by providing for the beneficial uses of riparian areas. (Consult Best Management Practices [BMPs], Chapter 10 of the Soil and Water Conservation Handbook, FSH 2509.22.)
6. Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.
7. Consider the management of both terrestrial and aquatic resources when managing riparian areas. Consider the effects of terrestrial and aquatic processes on aquatic and riparian resources.
8. In watersheds with intermingled land ownership, cooperate with the other landowners in striving to achieve healthy riparian areas.
9. Design and coordinate road management activities to provide for the needs of wildlife and provide passage of fish at road crossings. (Consult the Fish Forest-wide Standards and Guidelines and the Aquatic Habitat Management Handbook, Forest Service Handbook [FSH] 2090.21.)
10. Evaluate the effect of management (including windthrow) of adjacent areas on riparian habitats.
11. Coordinate and consult with state and federal agencies on riparian management issues, as appropriate. Coordinate activities that affect the Coastal Zone with the State of Alaska to ensure consistency, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.
12. Coordinate and consult with Alaska Department of Environmental Conservation (ADEC) regarding management of public water systems source watersheds.

RIPARIAN PLANNING: RIP2

I. Project Planning

A. Identify and delineate Riparian Management Areas (RMAs) for each project where ground disturbance will occur or resources will be extracted. RMAs are areas of special concern to fish, other aquatic resources, and wildlife. They are generally delineated as identified in the Process Group direction in the Riparian Forest-wide Standards and Guidelines. Riparian

areas are differentiated from adjacent reserve areas, such as wildlife reserves or areas managed to provide reasonable assurance of windfirmness.

B. Complete a watershed analysis before making site-specific adjustments to Process Group Standards and Guidelines. Adjustments to riparian guidelines may be made only if the objectives of the group(s) can be met. Consult Appendix C of the Forest Plan for direction on watershed analysis.

C. On those projects and activities that are in, or influence, RMAs, ensure interdisciplinary involvement and consideration of riparian resources in project planning and in the environmental analysis process.
   1. The location and design of wildlife habitat reserves and mitigation measures should be closely integrated with the design and layout of RMAs.
   2. Logging engineers and aquatic specialists should conduct joint reviews of preliminary harvest unit designs to ensure that site-specific stream protection measures meet riparian objectives, as well as logging system feasibility and timber harvest economic objectives.

D. Ensure that permit holders, contractors, and/or purchasers understand RMAs and riparian management objectives.

E. Evaluate RMA windthrow risk when locating and designing adjacent management activities (Reasonable Assurance of Windfirmness [RAW] Guidelines: Landwehr 2007 and subsequent versions). Minimize accelerated windthrow in RMA buffers. In situations where multiple high risk blow down factors are present, indicating a high windthrow risk, a RAW buffer should be prescribed. In situations where multiple low risk factors are present and high risk factors are minimal, a RAW zone addition to riparian buffers is not warranted. Where high-value aquatic resources (such as a Class I stream or drinking water supplies) are at-risk, use of a wider buffer may be warranted even when the risk of windthrow is judged to be low or moderate. The RAW zone is not necessarily a no-harvest zone; partial harvest may be appropriate in RAW buffers depending on site-specific conditions. (Consult BMP 12.6a of the Soil and Water Conservation Handbook—FSH 2509.22 and the Process Group Standards and Guidelines.)

II. General Standards and Guidelines by Activity

A. Special Use Administration of Lands (Non-Recreation)
   1. Permit activities, consistent with other Special Use direction, that do not significantly reduce the capability of RMAs to 1) maintain or improve associated fish or wildlife habitat, or 2) protect water quality for beneficial uses.

B. Minerals and Geology Administration, Plan of Operations
   1. Use state-of-the-art techniques for developing minerals to reduce impacts to riparian resources to the extent feasible. Include mitigation measures that are compatible with the scale of proposed development and commensurate with potential resource impacts.
   2. Apply appropriate Transportation Forest-wide Standards and Guidelines to the location, construction, and maintenance of mining roads affecting riparian areas.
   3. Manage mineral exploration and development activities to be compatible with the Process group goals and objectives for RMAs.
   4. Manage mineral activities to maintain the present and continued productivity of anadromous fish and other foodfish habitat to the maximum extent feasible. (Consult Alaska National Interests Lands Conservation Act of 1980, Section 505 [a].) Plan of Operations for mining must comply with Clean Water Act, Sections 401, 402, 404, as applicable. (Consult FSM 2817.23a.)
   5. Apply timing restrictions to instream construction and other minerals activities to protect fisheries habitat and mitigate adverse sedimentation, and to avoid critical wildlife mating, hatching, and migrating periods.
   6. Minimize the effects of mineral development and related land disturbance activities on the beneficial uses of water by applying BMPs.
   7. Locate material sites and marine transfer facilities outside RMAs if reasonable alternatives exist.
   8. Ensure that disturbed areas are revegetated in accordance with project plans.

9. Approve reclamation plans in which mineral activities leave riparian project areas as natural in appearance and function, as is feasible.

C. Recreation Use Administration
   1. Locate, design, and operate only those recreation projects that are necessary to accommodate public use of the water and shoreline areas (i.e., boat or floatplane docks, launching ramps, and associated access roads and trails). Where feasible, locate parking, campgrounds, sanitation, and other recreation facilities outside the RMAs to avoid adverse effects on water quality and riparian function.
   2. For existing facilities, consider relocating the facility outside of the RMA. Consideration should be based on current and anticipated effects on riparian values, desired recreation experience, public issues, application of BMPs to minimize the effects of recreation facilities on the beneficial uses of water and costs of relocating the facility.

D. Watershed Resource Planning
   1. Manage activities to meet state water quality standards and protect aquatic and terrestrial riparian habitats, channel and streambanks, and provide for flood plain stability.
      a) Identify soil and water quality requirements for project-level activities.
      b) Apply BMPs to minimize the effects of land disturbing activities on the beneficial uses of water.
      c) Determine flood plain values and plan to avoid, where possible, the long- and short-term adverse impacts to soil and water resources associated with the occupancy and modification of flood plains.
      d) Complete a watershed analysis before making project-level, site-specific adjustments to Process Group Standards and Guidelines. Adjustments to the guidelines may be made only if the objectives of the process group(s) can be met. Consult Appendix C of the Forest Plan for direction on watershed analysis. The intensity and scope of watershed analysis will vary according to the issues of concern.

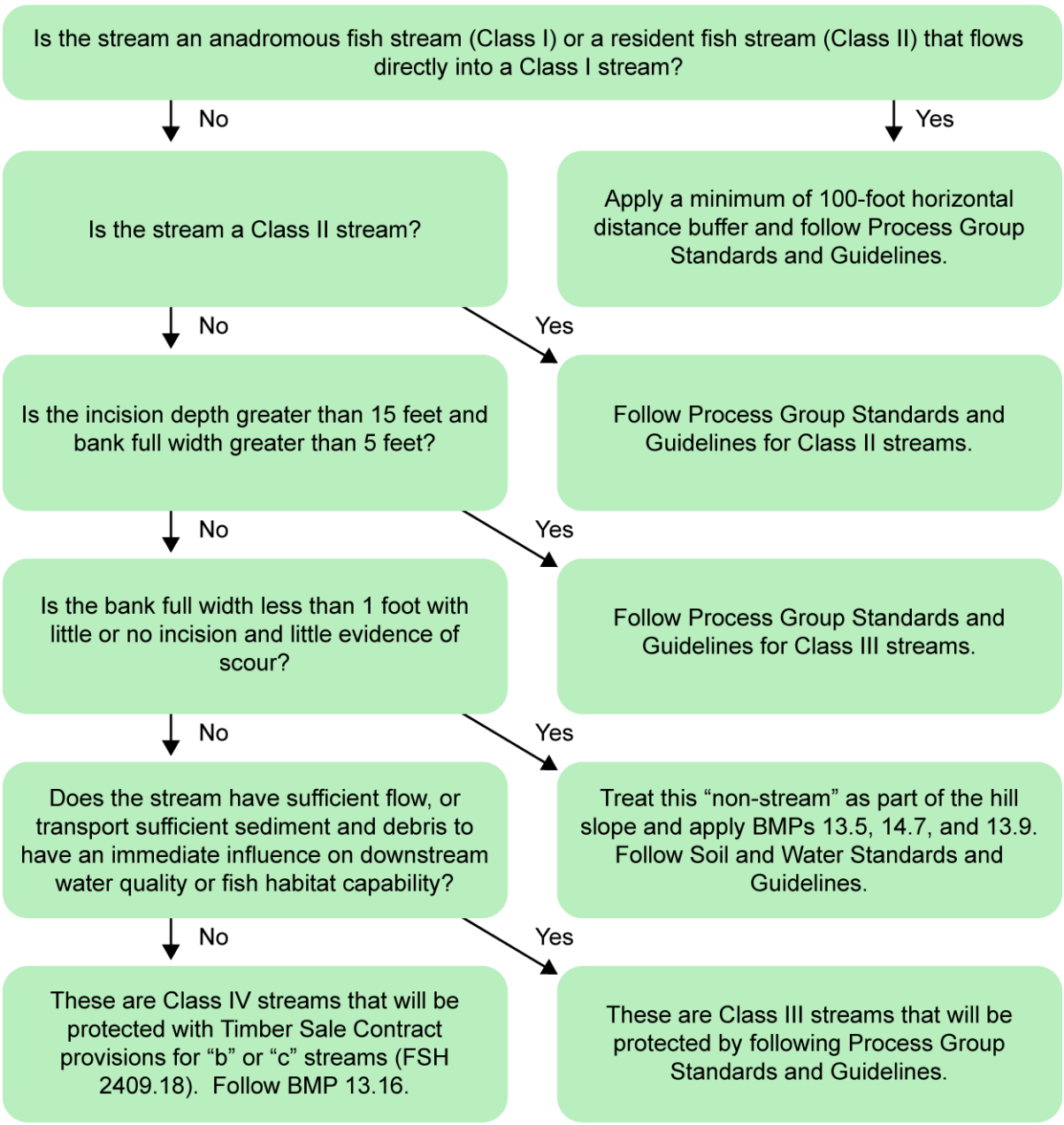
E. Timber Resources
   1. No commercial timber harvest is allowed within 100 feet horizontal distance either side of Class I streams and Class II streams that flow directly into a Class I stream. (Consult the Tongass Timber Reform Act.)
      a) Included in the definition of Class II streams flowing directly into a Class I stream are all Class II tributaries of a Class II stream that flow into a Class I stream without an intervening Class III segment. Mandatory minimum 100-foot buffers will not apply to 1) a Class II stream that flows directly into the ocean or joins a Class I stream only at lower than mean high tide; and 2) a Class II tributary stream segment that flows into a Class III stream that in turn flows into a Class I stream.
      b) The 100-foot measure is a horizontal distance measure from the bankfull margins.
   2. Protect RMAs, in accordance with the intent of the Alaska Anadromous Fish Habitat Assessment (1995), through application of the direction contained in Process Group Standards and Guidelines. Apply additional BMPs (FSH 2509.22) to minimize the effects of timber harvest and related land disturbance activities on beneficial uses of water. In situations where multiple high risk factors are present, indicating a high windthrow risk, a Reasonable Assurance of Windfirmness (RAW) zone adjacent to the RMA buffer should be established (see RAW Guidelines: Landwehr 2007 and subsequent versions).
   3. Avoid RMAs when other feasible locations for personal use wood cutting are available. If personal (free) use timber harvest in RMAs is allowed, free use permit requirements must satisfy process group objectives (refer to Timber Free Use, section TIM130.I). Personal use timber harvest will be regulated and its cumulative effects monitored in LUDs that are unsuitable for timber harvest to ensure that the LUD objectives are fulfilled.
   4. Provide protection to fish and wildlife during critical periods of their life cycles by applying seasonal restrictions on timber harvest and road use activities, to the extent feasible.

5. When stream crossings are required to harvest timber, assess the environmental effects of road crossings versus yarding corridors, and select the action of least environmental impact where practicable.
6. Streamcourse protection plans (consult BMP 13.16) are required for harvesting activities within the required minimum 100-foot buffers designated in E(1) above.
   a) Provide thorough documentation of RMA design and BMP mitigation provision on timber sale unit cards and maps. "As-laid-out" (or phase II) unit cards are a useful tool for facilitating application of RMA and streamcourse protection during sale administration, and for monitoring compliance with and implementation of Riparian Forest-wide Standards and Guidelines.
7. Allow no timber salvage within 100 feet in width on each side of Class I streams or on those Class II streams that flow directly into Class I streams. In addition, allow no timber salvage in RMAs defined for each process group, with the following exception: salvage could be allowed, with Line Officer approval, following watershed analysis if the salvage activity is needed to meet or further riparian management objectives for the process group (see Appendix C for guidance on watershed analysis). RMA salvage timber will not contribute toward the Allowable Sale Quantity.
8. Plan timber harvest settings that cross or are immediately adjacent to streamcourses (Class I, II, III, and IV Channels) so as to avoid adverse impacts to RMAs, and soil and water resources. (Consult FSH 2409.18 and FSH 2509.22.)
9. Stream process group-specific standards and guidelines for timber harvest are presented in Appendix D, along with descriptions of each process group and channel type. The standards and guidelines (except for the minimum 100-foot buffers required by TTRA) may be adjusted for a project on a site-specific basis following completion of a watershed analysis. Adjustments to the standards and guidelines may be made only if the objectives of the process group(s) can be met. Consult Appendix C for direction on watershed analysis.

F. Wildlife Resources
1. Integrate RMAs into any modifications to the design and location of small old-growth reserves. (Consult the Old-growth Habitat LUD.)
2. Use riparian corridors in the design of wildlife travel corridors to provide horizontal connectivity between watersheds, and vertical connectivity between lowland and alpine areas.
3. Consider wildlife needs in the design and management of RMAs. Give special emphasis to habitats of riparian associated species, for example, designated brown bear feeding areas. (See Wildlife Forest-wide Standards and Guidelines.)

G. Transportation Systems
1. Use road closures, maintenance, and other measures to keep road-surface and road-side erosion at low or near background levels. Ensure long-term fish passage through structures at road crossings on Class I and II streams as described in Process Group direction and the Fish Standards and Guidelines. Utilize BMPs (BMP 14-20) to control effects of transportation systems on water quality and fish habitat. Also refer to the Alaska Forest Practices Act (11AAC 95.320) for road closure requirements.

Key to Streamcourse Protection on the Tongass National Forest



Special Provisions: If any of the above streams flow into karst features or contribute to public or domestic water supplies, more stringent standards may apply. Follow Karst Standards and Guidelines or guidance in State of Alaska Statute 18 AAC 80.

RURAL COMMUNITY ASSISTANCE
Forest-wide Standards and Guidelines

Activities: RUR

I. Resource Management Decisions Affecting Communities

A. Emphasize, where appropriate, local needs and opportunities for rural community assistance in Forest programs and budgets.
   1. Consider rural interests, including Native organizations, in resource decisions by jointly identifying and developing natural resource opportunities.

B. Consider social, cultural, and economic issues in resource management by:
   1. Considering local communities' needs in project plans.
   2. Evaluating community-based sources of goods and services for implementing Forest projects.
   3. Considering community organization and protocol in resource planning and decision processes.
   4. Providing information pertaining to resource management and development on National Forests with communities.
   5. Encouraging local rural development entities to include Forest Service employees in their local rural development planning.

SCENERY
Forest-wide Standards and Guidelines

Scenery Operations: SCENE1

I. Scenery Management

A. This plan adopts Scenic Integrity Objectives (SIOs) that provide direction and objectives for landscapes within each Land Use Designation (LUD). The long-term desired future scenic condition for a specific area is the maintenance of a scenic integrity level that is at least as high as the adopted SIO for that area. Adopted SIOs are described in the scenery section of each LUD.

B. Perform landscape/viewshed analysis, using as much of the available tools and technology as possible, when planning projects within viewsheds seen from Visual Priority Travel Routes and Use Areas (VPRs). Some level of analysis may be appropriate in some areas involving non-priority use areas. More comprehensive viewshed analysis such as long-term, full corridor planning may be used in the most sensitive viewsheds. See Appendix F of this Plan for a listing of the designated VPRs. As a part of the planning for major (e.g., large scale mining operations) land-disturbing activities, consider whether changes to the VPR list are necessary.

C. Consider the scenic condition of adjacent non-National Forest System lands during the planning of development activities on the National Forest.

D. Consult the National Forest Landscape Management Handbooks series (nos. 434, 462, 478, 483, 484, 559, 608, 617, 666) and Agriculture Handbook 701, Landscape Aesthetics, for scenery management guidance.

Scenery Preparation: SCENE2

I. Scenery Integrity Objectives: Application

SIOs are applied to any activity that has the potential to affect the scenic character of the landscape. The foreground, middleground, and background SIOs are adopted as seen from the VPR (Appendix F). Non-priority travel routes and use areas, as well as those areas not seen from the VPR, are managed according to the "Seldom Seen or Non-Priority" column. Activities could include, but are not limited to recreation facilities: trails, cabins, restrooms, interpretive displays; timber sales: roads, harvest units, logging camps, sort yards, log transfer facilities (LTFs); rock pits; gravel pits; mineral development; fish enhancement projects: in-stream fish pass structures, gabions; facilities authorized under Special Use Permits: electronic facilities, hydroelectric projects, etc. In designing activities to meet specific SIOs, a number of factors must be considered. Some of these factors include the following:

A. The landscape's Existing Scenic Integrity (ESI) rating. This is an inventoried condition that rates the degree of change that has already occurred on the ground. It is important to compare the ESI of the project area to the SIOs assigned by the Forest Plan. Should there be conflicting conditions presently existing and the intent of the LUD is not presently met, it would be appropriate to consider either 1) some specific rehabilitation measures, or 2) project deferral that would allow the landscapes in the project area time to regenerate sufficiently.

B. Visual Absorption Capability (VAC), which is an estimate of the relative ability of a landscape to absorb management activities. High, Intermediate, and Low VAC ratings are used. These ratings reflect the degree of landscape variety in an area, viewing distance, and topographic characteristics. As examples, a Low VAC setting generally has steep slopes, with little landscape variety, while a High VAC setting may be relatively flat and/or has a high degree of variety in the landscape.

C. Size, shape, orientation to viewer, color, texture, etc. are critical elements in determining whether or not an activity meets the adopted SIO. Consideration for the scenery is essential early on in planning processes, particularly in areas seen from a VPR. However, each landscape setting is different, and should be evaluated on a case-by-case basis. There may be instances where the SIO can be met while the proposed activity is greater than the guideline, or there also may be cases where the activity must be smaller to meet the intent of the SIO.

Adopted Scenery Integrity Objectives for Each Land Use Designation[1]

Land Use Designation	Foreground from Priority Travel Routes and Use Areas	Middleground from Priority Travel Routes and Use Areas	Background from Priority Travel Routes and Use Areas	Seldom Seen/ Non-Priority
Wilderness Wilderness Nat. Monument Research Natural Area Special Interest Area [2, 4] Remote Recreation Old-growth Habitat [4] LUD II [4]	High	High	High	High
Special Interest Area [3, 4]	Low	Moderate	Moderate	Moderate
Semi-remote Recreation [4]	Moderate	Moderate	Moderate	Moderate
Wild River [6]	High	High	High	High
Scenic River [4, 6]	High	Moderate	Moderate	Low
Recreational River [4, 6]	Moderate	Low/Moderate [7]	Low/Moderate [7]	Very Low
Scenic Viewshed [4]	High	Moderate	Moderate	Very Low
Modified Landscape [4]	Moderate	Low	Low	Very Low
Timber production Minerals Experimental Forest [5]	Low	Very Low	Very Low	Very Low
Transp. & Utility System [6]	Low	Low	Low	Low
Municipal Watershed [8]	High	High	High	High
Nonwild. Nat. Monument [9]	High	High	High	High

[1] The foreground, middleground, and background Scenic Integrity Objectives (SIOs) are adopted as seen from the Visual Priority Travel Routes and Use Areas (Appendix F). Non-priority travel routes and use areas, and those areas not seen from the Visual Priority Routes and Use Areas, are managed according to the direction listed in the "Seldom Seen/Non-Priority" column.

[2] Except for the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough.

[3] Applies only to the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough. Undeveloped areas are managed according to the guidance on the previous line.

[4] Exceptions for small areas of non-conforming developments, such as recreational developments, transportation developments, log transfer facilities, and mining development, may be considered in these LUDs on a case-by-case basis.

[5] The SIO may vary depending on the research objectives of the Experimental Forest.

[6] These objectives apply only to the actual corridor. The area adjacent to this LUD is managed according to the guidelines of the adjacent LUD.

[7] Apply the Moderate SIO in corridors where scenic quality is included as one of the "outstandingly remarkable" values for that corridor. If it is not, apply the lower SIO.

[8] SIO is High, but may range down to Very Low as a result of the municipality's watershed management objectives.

[9] SIOs will range from High, in those portions of the Monument without access, to Very Low in those portions developed in connection with mineral activities. Site-specific SIOs will be identified in the specific Plan of Operations for mineral development.

D. Depending on the assigned SIO, specific time frames are allowed for meeting the SIO following project completion. Long-term projects (i.e., those with no specific completion date) should be initially designed to meet the assigned SIO as the project progresses.

II. Scenic Integrity Objectives: Specific Guidelines

A. SIO High. Design activities to not be visually evident to the casual observer. This objective should be accomplished within 6 months following project completion.

1. Facilities
   a) Keep vegetation clearing to a minimum and within close proximity of the site.
   b) Select materials and colors that blend with those found in the natural surroundings.
   c) Screening should be used from viewpoints and travel routes if feasible.

2. Transportation
   a) Rock Sources. When a forest development road is a VPR, locate rock sources off the road, when possible. Spur road access may be necessary to minimize the visual impact. Rock source development should not be apparent from the road, use area, or marine travel route to meet this scenic objective.
   b) Corridor Treatment. Provide roadside cleanup of ground-disturbing activities. Depending on site conditions, cut stumps as low as possible and angled away from the viewer. Incorporate this treatment in the timber sale contract.
   c) Log Transfer Facilities. LTFs are generally not appropriate in this SIO setting (with exceptions noted in the table above).
3. Timber Harvest: VAC Setting, Typical Regeneration Method, and Unit Size
   a) Low VAC: Single tree selection or group selection (group openings less than 2 acres)
   b) Intermediate VAC: Single tree selection or clearcut (openings approximately 5 to 15 acres)
   c) High VAC: Clearcut (openings approximately 15 to 30 acres)

B. SIO Moderate. Design activities to be subordinate to the landscape character of the area. This SIO should be accomplished within 1 year of project completion.
1. Facilities
   a) Keep vegetation clearing to a minimum and within close proximity of the site.
   b) Emphasize enhancement of views from recreational facilities.
   c) Select materials and colors that blend with those found in the natural surroundings.
2. Transportation
   a) Design rock sources to be minimally apparent as seen from VPRs. Rehabilitation is usually necessary following closure of rock source developments. It may be necessary to modify some ground-disturbing activities seen from the foreground of VPRs.
   b) Corridor Treatment. Roadside cleanup of ground disturbance activities may be necessary.
   c) LTFs (temporary or permanent). Perform a Scenic Integrity analysis during LTF planning and design. Consider low profile designs to minimize visibility from VPRs. For temporary LTFs, incorporate rehabilitation measures into the project analysis and contract package.
3. Timber Harvest: VAC Setting, Typical Regeneration Method, and Unit Size
   a) Low VAC: Group selection (group openings less than 2 acres) or clearcut (openings approximately 5 to 10 acres)
   b) Intermediate VAC: Clearcut (openings approximately 15 to 40 acres)
   c) High VAC: Clearcut (openings approximately 40 to 60 acres)

C. SIO Low. Activities may visually dominate the characteristic landscape, but must have visual characteristics similar to those of natural occurrences within the surrounding area or character type. This SIO should be met within 1 year in the foreground distance zone and within 5 years in the middle and background distance zones following project completion.
1. When planning activities, use naturally established form, line, color, and texture found in the landscape.
2. Facilities. Siting and design should borrow from naturally occurring patterns in the landscape, and should not be visually dominant when viewed in the background distance zone.
3. Transportation
   a) Rock source operations and resulting landform modifications may be evident to the casual observer as seen from VPRs. However, the quarry location and design should mitigate, to the extent feasible, the apparent visual size and dominance of the activity (e.g., shaping of backwalls, roadside screening, and general orientation of the opening).
   b) LTFs (temporary or permanent). Perform a Scenic Integrity analysis during LTF planning and design.

4. Timber Harvest: VAC Setting, Typical Regeneration Method, and Unit Size
   a) Low VAC: Clearcut (openings approximately 15 to 40 acres)
   b) Intermediate VAC: Clearcut (openings approximately 40 to 60 acres)
   c) High VAC: Clearcut (openings approximately 60 to 100 acres)

D. SIO Very Low. Activities may dominate the characteristic landscape, yet when viewed as background, should appear to be a natural occurrence.
   1. Locate and design management activities to take advantage of existing (both natural and imposed) pattern and texture found in the landscape when viewed in the middleground from VPRs.
   2. Design activities to resemble natural occurrences as viewed in the background distance zone.
   3. Timber Harvest: VAC Setting, Typical Regeneration Method, and Unit Size
      a) Low VAC: Clearcut (openings approximately 50 to 75 acres)
      b) Intermediate VAC: Clearcut (openings approximately 80 to 100 acres)
      c) High VAC: Clearcut (openings approximately 80 to 100 acres)

E. Graphic illustrations of timber harvest activities designed to meet each SIO are located at the end of this section. The undeveloped landscape is provided for comparative purposes.

III. Scenic Integrity Objectives - Silvicultural Prescriptions Other Than Clearcutting

The timber harvest-related scenery management guidelines described previously are based on several analyses of harvested viewsheds throughout the Tongass that represented different VAC characteristics and different levels and scales of harvest. Similar specific guidelines for other types of silvicultural treatments cannot be provided due to the lack of experience with these treatments across the entire Forest. However, the following paragraphs provide some general guidelines concerning the use of silviultural methods other than clearcutting.

A. Two-aged Managment. Based on a few observations of some recent treatments of this type, it would appear that if approximately 20 to 30 percent of the trees within a harvest unit are retained, the size of that harvest area might be increased and still meet the same SIO. It may also be possible to meet a higher SIO by leaving an appreciable percentage of reserve trees within an area. However, many factors such as natural vegetative patterns, steepness and obliqueness of slope, windfirmness, and viewing distance determine how to apply this silvicultural method in a specific landscape.

B. Uneven-aged management - single-tree or group selection. Meeting a High or Moderate SIO in a low VAC setting requires a relatively small percentage of stems removed on a single-tree basis—anywhere from 5 to 20 percent. The exact amount depends on the slopes, viewing distances, and natural characteristics of the stand. To meet a Low SIO, a larger percentage could be removed. Exactly how much and what the limit would be is also based on the existing landscape characteristics. When utilizing a group selection method, the appropriate size and distribution of the groups needs to be considered, as well as the natural landscape characteristics. The design of the groups should replicate natural openings and avoid the use of geometric shapes.

Scenery Administration: SCENE3

I. Mitigation, Enhancement, and Monitoring

A. Minimize potential scenic impacts through scheduling or timing of management activities so that they are dispersed and not concentrated, subject to considerations given to other resources (e.g., wildlife).

B. Rehabilitate, where feasible, existing projects and areas that do not meet the Adopted SIOs. Consider the following in setting priorities:
   1. Relative importance of the area (public sensitivity).
   2. Projected length of time to naturally attain the Adopted SIO in comparison to the use of rehabilitation techniques. Examples of rehabilitation include seeding road cuts and fills, recontouring temporary roads, removing roadside slash and debris, re-shaping harvest unit boundaries, cutting roadside stumps as low as possible, shaping or spreading excess overburden, etc.
   3. Benefits to other resources by accomplishing rehabilitation.

C. Use enhancement measures, where feasible, to create variety where little variety now exists through addition, subtraction, or alteration of vegetation, earthforms, waterforms, etc. Examples include opening up vistas or screening out undesirable views and planting species to give unique form, color, or texture to an area.

Undeveloped Landscape

High SIO

Moderate SIO

Low SIO

Very Low SIO

SOIL and WATER
Forest-wide Standards and Guidelines

Soil Inventory: SW1

I. Inventory

A. Maintain the Soil Resource Inventory (SRI) or National Hierarchical Framework of Ecological Units (TEUI). (Consult Forest Service Manual [FSM] 2550, Soil Management Handbook, Ecological Classification and Inventory Handbook [FSH 2090.11-91-1], National Soil Handbook-430-VI, Soil Survey Manual-430-V.)

1. Determine and implement the level of SRI necessary to meet planning and implementation needs for proposed management projects.

B. Use the TEUI to inventory and classify ecosystems.

Water Inventory: SW2

I. Inventory and Evaluation

A. In conducting water investigations, consider and evaluate the following elements in Water Resource Inventories (WRIs):

1. Climate
2. Water quality
3. Water quantity
4. Channel types
5. Water uses and developments
6. Watershed condition

B. Consult FSM 2530 and Aquatic Habitat Management Handbook FSH 2090.21.

1. Determine the level of WRI to meet project planning and implementation needs.
2. Use the TEUI (Aquatic ECOMAP) to inventory and classify watersheds, streams, lakes, and groundwater systems.

C. Develop and maintain up-to-date inventories and case folders for all public water systems. (Consult FSM 2542.)

D. Accomplish baseline inventory needs commensurate with other Forest inventory efforts.

Watershed Resources Planning: SW3

I. Land Use Activities

A. Plan and conduct land use activities to avoid irreversible or serious and adverse effects on soil and water resources.

1. Include soil and water resource data and interpretations in project analyses. (Consult FSM 2530 and 2550.)
2. Maintain water quality and quantity to protect the state-designated beneficial uses. Consult the Alaska Nonpoint Source Pollution Control Strategy, the Soil and Water Conservation Handbook (Chapter 10, FSH 2509.22), the Soil Management Handbook (FSH 2509.18), and the Forest Service Alaska Regional Water Quality Management Plan addressed in the Memorandum of Agreement dated April 6, 1992 (as amended), with the Alaska Department of Environmental Conservation.
3. Apply Best Management Practices (BMPs) to all land-disturbing activities as a process to protect the beneficial uses of water from nonpoint sources of pollution. Also consult FSM 2530, Facilities, Transportation, and Fish Forest-wide Standards and Guidelines, U.S. Army Corps of Engineer Regulations (33 CFR 323.4), and the Clean Water Act.
4. Apply soil conservation practices to meet regional Soil Quality Standards (SQS) on all land-disturbing activities as a process to prevent detrimental soil disturbance. Detrimental soil disturbance is defined as significant changes or impairment in soil properties that are expected to result in reduced short- or long-term productivity of the land. (Consult FSM 2520 and 2550, FSH 2509.18 and R10 Supplement to FSM 2554 #2500-92-1, effective January 15, 1992 [as amended].) BMPs also include some soil conservation practices

(Soil and Water Conservation Handbook, Chapter 10, FSH 2509.22); develop other specific soil conservation practices during project planning, as needed.

5. Evaluate soil stability (BMP 13.5) potential soil mass wasting effects, and stability of Class IV channels and minor drainageways ("nonstreams"). At the Forest Plan level, slope gradients of 72 percent or more are removed from the tentatively suitable timber base due to high risk of soil mass movement and accelerated erosion of Class IV channel systems. At the project planning level, the Forest Supervisor or District Ranger may approve timber harvest on slopes of 72 percent or more on a case-by-case basis, based on the results of an on-site analysis of slope and Class IV channel stability and an assessment of potential impacts of accelerated erosion on downslope and downstream fish habitat, other beneficial uses of water, and other resources. It is anticipated that harvest of these areas will be a small percentage of the total harvest unit. To document the analysis for allowing harvest on steep slopes, the following checklist should be used:
   a) Steepness
   b) Channel dissection
   c) Parent material
   d) Soil drainage
   e) Precipitation (rain-on-snow zone)
   f) Potential impacts on downslope/downstream beneficial uses

   If the stability analysis is undertaken prior to the signing of the decision document, the approval (if approved) should be documented in the decision document. If the slope stability information is not available prior to the signing of the NEPA document, it should be documented in the Change Analysis. (Also see Fish and Riparian Forest-wide Standards and Guidelines for definitions of Class IV streams and BMP 13.16 in the Soil and Water Conservation Handbook.)
6. Avoid locating roads and landings on a slope greater than 67 percent, on an unstable slope, or in a slide-prone area, where feasible (BMP 14.7).
7. Soil Map Units (SMUs) with McGilvery soil require harvest systems capable of at least partial suspension over the entire length of the yarding distance.

B. Seek to avoid adverse impacts to soil and water resources (such as accelerated surface erosion or siltation of fish habitat) when conducting land use activities on wetlands, flood plains, and riparian areas. (Consult Executive Orders 11988, 11990, and 11514; FSM 2510 and 2520; U.S. Army Corps of Engineers regulations [33 CFR 323]; NFMA Planning Regulations [36 CFR 219.27]; appropriate BMPs [Chapter 10 of the Soil and Water Conservation Handbook, FSH 2509.22] for wetlands, flood plains, and riparian areas; and Wetlands and Riparian Forest-wide Standards and Guidelines.)

C. Under applicable state and federal law, reserve both ground and surface water rights to manage National Forest System lands. (Consult FSM 2540.)
   1. Review projects and reserve water rights or notify the state of water uses for reservation management purposes, when it is determined such uses are necessary for carrying out the purposes of the project. Be sure review of uses and needs includes at least the following items:
      a) In-stream flow needs
      b) Adequate flow for fish passes and habitat
      c) Forest Service administrative and domestic use
      d) Developed special uses and recreation sites

D. Consult with state, federal, and local government agencies and Native American communities for the protection, mitigation, and/or improvement of the water and soil resources.

E. Participate actively in planning by other federal, state, and local agencies when these plans could affect the water resources on NFS lands.

F. Cooperate with state and federal agencies having overlapping resource management responsibilities, including the Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. Execute plans and decisions in consideration of the statutory responsibilities of these agencies.

II. Watershed Analysis and Cumulative Watershed Effects

A. Watershed analysis (Appendix C) is required in the following circumstances:
   1. Before making site-specific adjustments to Forest-wide Riparian Standards and Guidelines (including timber salvage in riparian areas).
   2. Before authorizing management activities in public water system source watersheds. A watershed analysis must be documented as part of the NEPA decision in these circumstances.
   3. Watershed analysis (as described in Appendix C) is otherwise not required, but may be conducted at the discretion of the responsible line officer.

B. Minimize cumulative watershed effects that could adversely affect soil and water resources and change stream channel equilibrium, such as 1) changes in sediment transport or stream flow leading to stream aggradation, degradation, and/or streambank erosion; 2) silting in of pools; and 3) reduction in aquatic habitat capability. Evaluate cumulative effects at the watershed scale during project planning and analysis; consider completing a watershed analysis. (Consult BMP 12.1 [Soil and Water Conservation Handbook, FSH 2509.22] for cumulative watershed effects analysis guidance.)

III. Public Water Systems/Domestic Source Waters

A. Secure "favorable conditions of water flows" (Organic Administration Act of 1897). Maintain water quality consistent with Alaska Water Quality Standards (18 AAC 70) and protect source watersheds consistent with the federal Safe Drinking Water Act and the Alaska Drinking Water Regulations (18 AAC 80). Do not authorize activities that create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system. Conduct watershed analysis (see Appendix C) and consult with the Alaska Department of Environmental Conservation and the water system owner/operator before authorizing management activities in source watersheds for public water systems. Develop appropriate site-specific BMPs for all management activities that may affect public water supplies. Refer to FSM 2542 and 36 CFR 251.9 for guidance. Refer to 18 AAC 80.620(c)(3) for systems that seek to avoid filtration.
   1. In Municipal Watershed LUDs, refer to the Municipal Watershed LUD Management Prescriptions.
   2. For state classified public water systems (Class A and B systems as defined by 18 AAC 80.1190), consult with ADEC and owners or operators of public water systems to meet watershed protection needs on a case-by-case basis.
   3. For other domestic source water systems, apply appropriate BMPs for all management activities that may affect the water supply.

Watershed Restoration: SW4

I. Soil and Water Quality Protection and Restoration

A. Protect or restore water quality and sustain soil productivity.
   1. Conduct Watershed Condition Surveys and develop Watershed Restoration Plans to determine treatment priorities and needs. Consideration of treatment needs should include evaluating changed fish habitat and population levels, riparian vegetation community structure and function, and hydrology, as measured against natural conditions predicted by baseline objectives (see Fish Forest-wide Standards and Guidelines). Identify and prioritize needs in the NRIS Watershed Restoration Tracking database. Complete watershed restoration project plans and coordinate with fish habitat restoration projects. Include projects in Sale Area Improvement Plans and use K-V funds as appropriate. (Consult FSM 2510 and 2520.)
   2. Give priority to cost-effective watershed restoration projects with the most erodible conditions directly affecting the beneficial uses of water.
   3. For revegetation of disturbed sites, erosion control, fire rehabilitation, riparian restoration, forage enhancement, and other revegetation projects, consider natural revegetation as an alternative to seeding or planting. Encourage natural revegetation where seed source and soil conditions are favorable. Use native species of seeds and plant in revegetation projects where seeding or planting is appropriate. Native plant material sources

includeagency native seed programs and local seed collection. (Consult FSH 2080 for current Forest seeding direction.)

4. Inspect all watershed restoration projects until the final evaluation indicates that maintenance is no longer needed.
5. Road decommissioning and storage projects to restore watershed conditions should pay special attention to fish passage, channel stability, and water quality issues (Consult Tran 7 guidance and Soil and Water Conservation Handbook, FSH 2509.22.)

SUBSISTENCE
Forest-wide Standards and Guidelines

Subsistence: SUB

I. Subsistence

A. In accordance with Title VIII of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), it is the policy of the Forest Service that:
   1. Consistent with the purposes for which National Forest System (NFS) lands in Alaska were established, sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the National Forest System lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence.
   2. Provide for the continuation of the opportunity for subsistence uses by rural Alaskan residents, including both Natives and non-Natives.
   3. Non-wasteful subsistence uses of fish and wildlife shall be the priority consumptive uses of such resources on NFS lands in Alaska when it is necessary to restrict the taking of such resources.
   4. Cooperate with the State of Alaska, adjacent landowners, and land managers in managing subsistence activities and in maintaining the continued sustainability of all wild renewable resources on NFS lands.

B. Consult the Southeast Alaska Federal Subsistence Regional Advisory Council for opinions and recommendations on current and proposed management actions, pursuant to ANILCA, Title VIII, Section 805.

C. Locate and manage Forest management activities considering impacts upon rural residents who depend upon subsistence uses of the resources of NFS lands. In compliance with ANILCA, Title VIII, Section 810, and the Region 10 Subsistence Handbook, the Forest Service shall:
   1. In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of NFS lands, evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands, and other alternatives that would reduce or eliminate the use, occupancy, or disposition of NFS lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy, or disposition of such lands that may significantly restrict subsistence uses shall be effected until the following actions are accomplished:
      a) Notice is given to the appropriate federal and state agencies, local committees, recognized tribal governments, and the Southeast Federal Subsistence Regional Advisory Council established pursuant to Section 805 of ANILCA;
      b) Notice of a hearing is given and a hearing is held in the vicinity of the area involved;
      c) A determination is made that: 1) such a significant possibility of a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands; 2) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and 3) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.
   2. The environmental analysis will include the notice, hearing, and findings required in 1 above.
   3. Regardless of whether or not an EIS is required, in all project scoping, include initial and ongoing contact with the appropriate federal and state agencies, local committees, recognized tribal governments, and the Southeast Alaska Federal Subsistence Regional Advisory Council.

4. After compliance with the procedural requirements of Section 810 of ANILCA and other applicable law, the responsible Forest Service official may manage or dispose of public lands under their primary jurisdiction for any of those uses or purposes authorized by ANILCA or other law. Management to accommodate identified subsistence uses could include:
   a) Implementing planned project;
   b) Canceling all or part of the planned project;
   c) Substituting another site for the project and prepare another environmental analysis if the change is significant; and/or
   d) Implementing appropriate mitigation measures.

D. Evaluate changes in subsistence use patterns and activities in cooperation with appropriate state and federal agencies by conducting periodic surveys of fish and wildlife populations and subsistence harvest, and consulting with subsistent user groups.

E. Make recommendations for subsistence regulations to the Southeast Alaska Federal Subsistence Regional Advisory Council and the Federal Subsistence Board, and provide technical support to these two bodies for analyzing the effects of proposed regulations on NFS lands.

F. Provide for enforcement of subsistence use regulations promulgated by the Southeast Alaska Federal Subsistence Board.

G. Provide public information concerning subsistence management on NFS lands.

H. In cooperation with appropriate state and federal agencies, and recognized tribal governments, maintain a subsistence monitoring program and database.

I. Maintain reasonable access to subsistence resources as required by ANILCA, Section 811. Address subsistence concerns when developing road management objectives (RMOs) for forest roads. (See Transportation Forest-wide Standards and Guidelines.)

J. Seek to maintain abundance and distribution of subsistence resources necessary to meet subsistence user needs.

K. Consider subsistence users' needs in the scheduling, locating, and designing of fish and wildlife habitat improvement projects.

L. In the development of access and facilities, seek opportunities to provide for subsistence users (e.g., anchorages and shelters). Such access and facility opportunities should be identified and planned with local subsistence users.

TIMBER

Forest-wide Standards and Guidelines

Allowable Sale Quantity: TIM1

I. Decade Allowable Sale Quantity

A. The amount of timber harvest from suitable lands that can be sold from the Tongass National Forest, for a decade, cannot exceed the established Allowable Sale Quantity. The yearly quantity may exceed or be less than the decadal average. The Allowable Sale Quantity is a ceiling; it is not a future sale level projection or target and does not reflect all of the factors that may influence future sale levels.

B. The Allowable Sale Quantity is partitioned into two non-interchangeable components (NICs) (see Glossary). Do not exceed limits on the sale of timber volume that counts towards the Allowable Sale Quantity associated with each NIC during the planning period.

Integrated Resource Inventory - Existing Vegetation: TIM2

I. Inventory

A. Coordinate vegetative inventories with other data collection efforts to minimize duplication and to maximize the use of the resulting information. Emphasize multiple resource or integrated resource inventories.

B. Reinventory forest vegetation on a 10- to 15-year cycle.

Silvicultural Examination and Prescription: TIM3

I. Stage II Intensive Inventory

A. Manage vegetation according to a silvicultural prescription certified by a Region 10 certified silviculturist; this applies to any vegetative manipulation activity.

B. Conduct silvicultural examinations and develop silvicultural prescriptions for proposed resource management activities where vegetative manipulation of the Forest is involved. (Consult Region 10 Silvicultural Examination and Prescription Handbook - 2409.26d).

C. Conduct silvicultural examinations as part of timber sale analysis. Silvicultural examination is the process of gathering vegetative data to provide a basis for silvicultural and other management decisions.

D. Develop silvicultural prescriptions as part of project planning. Complete all prescriptions before project implementation where implementation is defined as either the Final ROD, Environmental Assessment Decision Notice, or Decision Memo. Base silvicultural prescriptions on silvicultural examinations; include a written description of the current stand conditions, the anticipated future condition based on management activities, and a statement on land management and resource objectives. The prescription should also include silvicultural practices, cutting methods, or other management actions that will be applied sequentially to achieve the desired stand condition and structural attributes. A silvicultural analysis for project planning should address both stand and landscape conditions.

E. Facilitate development of appropriate silvicultural system prescriptions by describing desired conditions in terms of structural attributes.

F. Include an appropriate species mix for regeneration in the silvicultural prescription prepared during the environmental analysis. The "appropriate species" is based on the potential of the site as indicated by plant associations and adjacent stand conditions.

G. Evaluate the natural reproduction potential and existing reproduction as part of the silvicultural analysis and prescription. Where possible, harvest prescriptions should consider leaving advance regeneration to meet reforestation needs and stand objectives.

H. Consider regenerating and maintaining a mix of dominant overstory tree species, where appropriate, for the site, to provide for the diversity of future stands and to augment the future availability of forested habitats used by other species (wildlife and plants). Common, but less represented Forest-wide overstory species include yellow-cedar and western redcedar, Pacific yew, Pacific silver fir, and subalpine fir are considered rare tree species (see Plants Standards and Guidelines, Section C).

I. Select a silvicultural system that meets the resource and vegetation management objectives of the area, including objectives for biological diversity, long-term site productivity, scenic integrity, and forest health.
J. Even-aged, two-aged, and uneven-aged systems shall be available for use.
K. Select rotations that produce sawtimber products, unless otherwise provided for in the LUD.
L. Even-aged timber stands shall not be scheduled for final harvest before stand growth has reached or surpassed 95 percent of the Culmination of Mean Annual Increment in cubic feet. Exceptions may be made where special resource considerations require earlier harvest. Exceptions also may be made where small inclusions of young stands in harvest units that otherwise meet this requirement will result in more logical management units allowing greater efficiency or less resource impacts.
M. Even-aged stands may be regenerated without having reached Culmination of Mean Annual Increment where salvage is prescribed after windthrow, where stands are in imminent danger from insect or disease attack or cutting for experimental and research purposes.

Timber Project Planning: TIM4

I. Information Gathering and Maintenance

A. Provide timber resource information necessary to prepare timber harvest projects. This includes maintenance of inventories, analysis of data, and input for environmental analysis.
B. Determine operability based on site-specific project conditions; classify the suitable lands according to the NIC definitions.
C. Consider the management prescription of the LUDs within the project area in project design and environmental analysis for timber activities. Timber harvest unit cards will document resource concerns and protection measures. The unit cards, including a map with relevant resource features, will be included in NEPA documents.
D. Develop the Sale Area Improvement Plan, including any projects that could be funded by Knutson-Vandenburg funds during the interdisciplinary NEPA process to identify resource improvement opportunities consistent with the Forest Service Renewable Resources Handbook. Schedule essential reforestation prioritized by mitigation or enhancement.

Timber Sale Preparation: TIM5

I. Regeneration Methods

A. Regeneration methods refer to the manner in which a new stand is created. There are three categories of regeneration systems: even-aged, two-aged, and uneven-aged silvicultural systems. Even-aged systems include clearcutting, seed tree, and shelterwood. Two-aged systems include clearcutting with reserves, seed tree with reserves, and shelterwood with reserves. Uneven-aged systems include single-tree selection, group selection, and group selection with reserves.
    1. Consider silvicultural systems other than clearcutting to meet other resource objectives at the project level. As part of the project NEPA process, analyze current scientific information related to the applicability of alternative timber harvest methods.

II. Even-Aged Systems

A. Apply even-aged silvicultural methods in such a way that isolated stands of timber will not be created. Avoid locating harvest units where future harvest activities will destroy regeneration under earlier regeneration harvest activities.
B. Clearcutting is an even-aged regeneration method. There are a number of supportive reasons for the use of this method in Alaska's western hemlock-Sitka spruce forests. These include excellent regeneration of desired species, effective dwarf mistletoe control, viable harvest economics, and compatibility with the use of standard logging systems.
    1. Use clearcutting only where it is determined to be the best system to meet the objectives and requirements of LUDs.
    2. Apply clearcutting where trees are cut to achieve timber production objectives, where there is risk of dwarf-mistletoe infection and disease control is desired, or where there is a high risk of windthrow.

3. Forest Service Manual (FSM) 2470-R-10-2400-2005-1 clarifies limitations on "clearcutting." It is limited to areas where it is essential to meet Forest Plan objectives and may involve one or more of the following circumstances:
   a) To establish, enhance, or maintain habitat for Endangered, Threatened and Sensitive species.
   b) To enhance wildlife habitat or water yields, or to provide for recreation, scenic vistas, utility lines, road corridors, facility sites, reservoirs or similar development.
   c) To rehabilitate lands adversely impacted by events, such as fires, windstorms, or insect or disease infestations.
   d) To preclude or minimize the occurrence of potentially adverse impacts from insect or disease infestations, windthrow, logging damage, or other factors affecting forest health.
   e) To provide for the establishment and growth of desired trees or other vegetative species that are shade intolerant.
   f) To rehabilitate poorly stocked stands due to past management practices or natural events.
   g) To meet research needs.

III. Size of Clearcuts/Even-Aged Openings

A. NFMA regulations provide that 100 acres is the maximum size of created openings allowed for the western hemlock-Sitka spruce forest type of coastal Alaska, unless exempted under specific conditions. Cedar and hardwoods are usually considered to be a component of the western hemlock-Sitka spruce ecotype in Southeast Alaska and, therefore, the 100-acre limit will also apply to these types of stands.

B. Recognizing that harvest units must be designed to accomplish management goals, created openings may be increased in size where larger units will produce a more desirable contribution of benefits.
   1. Use the following factors when proposing units that would exceed 100 acres:
      a) Natural and biological hazards to the survival of residual trees and surrounding stands
      b) Topography
      c) Relationship of units to other natural or artificial openings and the proximity of units
      d) Coordination and consistency with adjacent LUDs
      e) Effects on water quality and quantity
      f) Visual Absorption Capability
      g) Effect on wildlife and fish habitat, based on the most recent research
      h) Regeneration requirements for desirable tree species
      i) Transportation and regeneration method requirements
      j) Relative total costs of preparation, logging, and administration of harvest

C. Where it is determined by an environmental analysis that exceptions to the size limit are warranted, the actual size of openings may be up to 200 acres, if required due to natural biological hazards to the survival of residual trees and surrounding stands, and up to 150 acres for the remaining factors, with the approval of the Forest Supervisor. (Consult R10 supplement FSM 2400-2002-1.)

D. The established limits and exceptions do not apply to the size of areas harvested as a result of natural catastrophic conditions, such as insect and disease infestation or windthrow.

E. Created openings will be adequately stocked with desirable tree species, which are approximately 5 feet in height, before the area will no longer be considered an opening for the purposes of determining limitations on the scheduling, locating, and calculating the size of additional created openings. Small inclusions within openings do not constitute division to the openings for purposes of reducing size.

F. Leave strips between openings must be of sufficient size and composition to be managed as a separate stand (minimum stand mapping size is 10 acres).

IV. Two-Aged System

A. Two-aged silvicultural systems are designed to maintain and regenerate a stand with two-age classes. The resulting stand may be two-aged or trend towards the uneven-aged condition as a consequence of both an extended period of regeneration establishment and the retention of reserve trees that may represent one or more age classes. The reserve trees provide structural diversity and a biological legacy. Two-aged management regimes can produce stands of greater structural diversity than even-aged management. This method may be used where windthrow or dwarf mistletoe are not major threats or can be tolerated.
   1. Emphasize green-tree and snag retention in landscape management. The actual number and attributes of the trees retained is dependent on Forest Plan and site-specific silvicultural objectives. To the extent feasible, residual patches and single trees should include large, old trees and snags.
   2. Retained patches or residual trees should not be scheduled for removal. The retained patches and residual trees will provide support for those organisms that require old forests.
   3. Address safety issues by utilizing the guidelines in Reserve Tree Selection Guidelines, R10-MB-215, March 1993.

V. Uneven-Aged Systems

A. Uneven-aged silvicultural systems are methods of regenerating a forest stand, and maintaining an multi-aged/multi-layered structure, by removing some trees in all age groups and stratum either individually, in small groups, or in strips. Overstory density is regulated to avoid the suppression of understory trees and to maintain understory vigor.

B. All timber types on the Tongass National Forest may be harvested using uneven-aged silvicultural methods.
   1. Use uneven-aged management where the interdisciplinary process determines the system is appropriate to meet the goals, objectives, and requirements of the LUD, including the protection of excessively steep or unstable soils, scenery, wildlife and fish habitat, recreation, timber supply, economics, and to supply commercial and noncommercial wood products (fuelwood).
   2. Limit uneven-aged management systems to areas where yarding equipment suited to selective logging can be used.

VI. Intermediate Treatment Methods

A. These activities include those treatments that improve the composition, health, value, and growth of a timber stand.

B. Implement thinning treatments in young conifer stands to obtain timber volume that counts toward the Allowable Sale Quantity, improve wildlife habitat, improve scenic quality, and improve future growth. Promote and emphasize commercial treatments. Promote stewardship treatments as funding permits.

C. Assess areas that have received precommercial thinning, release and weeding, pruning, or commercial thinning treatments to ensure management objectives have been met. Certify that the treatment met the prescription objectives.

VII. Salvage Harvest

A. Salvage cutting is the removal of dead trees or trees being damaged or dying due to injurious agents other than competition. It is also used to recover value that would otherwise be lost.

B. Sale and utilization of dead, blown-down, and other deteriorating timber will receive high priority in LUDs where the harvest of timber is compatible with the LUD's management objectives. Salvage may include trees damaged by road construction or rock pit development.

C. For catastrophic events that occur on Forest lands within Non-development LUDs not withdrawn from harvest, consider an appropriate range of management alternatives to meet varying levels of resource protection and commodity outputs. These lands will not be substituted for suitable Forest land.
   1. Trees salvaged in a Non-development LUD will not be included as volume that counts toward the Allowable Sale Quantity.

2. LUD objectives need to be met before approving salvage harvest on these lands.

D. If beach log salvage involves both State and National Forest System lands, coordinate with the appropriate state agency.
   1. Beach log salvage material does not count toward the annual Allowable Sale Quantity.

E. Where catastrophic events cause heavy tree losses on the suitable timber base, commercial timber harvest will be given high priority to maximize utilization.

F. Refer to the Riparian Forest-wide Standards and Guidelines for salvage in riparian areas.

VIII. Utilization Standards

A. Industrial wood products on the Tongass National Forest will be managed for quality sawtimber material and other merchantable wood products.
   1. Require utilization and optimum feasible use of wood material. Promote the use of wood for its highest value product commensurate with present and anticipated supply and demand.
   2. Improvements in utilization will be made through sale preparation, appraisals, contract administration, and dissemination of research information.
   3. Consult current regional direction for precise standards.

IX. Competitive Bidding and Small Business

A. Private enterprise shall be encouraged to use National Forest timber resources.
   1. The Forest Service will plan sale offerings to encourage competitive bidding in a range of total sale volume and species that provides opportunities for purchasers.

X. Windthrow

A. Special consideration will be required in the design of harvest units adjacent to LUDs or other areas that limit or prohibit timber harvest activities. Where the chance of windthrow in adjacent stands is increased by timber harvest, measures will be taken to contain the windthrow within the LUD where timber harvest is allowed. (Also see the Riparian Standards and Guidelines.)

Commercial Sale Administration: TIM6

I. Contract Administration

A. Administer timber sale contract provisions, post-sale measurement, and financial oversight of all sales.
   1. Frequency of timber sale inspection will be determined by the complexity of the timber sale and operator performance, with the objective being to ensure full contract compliance.
   2. Sale administrators will work with the other specialist(s) to ensure that the project goals are obtained.
   3. Consult with the designated Forest Monitoring Coordinator to determine BMP measurement and reporting requirements.

Other Forest Products: TIM7

I. Personal Use Program

A. Make fuelwood available in areas accessible to the public, consistent with NEPA requirements and LUD management objectives.

B. Address requests for green personal use wood as soon as feasible.

C. Designate green personal use timber planned for harvest.

D. Any area that is off-limits for personal use timber harvest within Development LUDs should be identified by the District Ranger.

E. Areas within Non-development LUDs can be considered for personal use if compatible with the LUD objectives (see Chapter 3) and other resource standards and guidelines, and should consider accessibility and other needs of the permitee. The District Ranger will determine if LUD objectives will be met before approving personal use on these lands.

II. Commercial Non-Timber Forest Products

A. Allow harvest of non-timber forest products in ways that ensure the continued integrity of the forest stand and ecological values.

III. Administrative Use of Timber

A. Administrative use on the Tongass National Forest consists mainly of trees used for improvements of value to the National Forest or other federal land. (Consult FSM 2463.)

B. Administrative use includes, but is not limited to, those trees used in construction activities for roads, trails, and facilities, as well as wood used in restoration and enhancement projects.

C. Administrative use of timber is allowed on suitable forest lands, but does not count towards the Allowable Sale Quantity.

D. Administrative use is also allowed on areas within Non-development LUDs, consistent with NEPA requirements, if compatible with the LUD objectives (see Chapter 3) and other resource standards and guidelines. The District Ranger will determine if LUD objectives will be met before approving administrative use on these lands.

See the Plant section (Non-Timber Forest Products PLA4) for other products.

Pesticide Use and Vegetation Management: TIM8

I. Pesticide Use

A. Pesticide use is not prescribed in the Forest Plan, but may be considered on a case-by-case basis. Biological, environmental, and economic costs and benefits of pesticide use are to be identified and weighed prior to Forest Service use of pesticides on the Forest.

B. Pesticides will be employed only after such use has been evaluated in an environmental analysis and approved by the Forest Service officer with delegated authority.

C. When pesticide use is judged necessary, selection and application will be based on the following guidelines:

1. Those application methods and formulations will be used that are most effective in suppressing the pest, most specific to the target organisms, and least harmful to non-target components of the environment.
2. In operational pest management programs, only those pesticides that are registered in accordance with the federal Insecticide, Fungicide and Rodenticide Act, as amended, will be used, except as otherwise provided in regulations issued by the Environmental Protection Agency or the Department of Agriculture.
3. Application will be restricted to the minimal effective dosage that, when precisely applied to the target area at optimum times, will accomplish the resource management objectives.

Reforestation: TIM9

I. Site Preparation, Planting, Stocking

A. This activity comprises all treatments and activities aiding the re-establishment of desirable tree cover following timber harvest.

1. Examine all Forest lands treated.
   a) No first-year surveys are required if the silvicultural prescription anticipates natural regeneration.
   b) Examine artificial seeding or planting treatments 1 and 3 years after treatment.
   c) Stands will be certified as stocked, if the third-year survey indicates that the area meets stocking standards. Permanent openings are allowed, and do not need certification, where created for wildlife habitat improvement, vistas, recreation uses, and similar practices.
   d) Prescribe artificial regeneration if the third-year survey indicates that natural regeneration is highly unlikely.
   e) Schedule another survey no later than five growing seasons after harvest if the third-year survey indicates the area is very likely to be stocked, but more time is required to make this determination.
   f) Certify that every unit that receives a final harvest meets or surpasses the stocking guidelines and certification standards (consult Silvicultural Practices Handbook - FSH

2409.17) within the 5-year regeneration period established by law. A unit may be certified as adequately stocked at any time during this 5-year period. (Also see the Monitoring Plan in Chapter 6.)

g) Certify that a planted or seeded area has attained a stocking level above a defined minimum in terms of number and distribution of acceptable species, whether planted, seeded, or natural.

TRAILS
Forest-wide Standards and Guidelines

Trail Activities: TRAI1

I. Opportunities

A. Provide for a diversity of outdoor recreation trail and waterway opportunities that are appropriate for the Land Use Designation (LUD). Include such activities as hiking, mountaineering, spelunking, cross-country skiing, snowmobiling, off-highway vehicle (OHV) use, motorized trail bike riding, mountain bike riding, motorboating, canoeing, and kayaking.

B. Emphasize opportunities in all Recreation Opportunity Spectrum (ROS) classes, as applicable, for activities that are in harmony with the natural environment and consistent with the recreation role of the National Forest System lands in a given area. Wilderness and Wilderness Monument LUDs should accommodate trail features in the Primitive ROS class unless the design accommodates a mitigation of impacts to other resources such as soils, water quality, fisheries, etc.

C. Locate and operate trails to make the best use of available recreation opportunities. Establish trail objectives and associated management actions by examination of the interaction of all resource activities, opportunities inherently present, and the objectives of the LUD.

D. Coordinate trail planning, location, design, and operation with the recreation management goals and objectives of other national, state, local agencies, and private operations. Make an effort to provide loop trail opportunities through the integration of systems regardless of jurisdiction. Design trails to be consistent with the ROS class approved by the deciding officer for the Trail Management Objectives (TMOs). A signed TMO is required to approve any additions or deletions to the Forest trails inventory managed for public use.

E. Provide access to high quality recreation places with trail systems that will enhance the total experience of the user.

F. Emphasize trail systems that offer the following opportunities as may be appropriate and feasible in a given area:

1. Connected, multi-day trip opportunities for both land trails and water trails.
2. Trails linked with existing (or emerging) road systems.
3. Alpine trail systems with quick access from saltwater anchorages, cabins, local communities, and resorts.
4. OHV trail systems utilizing connections with existing road systems to form loop trips and access to recreation attractions.
5. Loop trail systems in connection with recreation cabins.
6. Access from local communities to snowline where snow trails are feasible.
7. Heli-hiking trails within a reasonable distance (based on cost) from local communities and service centers.
8. Trail use for health benefit opportunities to members of local communities.

Trail Administration: TRAI2

I. Inventory, Construction, and Maintenance

A. Maintain an inventory of existing National Forest System trails that will assist in determining the desirability of retaining trails in their current locations, their contribution in meeting overall recreation objectives, their affordability, and actions needed to bring the system up to desired standards and to maintain those standards. (Consult Forest Service Trails Management Handbook and Alaska Region Trail Construction and Maintenance Guide.)

B. Construct, reconstruct, and maintain trails and waterway facilities as part of the Forest transportation system.

1. Prioritize and schedule trail construction and maintenance to meet public needs as follows:
   a) Existing trails that are causing resource damage or to protect investments.
   b) Existing trails and waterways serving local community needs and tourist centers.
   c) Existing trails and waterways providing access to recreation cabins.

d) Existing trails and waterways in Wildernesses.
e) New trails and waterways that will serve local communities, tourist centers, and resorts.
f) New trails in Wilderness that will disperse use and are needed to help protect Wilderness resources from degradation.

2. Provide trailheads in locations to allow access to the greatest number and types of trails practicable within an area. Consider use for both snow and snow-free trail access (during different seasons) from the same trailhead when practicable. Match the capacity of the trailhead with the desired capacity of the area being served.
3. Construct and maintain trails to the standard appropriate for the type and amount of use desired in a given area. If the trail is to be used by multiple types of users, design and construct it to adequately and safely accommodate the most demanding or impacting type of use. (Consult FSH 2309.18.)
4. Design and construct bridges to support the maximum expected snow and ice load, construction or maintenance equipment, and anticipated user equipment. Bridges must be appropriate for the prescribed ROS class and meet the adopted Scenic Integrity Objective for the area.
5. Plan and provide trails for a variety of accessibility challenge levels, appropriate to the ROS setting.
6. Use volunteer, human resource, and cooperative programs to augment trail construction and maintenance budgets, as well as provide land use education opportunities for the public. Integrate these resources into the total trail management system. Encourage local organizations to "adopt a trail" to provide needed maintenance on a continuing basis. Crews must be under the supervision of a qualified trail supervisor. Help develop qualified supervisors in volunteer organizations and other cooperative programs. (Consult Forest Service Trails Management Handbook.)

C. Trails and associated waterways within LUDs and recreation places often become the principal tools for achieving management objectives. Construct and maintain trails and related facilities so that they contribute to desired conditions and appear to be an appropriate part of the Forest setting and not an intrusion upon it. (Consult Forest Service Trails Management Handbook.) Use Best Management Practices (FSH 2509.22) to reduce the effects of trail activities on the beneficial uses of water.

1. Develop and incorporate in project plans an erosion control and stabilization plan for stabilizing all human-caused soil disturbances. Develop and incorporate into project an erosion control and stabilization plan for stabilizing all human-caused soil disturbances. Use approved seed mixtures for revegetation of disturbed sites. (Consult FSH 2080.)
2. Locate trail crossings at right angles to streams and at suitable bridge locations. Design and maintain trail treads to protect riparian values and minimize soil erosion.
3. Locate stream crossings only in stable reaches. Design crossings of V-notched drainages to prevent debris jamming. Drainage structure gradients should follow natural gradient for non-fish streams, where needed, to prevent downstream erosion. Require brow logs for dirt and rock-surfaced log stringer bridges and turnpike sections to contain materials and prevent entry of sediment into the stream. For further location and design guidance, consult the Trails Handbook and Drainage Structures Handbook.
4. Permit construction of trails parallel to and crossing fish streams only where objectives for the management of fish habitat can be met. Where trails are located near fish streams, minimize the introduction of sediment during clearing, construction, and operation activities. Sidecasting and waste materials must not encroach upon the stream course, and as much undisturbed groundcover as practicable shall be left between the trail and the stream. Complete endhaul of waste material will be required where trails are located near fish streams when there is the probability of downhill movement of the material into the stream. Fill will be allowed in fish streams only when considered through the Interdisciplinary Team process to be the best alternative.

5. Meet fish passage direction at all locations where trails cross fish streams. Refer to Fish Forest-wide Standards and Guidelines. Contracts will specify permissible uses of motorized equipment and the timing of trail construction activities based on agreement with the Alaska Department of Natural Resources and as determined by environmental analysis and appropriate line officer approval.

TRANSPORTATION
Forest-wide Standards and Guidelines

Transportation System Inventory: TRAN1

I. Inventory Updating and Maintenance

A. Maintain an inventory of all Forest transportation facilities, including National Forest System roads, bridges, and major culverts (including those which require fish passage); log transfer facilities (LTFs), and airfields. (Consult Forest Service Manual [FSM] 7710.)
   1. Use the Infrastructure (INFRA) system, or subsequently developed and approved system, as the data management system for the Forest road, bridge, and major culvert inventory.
   2. Update changes on transportation maps annually. Map all roads, as an historical record, regardless of administrative classification.

Road and Bridge Administration: TRAN2

I. Road Management

A. Manage the National Forest System roads and bridges based on road management objectives using the criteria listed below:
   1. Keep the designated National Forest System roads open to public motorized use unless:
      a) Use conflicts with Land Use Designation (LUD) objectives, such as the need to protect fish or wildlife habitat, or to retain a non-motorized recreation experience.
      b) Financing is not available to maintain the road or manage the associated use of adjacent lands.
      c) Use causes unacceptable damage to roadway or adjacent soil and water resources.
      d) Use results in unsafe conditions.
      e) There is little or no public need.
   2. Manage road use by seasonal closure if any of the following conditions are anticipated:
      a) Seasonal conflicts with LUD objectives, such as the need to provide security for wildlife during critical times of the year.
      b) Traffic hazards or unacceptable damage to roadway or adjacent soil and water resources due to weather or seasonal conditions.
   3. Restrict public use by temporary closure if:
      a) Concurrent use between commercial and other traffic is unsafe.
      b) The potential for damage to equipment from vandalism is high.
   4. Allow administrative use of closed or restricted roads when needed for emergency use or uses otherwise deemed appropriate by the Forest Service officer with delegated authority.

B. Consider the opportunities to manage road use cooperatively with applicable state, tribal, and other federal agencies to meet fish and wildlife management objectives.

C. Manage roads to be consistent, to the maximum extent practicable, with the enforceable policies of the Alaska Coastal Management Program.

D. Consider future needs for roads using the roads analysis process (FS-643).

E. Avoid the introduction or spread of invasive species during road construction, reconstruction, and maintenance. (Refer to the Invasive Plant Management Handbook, FSH 2080, for specific guidance.)

II. Permitting

A. Authorize, by issuing a road use permit, appropriate commercial use of the National Forest road system not otherwise authorized by a Forest Service contract, easement, Special Use Authorization, operating plan, or other similar agreement. Include investment sharing and maintenance requirements and rules of use as terms of the permit. (Consult FSM 7730 R-10 supplement).

B. Obtain needed permits for the construction of bridges across navigable waters, and for LTFs.

III. Cost Share Management

A. Administer cost-shared roads in accordance with the terms of the agreement between the Forest Service and the cooperators.

1. Collect data about traffic volume and types of users on the National Forest road system, as needed, to determine investment sharing and commensurate maintenance responsibilities.

Transportation Improvement Planning: TRAN3

I. Planning

A. Plan transportation facilities that will efficiently integrate and achieve Forest Plan direction, including consideration of landscape-scale ecological objectives. Take advantage of resource opportunities recognized during project scoping, such as providing access to a recreation attractor or mineral deposit.

B. Direct the orderly development and management of the transportation system, and ensure the documentation of decisions affecting the system.

C. Coordinate transportation corridor development with the applicable Canadian, federal, state, and local government agencies and private landowners. Consider opportunities to enhance the overall transportation system by locating roads coincident with the Transportation and Utility System (TUS) corridors identified in this Plan. Make no road connections between communities or emerging communities without the participation and collaboration of state and local governments, communities, and affected individuals.

D. During project planning, identify resource concerns and site-specific mitigation measures. Clearly document these mitigation measures to facilitate project implementation and monitoring.

II. Access and Travel Management Planning and Road Management Objectives

A. Undertake access and travel management planning based on Forest Plan goals, objectives, and desired conditions. As part of the planning process, update road management objectives for all National Forest System roads. Road management objectives include access objectives, design criteria, environmental and resource considerations, operation and maintenance criteria, and other road attributes.

Road and Bridge Preconstruction: TRAN4

I. Road Standards

A. Perform route or site selection, location, geotechnical investigations, survey, and design to a technical level sufficient to meet the intended use and commensurate with both ecological objectives and the investment to be incurred. Ensure consistency with Forest-wide Standards and Guidelines and Best Management Practices. (Consult FSH 2509.22.)

1. Consider each of the following factors when determining standards for the intended uses:
   a) Cost of transportation (including operation and maintenance),
   b) Safety,
   c) Intended purpose and ecological objectives, and
   d) Impacts on land and resources on both local and landscape points of view.

B. Construct roads in the most cost-effective manner consistent with LUDs and intended purposes. Use the Forest Highway Program (consult FSM 7740) and joint financing with other state and federal agencies to construct roads to a higher standard, when determined appropriate to meet road management objectives.

C. Evaluate each proposed road construction or reconstruction project to determine the least cost road (considering cost of construction, maintenance, and hauling) that meets the intended purpose. Compare the road construction standard required for the immediate harvest and removal of timber with that needed to meet long-term road management objectives. When a higher standard facility is required to meet multiple-use objectives or for future management, include supplemental funding (Forest Service funds) to construct the higher standard. The purchaser of National Forest timber shall not bear that part of the cost necessary to meet the higher standard. (Consult FSM 2430.)

D. Cooperate with the Alaska Department of Transportation and Public Facilities and the Federal Highway Administration in the administration of the Forest Highway Program. Provide nominations of routes to be upgraded and encourage their transfer to state jurisdiction, in order to provide safe facilities and adequate maintenance between communities linked by the Forest Transportation System. (Consult FSM 7700.)

E. Build and manage roads primarily to meet public needs. Include considerations for a full range of access forms such as cars, trucks, bicycles, off-highway vehicles (OHVs), and foot travel. Where roads will provide potential access to private or State of Alaska lands, recognition of the route as a potential state route should influence location and alignment standards to avoid future duplication of construction. Such consideration must not, however, be considered justification for a higher cost road than is necessary for Forest Service resource management.

F. Consider conservation of petroleum energy supplies in the location, design, and operation of the transportation system.

II. Location and Design

A. Locate and design National Forest System roads in a manner that will utilize both local and landscape scale ecological objectives, as well as Best Management Practices. Seek to minimize effects on wildlife and fish habitat, riparian habitat, and wetlands. (Consult the Forest Service Road Preconstruction and Drainage Structures Handbooks, and the Region 10 Soil and Water Conservation Handbook for detailed location and design guidance.)

1. Incorporate erosion control and stabilization measures in project plans for stabilizing all human-caused soil disturbances. Ensure Best Management Practices can be implemented in construction, operation, and maintenance of the road.
2. Avoid construction on highly unstable uplifted marine sediment as identified in the Soil Resource Inventory (SRI), or use geotechnical engineering designs to maintain stability. Obtain line officer approval after on-site consideration and stability analysis.
3. Roading on slopes in excess of the soil's internal angle of friction, as identified in SRIs, requires geotechnical investigation and appropriate designs. Obtain line officer approval after site-specific investigation has been conducted to determine degree of risk and the potential effects from mass wasting. Conduct stability analysis to determine the most effective and lowest cost method of reducing the risk of roadway failure. Consider constructing full bench roads and end-hauling excess excavation. End-hauled excess excavation shall be deposited at appropriate locations that prevent the excess material from entering streams. Stabilize and revegetate end-hauled materials in accordance with prescribed erosion control measures specified in the project plan.
4. Locate stream crossings in stable reaches, unless mitigation measures are taken. Design crossings of V-notched drainages to prevent debris jamming. Design and install culverts to prevent downstream erosion. When embankment material is used for surfacing native log bridges, install side logs, wood chinking, and a geotextile fabric blanket prior to embankment placement to contain surfacing materials and prevent entry of sediment into the stream.
5. Avoid locations of roads near fish-bearing streams. Seek locations that avoid fish streams, crossing streams when other locations are not feasible and fish habitat can be protected. Where roads are located near fish streams, avoid the introduction of sediment during clearing, construction, and operation activities. Excess excavation material must not encroach upon the stream course. Leave as much undisturbed ground cover between the road and the stream as feasible. Require complete endhaul of excess excavation where there is the probability of downhill movement of that material into the stream. Place fill into fish streams only when it is considered by the environmental analysis process to be the best alternative, and following consultation with the Alaska Department of Natural Resources (ADNR) and Alaska Department of Fish and Game (ADF&G).
6. Meet fish passage direction at locations where roads cross fish streams. (Consult Forest-wide Standards and Guidelines for Fish Habitat Planning, FISH112.) Specify permissible uses of heavy machinery and the timing of road construction activities in contracts based on consultation with ADNR and as determined by interdisciplinary analysis and on approval by the appropriate line officer.

7. In areas where erosion due to heavy rains on disturbed soil is a resource protection concern, provide special project specifications that prescribe the maximum distance beyond the end of embankment placement that pioneering operations (preliminary clearing of the road right-of-way) may occur.
8. Slope drainage ditches along the roadbed to the nearest relief culvert. Discharge from road ditches should be cross drained to filter on natural forest floor, rather than flowing directly into streams.
9. Design bridge abutments to minimize disturbances to streambanks.
10. Promptly rehabilitate temporary roads in accordance with erosion control and stabilization measures prescribed in the project plan. Establish vegetation on roadbeds of temporary roads within 10 years following termination of use.
11. Design roads to conform to the Memorandum of Understanding with the U.S. Fish and Wildlife Service on eagles, or obtain variances.
12. Avoid ditching across wetlands if surface water control is not required for safety or protection of the running surface.

B. Design and construct roads to conform to the Adopted Scenic Integrity Objectives.
   1. For guidance, consult National Forest Landscape Management Handbook, Volume 2, Chapter 4: Roads.
   2. Consider the following practices during road design on, or seen from, Visual Priority Travel Routes and Use Areas (see Appendix F):
      a) Vegetating slopes seen from the road,
      b) Providing "planting pockets" or terraces on slopes, where needed,
      c) Minimizing landform modifications through road location and design, and
      d) Considering vegetative treatment of clearing edges such as feathering or free-flowing, undulating edge to break up the straight line.

C. Plan, design, and construct roads to minimize conflicts or mitigate conflicts with existing facilities such as trails, pipelines, utilities, and cabins.

III. Wetlands, Flood Plains, Estuaries, and Tidal Meadows

A. Locate and design National Forest System roads to minimize impact to soils, water, and associated resources in accordance with BMPs. Avoid development activities, to the extent feasible, in areas of important wetland value identified during project Interdisciplinary Team analysis.
   1. Do not construct roads across alluvial flood plains, mass wastage areas, or braided stream bottom lands unless an Interdisciplinary Team investigation indicates that individual site-specific mitigation can be applied to provide protection for the soils, water, and associated resources.
   2. For roads or other facilities approved for location near estuaries, fills and excess excavation materials must not encroach upon such areas unless approved by the appropriate decision maker following interdisciplinary analysis.
   3. Use the following criteria for siting water-dependent transportation facilities, other than LTFs, such as docks, landings, floats, and boat ramps:
      a) Locate far enough from known anadromous fish streams to avoid significant interference (generally a minimum of 300 feet away);
      b) Locate far enough from tideflats or subtidal beds of aquatic vegetation to avoid significant impairment (generally a minimum of 300 feet away);
      c) Restrict the filling of intertidal and subtidal areas to those sites having the least value as habitat for marine organisms and vegetation, unless Interdisciplinary Team and interagency (U.S. Fish and Wildlife Service [USFWS], National Marine Fisheries Service [NMFS], and ADF&G) joint analysis determines that for other resource reasons it is desirable to fill the more productive site;
      d) Avoid areas with established uses, such as areas used for commercial and sport fishing, hunting, and anchorages for commercial and recreational vessels, unless interdisciplinary review determines that location of sites may be accomplished in a manner that is compatible with such uses; and

e) Ensure that all needed permits, leases, and accesses are acquired. Work cooperatively with other agencies such as NMFS, USFWS, U.S. Army Corps of Engineers, ADF&G, Alaska Department of Environmental Conservation, and ADNR on these efforts.

IV. Quarry and Borrow Sites

A. Locate and design quarry (shot rock pit) and borrow (gravel pit) sites, and time their use to minimize the impacts upon other resource values, existing facilities, and to meet LUD objectives. During the design phase, consider the potential for use of the pit to improve fish habitat and dispersed recreation opportunities.

1. Plan rock quarries and borrow pits through the Interdisciplinary Team process. On potentially landslide-prone areas, blasting will be avoided during or within 72 hours following a 2-year, 24-hour storm (total amount of expected rainfall from a storm event that would statistically occur once every 2 years, or until determined that the soil groundwater level does not constitute a high-risk situation. Where other sources are available, do not locate borrow pits on landslide-prone areas. Where no other feasible alternative exists, strip quarries of their overburden and haul excavated material to a stable location. Stabilization of the overburden material will conform to the erosion control and stabilization measures developed during the planning of the quarry or borrow pit.
2. Design quarry and borrow pits to minimize the possibility of sediment being carried into watercourses by run off. Whenever locations near streamcourses or other water bodies are considered, erosion control measures must provide for drainage to run off through a filter strip, buffer, or sediment basin prior to entering a water body, unless the quarry or borrow pit is to be used for fish habitat management.
3. Limit blasting that adversely effects fish spawning beds to times when eggs and alevins are not vulnerable. Safe times and distances will be determined on a site-by-site basis after consultation with agencies such as ADF&G, NMFS, and USFWS.
4. Do not allow the use of intertidal gravel as a source of borrow.
5. Drain borrow pits and quarries no longer needed, unless developed for fish or waterfowl habitat, and revegetate mineral soil.
6. Consider screening borrow pits, quarries, and access roads along priority travel routes (refer to Appendix F).

V. Log Transfer Facilities Siting, Construction, Operation, and Monitoring

A. Site LTFs in locations that will best avoid or minimize potential impacts on water quality, aquatic habitat, and other resources. During site analysis, cooperate with state and federal agencies to assemble required data and evaluate alternatives.

B. When considering alternative siting, construction, and operation of LTFs, use both regulatory guidelines established by the Clean Water Act (40 CFR Part 230), and the Alaska Timber Task Force Log Transfer Facility Guidelines (See Appendix G). All LTFs are evaluated by regulatory agencies using these two sets of guidelines (items 1 and 2 below).

1. The Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines (1985), developed by the Alaska Timber Task Force (ATTF) Log Transfer Facility Guidelines Technical Subcommittee, are used by the regulatory agencies in evaluating applications for meeting requirements of the Clean Water Act. These guidelines are to be used when evaluating proposals for log transfer and associated facilities. The introduction to the guidelines say "the objective is to consider all the guidelines and develop the "best mix" which allows the activities to proceed while meeting all applicable statutory and regulatory requirements." The ATTF Guidelines may be found in Appendix G of this document.
2. Alternatives for siting, construction, and operation must also be evaluated using the 404(b)(1) process of the Clean Water Act and the requirements of 40 CFR 230.12(a)(3) to determine one of the following:
   a) There is a feasible alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences;

b) The proposed discharge will result in significant degradation of the aquatic ecosystem;
c) The proposed discharge does not include all appropriate and feasible measures to minimize potential harm to the aquatic ecosystem;
d) There does not exist sufficient information to make a reasoned judgment as to whether the proposed discharge will comply with these guidelines; or
e) The "proposed discharge" refers to the discharge of logs, bark, any other dredged or fill material, and storm water into the aquatic systems.

C. Use the additional following guidelines, consistent with the 404(b)(1) process, and the Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines (1985) as described in Part A above, when evaluating alternatives for log transfer. The guidelines described in Part A take precedence over these guidelines.
1. Minimize the number of LTFs and storage areas by selecting locations that will accommodate future logging without requiring additional transfer or storage sites.
2. Give preference to locating LTFs along straits or channels when feasible. When located in bays, large bays are preferred to small bays, and deep bays are preferred to shallow bays. Sites near the mouths of bays are preferred to sites near the heads of bays. Give preference to sites where marine vegetation is sparse or absent over sites with vegetation.
3. Avoid, where practicable, siting log transfer, rafting, and storage facilities in areas with established commercial, subsistence, and sport fishing activity, high levels of recreation use, areas of high scenic quality, or documented concentrations of species commonly pursued by commercial, subsistence, and sport fishers.
4. When an existing LTF in a less than optimal location is considered for reconstruction, perform environmental analysis to determine whether adverse impacts of relocating the facility exceed those resulting from continued use at the existing site.
5. Site locations that have foundation materials, determined by appropriate subsurface investigation, that can economically and effectively support the structure through the duration of its design life.
6. Consider the visual impact of a proposed structure in the selection of alternative designs. In areas of high visual sensitivity, emphasize designs that would be less likely to dominate the landscape (such as a low-angled slide rather than a bulkhead design).

Road and Bridge Construction/Reconstruction: TRAN5

I. Construction

A. Construct National Forest System roads and bridges that provide the stability and durability appropriate for their intended use as documented in the road management objectives.

II. Reconstruction

A. Reconstruct roads and bridges in accordance with the following limitations:
1. Correction of unsafe conditions that cannot be corrected by traffic restriction
2. Repair of situations where use will cause environmental impacts inconsistent with Forest Plan direction
3. Upgrading of a facility that was not originally constructed to accommodate current or anticipated use
4. Repair of surfacing, bridges, and LTFs, where analysis clearly shows an economic advantage to protect the investment
5. Removal of vegetation, repair of surfacing, repair or replacement of culverts and bridges where necessary to bring roads up to timber haul standards.

B. Reconstruct roads and bridges using BMPs. Consult ADNR on reconstruction activities affecting fish-bearing streams.

Road Maintenance: TRAN6

I. Maintenance Levels, Conditions, and Inspections

A. Operate and maintain National Forest System roads in a manner which meets the road management objectives. Use road closures, maintenance, reconditioning, and other measures to keep road surface and road site erosion at low or near background levels. Maintain roads to

meet BMPs regardless of the methods used to obtain the maintenance work. Manage roads to provide cost-effective support to LUD objectives and safe travel to users of the system, while protecting the environment, adjacent resources, and the public investment. (Consult the Transportation System Maintenance Handbook.)

1. Consider protection needs of adjacent resources when planning and conducting road maintenance activities. Where consistent with road management objectives, consider incorporating design features that will protect water quality by minimizing long-term maintenance needs (e.g., driveable dips adjacent to culverts, oversized culverts, outsloping roads).
    a) Maintain road running surfaces and bridge decks to minimize the amount of road surface sediment entering adjacent streams and lakes.
    b) Maintain ditches and culverts to keep water effectively flowing, and minimize sediment entering streamcourses.
    c) Provide for the disposal of materials collected during road maintenance (soil, rock, and debris) in a manner that minimizes sediment entering streams and lakes and meets LUD objectives (particularly those regarding Scenic Integrity).
    d) During snow plowing operations, do not use bodies of fresh water as disposal sites for snow (and accompanying road surface sediments).
2. Perform Condition Surveys in accordance with INFRA guidelines. The intensity of survey will be commensurate with the risks and potential effects of structure failure. Itemize deficiencies needing correction and present recommendations for corrective action.
3. Inspect bridges at frequency and standards specified in FSM 7730.
4. Implement requirements of the Forest Service Highway Safety Program (consult FSM 7730), which include recording the location of all known accidents and identifying locations, design, and operating features that are potential high hazards. Prioritize hazards for correction based on traffic volume, traffic mix, and degree of hazard. Program the elimination of identified hazards on a systematic basis, and as funding permits.
5. Use of traffic control devices will be in accordance with the guidelines contained in the Manual on Uniform Traffic Control Devices (U.S. Department of Transportation, Federal Highway Administration, Publication Number FHWA - SA-89-006; HTO-21/2-89 (15M)P.)
6. Place roads identified through environmental analysis as needed on an intermittent basis into storage (Maintenance Level I) to be in a self-maintaining status (Maintenance Level I), as funding permits.

Road Decommissioning: TRAN7

I. Planning

A. Decommission roads identified through environmental analysis in a condition that maintains stream connectivity and minimize impacts to the watershed.

B. Use an interdisciplinary process to develop project objectives.

II. Design

A. Use an interdisciplinary process to identify standards and or typicals to be used for units of work and problem locations along the road (FSH 2509.22; BMPs 14.9, 14.12,14.14,14.24).
    1. Consider headcut potential on removed culverts in live streams and ditches, especially in AF, MM, FP, PA channels and in channels and ditch lines with high erodable soils.
    2. Consider the effect of sediment pulses from sediment accumulated above undersized culverts and long-term accumulations in the ditches.
    3. Reconstruct channel connectivity and planform in fish bearing streams after culvert removal
    4. Establish grade control structures in steep gradient streams and as necessary to prevent headcuts
    5. Maintain water quality with sufficient drainage structures (waterbars), headcut control, minimizing disturbances in well vegetated ditches, and revegetative measures (bioengineering, seeding, and planting)
    6. Design channel form for steep streams.

III. Review

A. Decommission projects will be field reviewed before contract implementation by Ranger District and Supervisor office specialists.

WETLANDS
Forest-wide Standards and Guidelines

Wetlands: WET

I. Objectives

A. Avoid alteration of, or new construction on, wetlands wherever there is a practicable, environmentally preferred alternative, considering the functions of wetlands as well as other non-wetland ecosystems in the project area. Practicable alternatives take into consideration costs, existing technology, and logistics in light of overall project purposes. (Consult 40 CFR 230.3[q].)

B. Minimize the loss of higher value wetlands (especially fens) and the adverse impacts of land management activities on wetlands. (Consult Executive Order 11990 and BMP 12.5 for guidance on wetland protection.)

C. Seek to maintain the natural and beneficial functions of wetlands.

II. Inventory and Evaluation

A. Use the most current technical criteria for wetland identification and delineation. Consult the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1987 (or its revision), as appropriate. Refer to the Interim Regional Supplement to the U.S. Army Corps of Engineer's Wetland Delineation Manual for the Alaska Regional, 2006.

III. Land Use Activities

A. The discharge of dredged or fill material onto wetlands is regulated under Section 404 of the Clean Water Act, which is administered by the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA). Certain categories of activities are exempt from regulation, while others may be permitted (refer to 33 CFR 323.4 Part 330 Appendix A 325). Consult with USACE early in the planning process to determine whether a 404 permit is required. For non-exempt activities, permit requirements may include compensation or replacement of any lost aquatic function.

B. Consistent with the Clean Water Act, as amended, use Best Management Practices (BMPs) in all management activities that could affect water quality of wetlands. BMPs are intended to ensure that flow and circulation patterns, as well as chemical and biological characteristics of water are not impaired. (FSH 2509.22, BMP 12.5)

C. Before issuing authorizations, leases, easements, rights-of-way, or exchanging lands containing wetlands, identify uses that are restricted under identified federal, state, or local wetlands regulations. Incorporate appropriate restrictions, where necessary, to protect or minimize wetland impacts, or withhold such properties from exchange.

D. Cooperate with state and federal agencies having overlapping resource management responsibilities for wetlands, including the Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, USACE, EPA, National Marine Fisheries Service, and the U.S. Fish and Wildlife Service.

E. Mitigate to minimize impacts caused by activities when BMPs do not perform as expected.

F. When decommissioning roads through wetlands, restore natural drainage patterns.

G. Timber harvest may occur on forested wetlands that meet suitable criteria and are in development LUDs.

WILDLIFE
Forest-wide Standards and Guidelines

Wildlife Habitat Planning: WILD1

I. Coordination/Cooperation with Other Agencies, Institutions, and Partners

A. Coordinate with the Alaska Department of Fish and Game (ADF&G), other state agencies, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), tribal governments, and other cooperators and partners during the planning of activities that may affect wildlife.
   1. The Forest should meet at least annually with state and federal wildlife agencies to review resource activities, present progress reports on implementation of past cooperative work or agreements, and schedule cooperative work.
   2. Seek to maintain Memoranda of Understanding with appropriate state, federal, and local agencies and associations.

B. Emphasize management for indigenous wildlife species and natural habitat, except in cases where the Forest Service, in cooperation with the ADF&G and USFWS, find desirable alternatives. Special consideration should be given to the possible adverse effects on habitat of sensitive, threatened, and endangered species.

C. Coordinate wildlife habitat surveys, studies, plans, and improvement projects with the ADF&G, USFWS, NMFS, and other appropriate state, federal, tribal, local, and private agencies. Use the Sikes Act authorities for cooperative work with the state. Use agreements and other partnerships to cooperate with other partners.

D. Coordinate with the ADF&G in development of state strategic plans and population goals and objectives for wildlife species, and attempt to incorporate wildlife goals and objectives into forest management.

E. Provide habitat information to the ADF&G to assist in correlating hunting seasons, permits, and bag limits to on-the-ground habitat conditions so that population and habitat objectives can be achieved.

II. General Habitat Planning/Coordination

A. Recognize as wildlife habitat, areas of land and water that can contribute to achieving wildlife objectives for consumptive and non-consumptive uses.

B. Provide the abundance and distribution of habitat necessary to maintain viable populations of existing native and desirable introduced species well-distributed in the planning area (i.e., the Tongass National Forest). (Consult 36 CFR 219.19 and 36 CFR 219.27.)

C. Cooperate with the state and, as appropriate, the USFWS in managing vehicle, boat, and other human use (e.g., hunting and fishing seasons and bag limits), as necessary, to achieve wildlife objectives, recognizing the access provisions of the Alaska National Interest Lands Conservation Act of 1890 (ANILCA). Emphasize management to reduce human disturbance in high value habitat areas and during critical periods of wildlife use.

D. Maintain a Forest program schedule that includes anticipated wildlife habitat and population inventory needs, monitoring requirements, and proposed habitat improvement and maintenance projects.

E. Use Forest Plan Management Indicator Species to evaluate the potential effects of proposed management activities affecting wildlife habitat. (Consult Forest Service Manual [FSM] 2620.)

F. Develop interagency habitat capability models for any or all of the management indicators to systematically assess the impacts of proposed projects during project level analysis. Periodically review and update models to reflect the most current habitat relationships and habitat modeling technology.

G. Cooperate with ADF&G to seek to prevent existing populations of invasive species from dispersing into Wilderness areas. Address issues regarding management, introduction, and re-introduction of wildlife species consistent with national and regional policy.

H. When population or habitat declines for a plant or animal species or subspecies indicates that long-term persistence is at risk, evaluate the particular species for designation as a

Regional Sensitive Species by the Regional Forester. (Consult FSM 2670 and R10 supplemental directions for Threatened, Endangered, and Sensitive Species.)

III. Habitat Improvement Planning

A. Identify habitat improvement projects to meet wildlife habitat and population objectives.
   1. Consider the following factors to assess habitat improvement project opportunities and priorities:
      a) To meet state wildlife population objectives
      b) To meet subsistence use needs
      c) Existing habitat in poor condition compared to its potential
      d) Habitat with a history of receiving high levels of use
      e) Treatments with a favorable benefit/cost ratio.
   2. Use silvicultural practices, where applicable, to accomplish wildlife habitat objectives.

IV. Legacy Forest Structure

A. Objectives

The intent of the Legacy Standard and Guideline is to ensure that sufficient residual trees, snags, and clumps of trees remain in timber harvest units within value comparison units (VCUs) that have had concentrated past timber harvest activity and are at risk for not providing the full range of matrix functions (as shown in Section D), in order to meet the intent of the conservation strategy while providing flexibility to address on-the-ground implementation issues.

B. Legacy Standard

In harvest units greater than 20 acres within VCUs identified in Section D, leave 30 percent of the entire unit (based on area) in legacy forest structure. For the purpose of this standard, the unit is defined as the original Logging System/Transportation Analysis (LSTA) boundary prior to field verification. Legacy forest structure should remain indefinitely after harvest and shall be tracked through the life of the next stand. Salvage logging of legacy trees is generally prohibited unless the rationale is clearly documented and the effects are clearly neutral or an improvement.

C. Distribution and Composition of Legacy Forest Structure

Legacy forest structure should be arranged primarily in clumps. The intent of leaving legacy forest structure is to provide structure within the opening; therefore, clumps should be left well inside the unit, compatible with logging system capabilities. Clumps may be placed along the external yarding boundaries within harvest units in situations where cable logging systems make leaving residual trees in other parts of the unit impractical due to operational or safety considerations. Structure left within units for other resources counts towards the 30 percent, provided it meets the old growth stand characteristics below. Mapped TTRA stream buffers do not count toward the 30 percent. Legacy forest structure shall be representative of the existing old-growth stand characteristics, including age, size class, species composition, and structural components. Clumps and dispersed retention trees should include some of the largest, oldest live trees, decadent or leaning trees, and hard snags occurring in the unit.

D. VCUs where the Legacy Standard Applies

This standard is to be applied in VCUs where 33 percent or more of the productive old growth has been harvested from 1954 to 2005, or VCUs where less than 33 percent has been harvested but more than 67 percent of the productive old growth is projected to be harvested by the end of the Forest Plan planning horizon (see glossary). There are 49 VCUs in this category; they are listed below by Ranger District:

Craig Ranger District	6100, 6200, 6210, 6240
Hoonah Ranger District	None
Juneau Ranger District	None
Ketchikan/Misty Ranger District	7360, 7380, 7560
Petersburg Ranger District	None

Thorne Bay Ranger District	5320, 5350, 5371, 5380, 5390, 5440, 5450, 5460, 5500, 5542, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5700, 5710, 5720, 5790, 5810, 5830, 5840, 5850, 5860, 5871, 5872, 5880, 5900, 5972
Wrangell Ranger District	4550, 4570
Sitka Ranger District	2930, 2990, 3070, 3120, 3130
Yakutat Ranger District	3620, 3640, 3670

Legacy Standards and Guidelines do not apply in other VCUs because they contain enough old-growth forest to provide habitat for old growth associated species. See Appendix D in the FEIS.

V. Reserve Tree/Cavity-Nesting Habitat

A. Provide habitat for cavity-nesting wildlife species. The legacy forest structure standard and guideline considers snags and replacement snag needs for those VCUs at risk for not providing sufficient snags within the watershed. Other VCUs will have snags retained within the development LUDs because habitat will be maintained in riparian buffers, the beach fringe, old-growth habitat reserves, and other Non-development LUDs within the VCU.

1. Retain reserve trees in all LUDs.
   a) Retain reserve trees (which may be soft or hard snags) with a reasonable assurance of windfirmness, while meeting management objectives and considering safety needs for people and equipment. Use the Reserve Tree Selection Guidelines (R10-MB-215) for guidance.
   b) Reserve trees do not need to be evenly distributed; clumped distributions are preferred.
   c) Favor saving reserve trees away from roads to reduce loss from firewood gathering activity.
   d) After timber harvest in an area, remaining reserve trees may be designated as wildlife trees and marked to make them illegal for cutting.
   e) Retain live trees for future reserve tree recruitment.

VI. Landscape Connectivity

A. Design projects to maintain landscape connectivity.

1. The objective is to maintain corridors of old-growth forest among large and medium Old-growth Habitat reserves (Appendix K) and other Non-development LUDs at the landscape scale.
2. During the environmental analysis for projects proposing to harvest timber, construct roads, or otherwise significantly alter vegetative cover, conduct an analysis at the landscape scale to identify blocks of contiguous old-growth forest habitat within large and medium reserves and other Non-development LUDs to determine whether forest connectivity exists among old-growth blocks in large and medium reserves and natural setting LUDs. Consider existing features of the old-growth strategy such as the beach fringe, small old-growth reserves, riparian buffers, or other lands unsuitable for development as contributing to maintaining connectivity among large and medium Old-growth Habitat reserves and Non-development LUDs. Use the following parameters to determine if a reserve in connected: a) only one connection is needed; b) the beach fringe serves as a connector; and c) the connection does not have to be the shortest distance between reserves. Where these features do not provide sufficient productive old-growth forest connectivity to meet the objective in 1 above, provide stands, where they exist, of productive old-growth forest or other forest that provides adequate wildlife habitat values (i.e., older young growth that provides adequate snow intercept for deer). Designed corridors should be of sufficient width to minimize edge effect and provide interior forest conditions. Consider elevation, natural movement corridors, length of corridor, tree heights, adjacent landscapes, and windthrow susceptibility in corridor design.

B. Forest-wide, within the beach fringe, riparian buffers, and other lands unsuitable for timber production, consider designing young-growth treatments to accelerate old-growth characteristics in order to increase connectivity for wildlife.

VII. Sitka Black-tailed Deer

A. Consider Sitka black-tailed deer habitat needs before or as part of project analysis.
B. Ensure interdisciplinary involvement and consideration of deer habitat in project planning and in the environmental analysis process.

VIII. Bald Eagle Habitat

A. The Bald Eagle Protection Act provides for special management for the bald eagle. Manage bald eagle habitat in accordance with the Interagency Agreement established with USFWS to maintain habitat to support the long-term nesting, perching, and winter roosting habitat capability for bald eagles. Coordinate with USFWS for bald eagle habitat management.

IX. Bear Habitat Management

A. Continue to implement strategies, in cooperation with the Alaska Department of Environmental Conservation, ADF&G, cities, and boroughs, that prevent habituation of bears to human foods/garbage and reduce chances of human/bear incidents. Strategies that can be used to reduce human/bear incidents include the following:
    1. Phasing out and rehabilitating any remaining open garbage sites on National Forest land. Establish timetables for phase out and rehabilitation in cooperation with appropriate state agencies. (Consult Lands Forest-wide Standards and Guidelines on sanitary landfills.)
    2. Requiring incinerators and/or other bearproof garbage disposal methods at work camps, recreation sites, administrative and research facilities, and Special Use Authorizations in bear habitats.
    3. Where feasible, locating seasonal and permanent work camps, recreation facilities, mineral exploration and operational facilities, LTFs, where allowed by the LUD, more than 1 mile from sites of important seasonal bear concentrations to reduce chances of human/bear confrontations.
    4. On Forest Service-approved projects and Special Use Authorizations in brown bear habitat, minimizing adverse impacts to the habitat and seeking to reduce human/bear conflicts. Specific plans could include seasonal restrictions on activities and other measures determined on a case-by-case basis.
    5. Maintaining an aggressive public education program on bear behavior to reduce the number of human/bear incidents.
    6. Requiring storage of human food in ways to make it unavailable to bears to reduce habituation of bears and reduce human/bear incidents.
B. During project planning, evaluate the need for additional protection of important brown bear foraging sites (e.g., waterfalls used as fishing sites) in addition to the buffers already provided by the Riparian and Beach and Estuary Fringe Forest-wide Standards and Guidelines, and the Old-growth Habitat and other Non-development LUDs. Consult with the ADF&G in identifying and managing important brown bear foraging sites. Establish forested buffers, where available, of approximately 500 feet from the stream at sites where, based upon the evaluation, additional protective measures are needed to provide cover among brown bears while feeding, or between brown bears and humans. This may be especially important on Class I anadromous fish streams within the Moderate Gradient/Mixed Control and Flood Plain Process Groups (see Appendix D) where a large amount of bear feeding activity on salmon occurs. Consider the combination of bear foraging behavior, stream channel types, and adjacent landform to help identify probable important feeding sites.
C. Manage human/bear interactions to limit brown bear mortality from both illegal kills and defense of life and property. Work with the ADF&G to develop and implement a brown bear management program that considers both access management and season and bag limits to manage brown bear mortality rates within sustainable levels.

D. Manage road use where concentrations of brown bear occur to minimize human/bear interactions and to help ensure the long-term productivity of brown bears. To meet this direction, develop and implement road management objectives through an interdisciplinary process. (Consult Transportation Forest-wide Standards and Guidelines.)

E. Cooperate with the state to develop sites for safe public brown bear viewing opportunities.

X. Marine Mammal Habitats

A. Provide for the protection and maintenance of harbor seal, Steller sea lion, and sea otter habitats.

1. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act (MMPA), Endangered Species Act, and NMFS guidelines for approaching seals and sea lions. Consult with the appropriate agency for identification of critical timing events, such as molting, parturition, etc., and recommended distances to avoid disturbances. "Taking" of marine mammals is prohibited; "taking" includes harassment (adverse disturbance), pursuit, or attempting any such activity.
2. Locate Forest Service authorized and approved facilities and concentrated human activities as far from known marine mammal haul outs, rookeries, and known concentration areas as feasible to meet the Alaska Coastal Management Program (ACMP) consistency requirements and MMPA. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
   a) Locate camps, LTFs, campgrounds, and other developments (where allowed by the LUD) 1 mile from known haul outs (farther if the development is large).
   b) Forest Service permitted or approved activities will not intentionally approach within 100 yards, or otherwise intentionally disturb or displace any hauled-out marine mammal.
   c) Dispose of waste oil and fuels off site as regulated by the Alaska Department of Environmental Conservation.
3. Cooperate with the state and other federal agencies to develop sites and opportunities for the safe viewing and observation of marine mammals by the public. Maintain a public education program explaining forest management activities related to marine mammals in cooperation with state and other federal agencies.

XI Seabird Rookeries

A. Provide for the protection and maintenance of seabird (marine bird) rookeries.

1. Locate facilities and concentrated human activities requiring Forest Service approval as far from known seabird colonies as feasible consistent with the Migratory Bird Treaty Act. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:
   a) For aircraft flights on Forest Service permitted or approved activities, when weather ceilings permit, maintain a constant flight direction and airspeed and a minimum flight elevation of 1,500 feet (458 meters) for helicopters and fixed-winged aircraft. If at all possible, avoid flying over seabird colonies.
   b) Regulate human use to maintain a 250 meter no-disturbance distance from seabird colonies on upland habitats.
2. The availability of garbage to gulls should be eliminated by requiring Special Use Permittees to collect and dispose of garbage from their Special Use Authorizations.
3. Cooperate with state and other federal agencies to develop sites and opportunities for the safe public viewing of these species. Maintain a public education program explaining forest management activities related to these species in cooperation with state and other federal agencies.

XII. Waterfowl and Shorebird Habitats

A. Maintain or enhance wetland habitats that receive significant use by waterfowl and shorebirds. (The Tongass National Forest is a “Priority Forest” in the national Taking Wing Strategic Plan.) “Significant” is relative, but generally relates to use of a specific area by tens or hundreds of individuals of one or more species.

1. Support the international significance of wetland habitats on the Tongass National Forest by participating in partnerships such as the North American Waterfowl Management Plan and the Western Hemisphere Shorebird Reserve Network.
2. Identify during project analysis, in cooperation with the ADF&G and the USFWS, wetlands that receive significant waterfowl or shorebird use during fall/winter/spring concentrations or nesting, brood rearing, or molting habitats.
3. Locate facilities and concentrated human activities requiring Forest Service approval as far from known waterfowl or shorebird concentration and nesting areas as feasible. Minimize disturbance of waterfowl by restricting, when feasible, development activities to periods when waterfowl are absent from the area.
4. During project analysis, consider the need to rehabilitate waterfowl habitat following development activities if there is no feasible alternative to the habitat disturbance. (Consult the Wetlands Forest-wide Standards and Guidelines.)
5. Maintain habitat capability in coastal wetlands and intertidal areas that are important migratory staging areas and fall/winter/spring concentration areas, and wetlands that are important nesting and brood-rearing habitats, by avoiding, where feasible, all development activities that could fill wetlands, drain wetlands, or alter water levels resulting in loss of desirable vegetation, or direct loss of habitat. (Consult the Migratory Bird Treaty Act.)
6. Minimize human disturbance of habitats during important periods of the year (nesting and brood-rearing, molting, and winter) by managing human use (such as trails and off-highway vehicle use) in significant wetland areas. To reduce human disturbance, provide a minimum distance of 330 feet (100 meters) between human activities on the ground and significant areas being used by other waterfowl.
7. Develop waterfowl habitat improvement projects in cooperation with appropriate state, federal, and local agencies, partner organizations, and individuals.
8. For Special Use Administration (non-recreational), issue only authorizations that meet the objectives of Executive Order 11990 (Protection of Wetlands). Issue permits that serve to preserve, enhance, or aid in the management of the natural and beneficial values of wetlands.
9. Perform integrated logging system and transportation analysis to determine if other feasible routes avoiding areas where significant waterfowl use exists.
10. If the need to restrict road access is identified during project interdisciplinary review, roads will be closed either seasonally or year-long to minimize adverse effects on waterfowl.
11. Cooperate with state and other federal agencies to develop sites for safe-public viewing opportunities that do not adversely disturb wildlife. Maintain a public education program explaining forest management activities related to these species in cooperation with state and other federal agencies.

B. Conduct activities to avoid or minimize disturbance to habitats within the forest, riparian, and estuarine areas that are important nesting, brooding, rearing, and molting areas for Vancouver Canada geese, sandhill cranes, or trumpeter swans.

XIII. Heron and Raptor Nest Protection

A. Provide for the protection of raptor (hawk and owl) nesting habitat and great blue heron rookeries.
   1. Conduct project-level inventories to identify heron rookeries and raptor nesting habitat using the most recent inventory protocols.
   2. Protect active rookeries and raptor nesting habitat. Active nests will be protected with a forested 600-foot windfirm buffer, where available. Road construction through the buffer is discouraged. Prevent disturbance during the active nesting season (generally March 1 to July 31).
   3. Protection measures for the site may be removed if the nest is inactive after 2 consecutive years of monitoring.
   4. Bald eagle nest protection standards are outlined in Section V.

5. Northern goshawk and osprey nest protection standards are included under Threatened, Endangered, and Sensitive species Forest-wide Standards and Guidelines for wildlife (WILD4).

XIV. Alexander Archipelago Wolf

A. Implement a Forest-wide program, in cooperation with ADF&G and USFWS, to assist in maintaining long-term sustainable wolf populations.

1. Where wolf mortality concerns have been identified, develop and implement a Wolf Habitat Management Program in conjunction with ADF&G. To assist in managing legal and illegal wolf mortality rates to within sustainable levels, integrate the Wolf Habitat Management Program (including road access management) with season and harvest limit proposals submitted to federal and state boards.
   a) Participate in interagency monitoring of wolf populations on the Forest.
   b) Where wolf population data suggest that mortality exceeds sustainable levels, work with ADF&G and USFWS to identify probable sources of mortality. Examine the relationship among wolf mortality, human access, and hunter/trapper harvest. Conduct analyses for smaller islands (e.g., Mitkof Island), portions of larger islands, or among multiple wildlife analysis areas (WAAs).
   c) Where road access and associated human-caused mortality has been determined, through an interagency analysis, to be a significant contributing factor to locally unsustainable wolf mortality, incorporate this information into Travel Management planning and hunting/trapping regulatory planning. The objective is to reduce mortality risk and a range of options to reduce this risk should be considered. In these landscapes, both open and total road density should be considered. Total road densities of 0.7 to 1.0 mile per square mile or less may be necessary. Options shall likely include a combination of Travel Management regulations, establishing road closures, and promulgating hunting and trapping regulations to ensure locally viable wolf populations. Local knowledge of habitat conditions, spatial locations of roads, and other factors need to be considered by the interagency analysis rather then solely relying upon road densities. Road management objectives would be developed and implemented through an interdisciplinary Access and Travel Management or comparable process. (See Transportation Forest-wide Standards and Guidelines.) Suggested wolf hunting and trapping changes would be developed and forwarded to the Federal Subsistence Board and the Alaska Board of Game.
2. Provide, where possible, sufficient deer habitat capability to first maintain sustainable wolf populations, and then to consider meeting estimated human deer harvest demands. This is generally considered to equate to the habitat capability to support 18 deer per square mile (using habitat capability model outputs) in biogeographic provinces where deer are the primary prey of wolves. Use the most recent version of the interagency deer habitat capability model and field validation of local deer habitat conditions to assess deer habitat, unless alternate analysis tools are developed. Local knowledge of habitat conditions, spatial location of habitat, and other factors need to be considered by the biologist rather than solely relying upon model outputs.
3. Design management activities to avoid abandonment of wolf dens.
   a) Maintain a 1,200-foot forested buffer, where available, around known active wolf dens. Road construction within the buffer is discouraged and alternative routes should be identified where feasible. No road construction is permitted within 600 feet of a den unless site-specific analysis indicates that local landform or other factors will alleviate potential adverse disturbance.
   b) If a den is monitored for 2 consecutive years and found to be inactive, buffers described in a), above, are no longer required. However, in the spring, prior to implementing on-the-ground management activities (timber harvest or road construction), check each known inactive den site to see if it has become active.

XV. Mountain Goat

A. Provide for the long-term productivity of mountain goat habitat and viability of mountain goat populations, both native and introduced.
   1. Locate facilities and concentrated human activities as far from important wintering and kidding habitat as feasible.
      a) Where feasible, locate facilities, camps, LTFs, campgrounds, and other developments 1 mile or more from important wintering and kidding habitat.
      b) If the 1 mile or more distance cannot be achieved, mitigate possible adverse impacts by seasonally restricting or regulating human use and other site-specific mitigation measures.
   2. Forest Service and State of Alaska permitted or approved aircraft flights (fixed wing and helicopter), including helicopter yarding of timber, should maintain a 1,500-foot vertical or horizontal clearance from traditional summer and kidding habitat and animals whenever feasible. Where feasible, flight paths should avoid known mountain goat kidding areas from May 15 through June 15. Pilots will not compromise safety.
   3. Where feasible, maintain mountain goat important winter habitat capability. During project planning, use the most recent version of the interagency mountain goat habitat capability model, which shows the most important habitat to generally be productive old-growth forest within 1,300 feet of escape terrain (greater than 50 percent slope or cliff). Travel corridors used by mountain goats between important seasonal sites should be identified and maintained, especially when they occur in forested areas.

XVI. Marbled Murrelet

A. Cooperate and coordinate with state and other federal agencies to better understand the life history requirements and distribution of the marbled murrelet. Nesting habitat relationships are poorly understood.

B. If nests are found during project implementation, maintain a 600-foot, generally circular, radius of undisturbed forest habitat surrounding identified murrelet nests, where available. Minimize disturbance activities within this buffer during the nesting season (May 1 to August 15). Maintain the buffer zone and monitor the site for nesting activity for not less than two nesting seasons after nest discovery. Maintain the buffer if the nest site is active during the monitoring period. Buffer protection may be removed if the site remains inactive for two consecutive nesting seasons.

XVII. Moose Habitat

A. Develop habitat management direction for moose habitats. Coordinate planning with ADF&G.
   1. During project planning, inventory vegetative conditions in moose habitat areas to help identify short- and long-term changes in habitat conditions, and to assess the effects of various management activities.
   2. Plan habitat improvement projects utilizing a variety of techniques such as silvicultural treatments, young-growth management activities, prescribed burning, planting, and other vegetative manipulation techniques as appropriate.
   3. Coordinate other resource management activities to maintain or improve habitat conditions for moose. Where roads and human access are adversely affecting moose populations, incorporate this information into Travel Management planning objectives.

XVIII. American Marten

A. Implement a Forest-wide program, in cooperation with ADF&G, to provide and conserve habitat to assist in maintaining long-term sustainable marten populations.
   1. Where marten mortality concerns have been identified, cooperate with ADF&G to assist in managing marten mortality rates to within sustainable levels. Both access management on National Forest lands and hunter/trapper harvest regulations administered by the ADF&G shall be considered.
      a) Participate in interagency monitoring of marten populations on the Forest. (See also Legacy Forest Structure Standards and Guidelines.)

b) Where marten data suggest that mortality exceeds sustainable levels, work with ADF&G to identify probable sources of mortality. In an interagency analysis, examine the relationship between hunter/trapper marten harvest and human access.

c) Where road access and associated human-caused mortality has been determined, through this analysis to be the significant contributing factor to unsustainable marten mortality, incorporate this information into Travel Management planning with the objective of reducing mortality risk. Local knowledge of habitat conditions, spatial location of roads, and other factors need to be considered by the biologist rather than solely relying upon road densities. Road management objectives would be developed and implemented through an interdisciplinary Access and Travel Management process or comparable process. (Consult Transportation Forest-wide Standards and Guidelines.)

XIX. Endemic Terrestrial Mammals

A. The objective is to maintain habitat to support viable populations and improve knowledge of habitat relationships of rare or endemic terrestrial mammals that may represent unique populations with restricted ranges.

1. Use existing information on the distribution of endemic mammals to assess project-level effects. If existing information is lacking, surveys for endemic mammals may be necessary prior to any project that proposes to substantially alter vegetative cover (e.g., road construction, timber harvest, etc.). Surveys are necessary only where information is not adequate to assess project-level effects.

a) Survey islands smaller than 50,000 acres in total size (e.g., Heceta Island and smaller) that have productive old-growth forest suitable for timber harvest. Conduct surveys on larger islands if there is a high likelihood that endemic taxa are present and a high likelihood that they would be affected by the proposed project.

b) The extent and rigor of surveys will be commensurate with the degree of existing and proposed forest fragmentation, and potential risk to endemic mammals that may be present.

c) Surveys should emphasize small (voles, mice, and shrews) and medium sized (ermine and squirrels) endemic mammals with limited dispersal capabilities that may exist within the project area.

d) Use the most recent inventory protocols for surveys.

2. Assess the impacts of the proposed project relative to the distinctiveness of the taxa, population status, degree of isolation, island size, and habitat associations relative to the proposed management activity.

3. Where distinct taxa are located, design projects to provide for their long-term persistence on the island.

B. Consider habitat needs of endemic mammals in design of thinning treatments.

Wildlife Habitat Improvement: WILD2

I. Improvement Projects

A. Develop an aggressive young-growth management program to maintain, prolong, and/or improve understory forage production and to increase the development of old growth characteristics in young-growth timber stands for a variety of wildlife species (deer, moose, black bear, small mammals, birds, and other species of interest).

1. Consider stands for young-growth treatments that meet the following conditions:

a) Historical deer winter range with high deer use.

b) Historical or potential moose winter range.

c) Areas with important and accessible consumptive and non-consumptive human uses of wildlife benefited by young-growth management.

d) High risk VCUs and within beach fringe—these areas have significant young growth and are important habitat for a variey of wildlife species. Young-growth

treatments may be used to accelerate development of old-growth characteristics and improve habitat conditions.

e) Young-growth timber stands that have a relatively high tree stocking density that would result in early loss of understory forage. Plant associations containing hemlock or spruce and Vaccinium or skunk cabbage on high site potential should be considered for treatment.

2. Consider the following for precommercial thinning:
   a) Time precommercial thinning before desirable forage species are shaded out by trees, although trees should fully occupy the site. Generally, highly productive sites will need to be thinned at a younger age (15 to 20 years) than moderate or low productive sites (20 to 25 years). Use site-specific conditions to determine the timing of precommercial thinning.
   b) Vary tree spacings according to site-specific information and dependent on a desired condition. Consider spacings from 16 feet by 16 feet to 24 feet by 24 feet. Site-specific objectives should be developed in conjunction with silvicultural staff, and should identify spacings to be used. Consider variable spacings and leaving some unthinned thickets and corridors to create future structural diversity.
   c) Generally, slash disposal treatments will not be necessary. In some site-specific areas, slash treatments may be needed to facilitate animal movements or increase forage production and availability. Slash treatments may include girdling trees, falling trees away from high forage areas, piling trees, or lopping and scattering of slash.
3. Consider the following for canopy gaps:
   a) It is generally recommended that canopy gaps be created at the same time as precommercial thinning activity.
   b) Generally, slash disposal treatments will not be necessary. In some site-specific areas, slash treatments may be needed to facilitate animal movements or increase forage production and availability. Slash treatments may include girdling trees, falling trees away from high forage areas, piling trees, or lopping and scattering of slash.
   c) Site-specific objectives and analysis should identify the gap sizes.

B. Coordinate habitat improvement projects with the ADF&G, the USFWS, and other appropriate agencies.

C. Coordinate the timing and location of habitat improvement projects with other resources so as to provide opportunities to decrease treatment costs and provide multi-resource benefit.

D. Coordinate any new projects to enhance the use of National Forest System lands with the recreation program managers.

Wildlife Habitat Maintenance: WILD3

I. Maintenance

A. Provide for the maintenance of wildlife habitat improvements.
   1. Fund maintenance of existing structures prior to the construction of new structures.
   2. Include funding for maintenance in planning and budgeting all structures.
   3. Maintain structures to ensure objectives of the original project are met.
   4. If the improvement becomes inefficient to operate or maintain, redesign or stop maintenance of that improvement.
   5. If a structure becomes inoperable, consider removal or reconstruction, as appropriate.

B. Develop a written agreement with project cooperators on maintenance responsibilities prior to project construction.

Threatened, Endangered, and Sensitive Wildlife Species: WILD4

Consult FSM 2670 and R10 supplemental directions for Threatened, Endangered, and Sensitive Species.

I. Threatened or Endangered Species

A. Steller Sea Lion
   1. Protect Steller sea lion habitats.

2. Ensure that Forest Service funded, permitted, or authorized activities are conducted in a manner consistent with the requirements, consultations, or advice received from the appropriate regulatory agencies for the Marine Mammal Protection Act, Endangered Species Act, and NMFS guidelines for approaching seals and sea lions. "Taking" of sea lions is prohibited; "taking" includes harassing or pursuing, or attempting any such activity.
3. Locate facilities, camps, log transfer facilities, campgrounds, and other developments 1 mile from known haulouts, and farther away if the development is large.
4. Cooperate with state and other federal agencies to develop sites and opportunities for the safe viewing and observation of sea lions by the public. Maintain a public education program explaining forest management activities related to sea lions in cooperation with state and other federal agencies.

B. Humpback Whale
1. Provide for the protection and maintenance of whale habitats.
2. Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, Endangered Species Act, and NMFS regulations for approaching whales, dolphins, and porpoise. "Taking" of whales is prohibited; "taking" includes harassing or pursuing, or attempting any such activity.

II. Sensitive Species

A. Northern Goshawk (including the Queen Charlotte goshawk subspecies).
1. Preserve nesting habitat around all goshawk nest sites. Protection measures may be removed from probable nest stands if, after two consecutive years of monitoring, there is no further evidence of confirmed or probable nesting.
   a) Consider the following evidence for determining confirmed nest sites:
      (1) A goshawk observed on or near a nest;
      (2) Nestlings or branchers (young not able to fly) observed on or near a nest;
      (3) Goshawk feathers or eggs obtained from the nest;
      (4) One or more nest structures indicative of goshawk were found with goshawk prey remains, but without positive identified goshawk on the nest and without positive identified feathers from nest;
   b) Consider the following evidence for determining probable nest sites:
      (1) Aggressive, territorial breeding season adults vocalizing or attacking an observer (without locating a nest); or
      (2) Adults observed during the breeding season in a territory and recently fledged young were observed (without locating a nest).
   c) Nesting Habitat: Maintain an area of not less than 100 acres of productive old-growth forest (if it exists) generally centered over the nest tree or probable nest site to provide for prey handling areas, perches, roosts, alternate nests, hiding cover, and foraging opportunities for young goshawks. Vegetative structure should include, where available, multi-layered, closed (over 60 percent) canopy stands, a relatively open understory, with large trees (usually 20+ inches diameter at breast height) and low ground vegetation.
   d) Management: No commercial timber harvest is permitted. Existing roads may be maintained. New road construction is permitted if no other reasonable roading alternatives outside the mapped nesting habitat exist. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Activity restrictions are removed for active nests that become inactive or unsuccessful. Other management activities that maintain the integrity of the forest stand structure are consistent with the objectives for this area. Activities such as cabin, trail, or campground construction should be consistent if designed with minimal vegetative manipulation.
   e) Consider surrounding landscapes when managing for goshawk nest sites. Plans for an alternate nest management strategy to c) and d) above may be implemented if the rationale is documented.

f) Conduct inventories to determine the presence of nesting goshawks for proposed projects that affect goshawk habitat. Use the most current inventory protocols developed in cooperation with the appropriate state and federal agencies.

B. American Peregrine Falcon
1. Provide for the protection and maintenance of habitats for migrating American peregrine falcons.
2. Obtain increased understanding and knowledge about the migration of American peregrine falcons through southeast Alaska (e.g., the timing of migrations, the length of stay in southeast Alaska, important foraging areas, important prey items, etc.).
3. Protect seabird rookeries and waterfowl concentration areas that provide important prey foraging habitat. (Consult Wildlife Forest-wide Standards and Guidelines.)

C. Peale's Peregrine Falcon
1. Provide for the protection and maintenance of Peale's peregrine falcon habitat.
2. Maintain nest site location data in cooperation with USFWS.
3. Plan project activities to avoid adverse impacts to the falcons and their habitats. Evaluate the effects of proposed projects within 2 miles of known falcon nests considering such items as a) human activities (aircraft, ground and water transportation, high noise levels, and permanent facilities) that could cause disturbance to nesting pairs and young during the nesting period April 15 to August 31; and b) activities or habitat alterations that could adversely affect prey availability. Coordinate all project activities that may affect known or potential nesting habitat with the USFWS.
4. Within 15 miles of all known or historical nest sites, prohibit all use of herbicides and pesticides.

B. Trumpeter Swan
1. Provide for the protection and maintenance of trumpeter swan habitats.
2. Avoid disturbance of trumpeter swans, particularly during nesting, brood-rearing, and wintering periods, to prevent abandonment of their nests, brood-rearing areas, and winter habitats. As a general guideline, limit developments within 0.5 mile (2,640 feet) of wetlands used by nesting, brood-rearing, and wintering trumpeter swans. The District Ranger will take feasible measures to minimize disturbance.
3. Avoid placement of overhead wires, fences, or other structures that could interfere with the flight paths of swans and cause injury or mortality.
4. Cooperate with state, federal, and local agencies, partner organizations, and individuals to develop sites and opportunities for the safe viewing of trumpeter swans by the public and maintain a public education program explaining Forest management activities related to trumpeter swans.

C. Osprey
1. Maintain and improve osprey populations and habitat.
2. Establish a minimum 330-foot radius habitat management zone around each existing osprey nest tree. Determine the exact boundary based on local topography, timber type, a reasonable assurance of windfirmness, and other factors.
3. Within the osprey nest zones, prohibit all land use activity which would likely disturb nesting osprey. Infringement may be acceptable depending on the nature of the project and timing of the activity.
4. Maintain the osprey nest zone even though the nest or nest tree becomes inactive.
5. Provide trees suitable for use by osprey for nesting, feeding and perching. Consider the following:
   a) Reserve trees and live trees that dominate or co-dominate a shoreline.
   b) Reserve trees with broken tops and live trees with branches large enough to support birds.
6. New nests will receive the same level of management protection as existing nests; however, osprey that select new nests in close proximity to existing human activities will not cause those human activities to be modified.

D. Kittlitz's Murrelet
1. Provide for the protection and maintenance of known Kittlitz's Murrelet nesting habitats.

CHAPTER 5
IMPLEMENTATION

CONTENTS

Chapter 5

Implementation

Introduction

Plan implementation is the activity to accomplish the management direction of the Forest Plan, and is necessary to meet public expectations of Forest Service actions and legal requirements. It is mainly accomplished through the recurrent identification of proposed actions (initiated by the Forest Service or in response to external applications by individuals or groups) consistent with activities anticipated in the Plan; the analysis and evaluation of such actions (and reasonable alternatives to them); related documentation and decisionmaking; and project execution and administration, in a manner that is consistent with the management direction of the Plan. It also involves meeting the Plan's monitoring and evaluation requirements, and making necessary Plan amendments.

The management direction elements of this Plan include:

1. The Forest multiple-use goals and objectives contained in Chapter 2;
2. The designated suitable timber land and associated allowable sale quantity contained in Appendix A and Chapter 2;
3. The management prescriptions, including the Land Use Designations (LUDs), shown on the Plan map and their related Forest-wide Standards & Guidelines contained in Chapters 3 and 4; and
4. The monitoring and evaluation requirements contained in Chapter 6.

Plan implementation is strongly influenced by annual budget direction and fiscal limitations. Each year, upon approval of a budget, the Forest Supervisor develops an annual program of work. The accomplishment of the annual program results in the incremental achievement of the Plan's management direction. Future budget requests are to be based on the management direction of this Forest Plan, and related project and activity scheduling.

Direction in the Forest Plan is implemented through an annual program of work which is outlined in a general way in Appendix J. In the Forest's Strategic Plan, the leadership team of the Tongass National Forest established priorities for four focus areas identifying the actions to be implemented. This provides the best picture of how the Forest Plan is likely to be implemented in the future. More specific project information, including location, quantities, and timing, are heavily dependant on a variety of factors, such as demand (e.g., timber sales), budget availability, cost/benefit ratios, partnership opportunities, and the timing and location of other Forest management activities, and is therefore beyond the scope of Appendix J.

The four priority areas for Forest Plan implementation include:

1. An Integrated Approach to Restoration and Enhancement;
2. Maintaining the Forest Plan into the Future;
3. Recreation Resource Management; and
4. Timber Management.

Additional proposals by others (such as for the development of communications facilities on the Forest by private firms) will also be considered and evaluated for compliance with all applicable direction in this Plan, as well as applicable laws and

higher-level Forest Service policy and regulations. Procedural guidance for Plan implementation is provided in the Forest Service Planning Handbook (FSH 1909.12, Chapter 5).

Plan and Project Level Decisions

Planning for units of the National Forest System includes two levels of decisionmaking. Both levels are discussed below.

Forest Plan Decisions. The first decision level involves the development of a Forest Plan to provide direction for all resource management programs, practices, uses, and protection measures. This Plan provides the broad, programmatic direction necessary to manage the resources and uses of the Tongass National Forest in a coordinated and integrated manner. It includes the above listed management direction elements, which are to influence how subsequent site-specific project decisions are made and how other management activities are conducted. For example, the management prescriptions and related Standards & Guidelines are applied in planning individual projects. Adjustments to this direction may be made through Plan amendments. Plan-level decisions are appealable under 36 CFR 217.

Project Planning Decisions. The second decision level involves the analysis and implementation of management practices designed to achieve the management direction of the Forest Plan. Project decisions (which can change the environment) generally require site-specific analysis to meet National Environmental Policy Act (NEPA) requirements for decisionmaking, and are subject to continuing compliance with other federal environmental laws such as the Endangered Species Act, Clean Water Act, and Clean Air Act. Common project-level decisions include whether or not, and in what way, timber will be harvested in a particular area; a campground will be constructed; or a fisheries structure will be installed. The preparation of an environmental analysis document, such as an environmental impact statement or environmental assessment, precedes these decisions, unless they are categorically excluded from documentation. Project-level planning provides an additional opportunity (beyond development of this Plan) for public participation. Project decisions are appealable under 36 CFR 215 and 251.

Additional Analysis

Additional analysis in support of Plan implementation activities may also be conducted at various scales above the site (project) level. Doing these analyses can improve our understanding of ecosystems and associated social and economic dimensions, and provide important context information for project planning. This kind of analysis does not require NEPA review and does not result in decisions that are subject to appeal. Additional analyses are not prescribed here; development of additional analyses are identified by the appropriate line officer(s). The need, scope, and intensity of analysis is based on the combination of issues, values, and risks, such as internal issues and public concerns and interests; land characteristics and geologic risk; presence of threatened, endangered, or sensitive species; other biological information; and past land use activities and watershed condition.

Watershed analysis, for example, is designed to help set the stage for project planning and NEPA analysis, focus interdisciplinary discussion on key watershed-level management issues, and provide a basis for integrating project designs. Watershed analysis, as is described in Appendix C, is not a decisionmaking process, and a watershed analysis report is not a decision document, a planning document requiring NEPA review, or a regulatory, prescriptive document.

Plan Amendments

The Plan's management direction elements may be amended as the need arises. The need to amend a land management plan may arise from several sources, including the following:

1. Recommendations of the Forest, or other comparable administrative unit, Interdisciplinary Team that are based on findings that result from monitoring and

evaluating implementation of the Forest Plan. (Consult Forest Service Manual [FSM] 1926.7.)

2. Findings that existing or proposed permits, contracts, cooperative agreements, and other instruments authorizing occupancy and use are not consistent with the Plan, but should be approved.
3. Changes necessitated by resolution of administrative appeals.
4. Changes in Plan guidance needed to correct planning errors.
5. Changes in Plan guidance necessitated by changed physical, social, or economic conditions.
6. Desired implementation of projects or activities outside the scope of the Plan.

Upon receiving advice from the Interdisciplinary Team that the Plan requires change, the responsible official shall:

1. Determine whether proposed changes to the Plan are significant or not significant in accordance with the requirements of FSM 1926.51 and 1926.52.
2. Document the determination of whether the change is significant or not significant in a decision document.
3. Provide appropriate public notification of the decision prior to implementing the changes.

Findings of the responsible official regarding the consistency of projects or activities and actions with the Plan and the determination of the significance of an amendment are an integral part of decisions. As such, they are subject to administrative review under 36 CFR 219.14.

Non-significant Amendments. The Forest Supervisor must prepare an amendment to the Plan to accommodate a change determined not to be significant. Appropriate public notification is required prior to implementation of the amendment (FSM 1926.51). Changes to the Plan that are not significant can result from the following:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.
3. Minor changes in Forest-wide Standards & Guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Significant Amendments. The following examples indicate circumstances that may cause a significant change to a the Plan:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected. (See section 219.10(e) of the planning regulations in effect before November 9, 2000 [36 CFR parts 200 to 299, revised as of July 1, 2000].)
2. Changes that may have an important effect on the entire Plan, or affect land and resources throughout a large portion of the planning area during the planning period.

When a significant change needs to be made to the Plan, the Forest, Grassland, Prairie, or other comparable administrative unit supervisor must prepare an amendment. Documentation of a significant change, including the necessary analysis and evaluation, should focus on the issues that have triggered the need for the change. In developing and obtaining approval of the amendment for significant change to the Plan, follow the same procedures as are required for developing and approving the Plan. (See sections 219.10(f) and 219.12 of the planning regulations in effect before November 9, 2000 [36 CFR parts 200 to 299, revised as of July 1, 2000].)

Adaptive Management

Adaptive management is the ecosystem management counterpart to "learning from experience." These two concepts have two essential elements in common: 1) a feedback element that gathers and evaluates information about current performance (of an action or activity), and 2) an adjustment element that responds to feedback information by being able to alter future performance when needed. (See Bormann et al., Adaptive Ecosystem Management in the Pacific Northwest, 1994, for a more detailed discussion of these ideas.)

For Forest planning, two key aspects of adaptive management are the monitoring and evaluation process (see Chapter 6), which provide feedback on implemented activities and the effectiveness of associated resource protection or mitigation measures, and the amendment process (described above), which allows for making necessary changes to those activities and measures. Monitoring is one source of feedback information; other sources include scientific literature and studies, resource inventories, changes in technology, and public concerns. However, monitoring at the Plan and project levels is a primary means by which the continued appropriateness of management techniques will be evaluated. Thus, it is an indispensable part of ongoing Forest management. Adaptive management is both the recognition of these sources as potential signals for change, and the willingness, through environmental analysis and the Plan amendment process, to positively respond to these signals. It is also the recognition that Forest planning, and ecosystem management, will never have complete or "perfect" information, but that planning can minimize uncertainty by including the ability to adapt to change.

This Forest Plan embraces these adaptive management concepts.

Plan Revisions

The Plan will ordinarily be revised on a 10-year cycle, or at least every 15 years. It may also be revised whenever a Forest Supervisor determines that conditions in the area covered by the Forest Plan have changed significantly, or when changes in national policies, goals, or objectives would have a significant effect on Forest-level programs. In the monitoring and evaluation process, an Interdisciplinary Team may recommend a revision (or an amendment) of the Forest Plan at any time.

Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan. Revisions must be approved by the Regional Forester. The Forest Supervisor will review conditions in the area covered by the Forest Plan at least every 5 years to determine whether significant changes have occurred. A component of this review will be an interagency evaluation of the overall old-growth habitat and riparian strategies.

CHAPTER 6
MONITORING AND EVALUATION PLAN

CONTENTS

Chapter 6

Monitoring and Evaluation Plan

Introduction

Monitoring and evaluation is a quality control process for implementation of the Tongass Forest Plan. It provides the public, the Forest Service, and other concerned resource agencies with information on the progress and results of plan implementation. As such, monitoring and evaluation comprise an essential feedback mechanism within an adaptive management framework to keep the Plan dynamic and responsive to changing conditions. The evaluation process also provides feedback that can trigger corrective action, adjustment of plans and budgets, or both, to facilitate feasible and meaningful action on the ground.

The Plan identifies management direction for the Tongass in terms of goals, objectives, and standards and guidelines—based on the underlying assumptions of statute, policy, theory, data, technology, and public needs and desires. Monitoring is gathering data and information, and observing the results of management activities as a basis for the periodic evaluation of the Plan. Evaluation is a process for interpreting monitoring data and information to determine whether changes in management direction are needed. The Tongass Plan incorporates three types of monitoring and evaluation approaches: implementation, effectiveness, and validation. Implementation monitoring and evaluation is used to determine whether standards and guidelines are implemented. Effectiveness monitoring and evaluation is used to determine whether standards and guidelines are achieving objectives, whether objectives are achieving goals, and ultimately whether there are significant changes in productivity of the land as a result. Validation monitoring and evaluation is used to examine whether the assumptions and predicted effects used to formulate the plan are accurate. Actual monitoring design and sampling methods will be described in the Tongass Forest Monitoring Guidebook. These methods are periodically updated to reflect the most current established survey and analysis procedures and to facilitate the Tongass staff to be responsive to improvements in monitoring and evaluation methods.

Roles and Responsibilities

Other state and federal natural resource agencies, the academic community, and interested members of the public and organizations are as interested in knowing more about the social, economic, and ecological uses and values of the National Forest System lands as the Forest Service staff. While concepts such as ecosystem services and carbon cycling and sequestration are values provided by the Tongass and influenced by its management, it is important to continue collaboration with the Pacific Northwest Research Station, the State of Alaska, other government agencies, and non-governmental groups to learn and develop these concepts. There are opportunities to better align the interests, resources, and efforts of all these groups in monitoring and evaluation of the Forest Plan implementation. This monitoring plan is designed to be flexible enough to respond to emerging issues and areas of high uncertainty such as climate change. Assessment of the effects of climate change has been incorporated, where possible, into many of the questions considered in Table 6-1.

For the purposes of this monitoring and evaluation plan, the roles and responsibilities within the Forest Service are defined below.

Regional Office. The Regional Office will develop regional policies and directives on monitoring and evaluation.

Forest. The Forest will implement the Plan and conduct implementation monitoring and evaluation. The responsibilities of the Forest include the following:

- Preparing an annual monitoring program;
- Collecting data and information for implementation, effectiveness, and validation monitoring; and
- Analyzing and interpreting implementation monitoring data and information and reporting implementation monitoring results, conclusions and evaluation recommendations to the Regional Office, and making these reports available to the public and other agencies.

Pacific Northwest Research Station. The Pacific Northwest Research Station will provide scientific and technical expertise to conduct effectiveness and validation monitoring and evaluation relative to specific agreements. The responsibilities of the Pacific Northwest Research Station include advising and assisting the Region with the following:

- Developing monitoring study plans, including study objectives, sampling designs, methods, quality assurance plans, and budgets in cooperation with the Forest;
- Collecting data and information for effectiveness and validation monitoring (in specific cases relative to agreements with the assistance of the Forest);
- Analyzing and interpreting the data and information relative to specific studies and agreements with the Forest;
- Reporting study results, conclusions, and recommendations to the Forest, and making these reports available to the public and other agencies; and
- Publishing, when appropriate, study results in Regional publications, Pacific Northwest Research Station publications, or professional journals.

Relationship to Other Information Needs and Monitoring Activities

This monitoring and evaluation plan is not intended to describe all monitoring, inventorying, and data gathering activities undertaken on the Tongass, nor is it intended to limit monitoring. Many other similar activities are routinely conducted as part of site-specific project plans developed under the programmatic guidance of the Plan. Other routine monitoring activities include the preparation of timber sale administrator and engineering reports, special uses administration reports, and in the case of large-scale mining activities, for example, monitoring is typically included in the site-specific Plan of Operations for each mine.

Broader scale monitoring is also done through “management reviews” and “activity and program reviews” by Forest Service officials at various levels of the organization. These periodic reviews are typically done as a function of identified issues, challenges, and opportunities, or as a function of general interest in what the national forest management activities are revealing. These reviews, which are normally documented and discussed often, provide insight into information needs and different monitoring and evaluation approaches that can influence the need to adjust the Plan.

The requirements of this monitoring and evaluation plan are also not intended to replace monitoring requirements developed in the project planning process. Specific project monitoring requirements are determined during the stage of planning that addresses the National Environmental Policy Act and is based on interagency and public involvement early in the project planning process. Although there is some overlap between monitoring requirements of most project plans and the Forest Plan, no single project monitoring plan is expected to address all of the questions listed in this monitoring and evaluation plan. Some project plans may impose monitoring requirements not included at the Forest Plan level in response to site-specific

concerns. Taken as a whole, however, Forest project monitoring should be designed, to the extent possible, to provide information that is compatible with the questions at the broader level. In other words, where the Forest Service can supplement the Forest Plan monitoring and evaluation objectives with project-level monitoring information that enhances the knowledge base with consistent and compatible information, the Forest Service will do so.

The opportunity to promote the alignment and coordination of management and investment in information needs with the State of Alaska and other federal agencies is high. Alignment for the Forest Service can include promoting consistent collection and reporting of project implementation monitoring so that such information can be used or sampled at the Forest-wide scale. Such alignment could also provide more consistent data and information for researchers to use in effectiveness and validation monitoring of the Forest Plan.

Similarly, other entities could use consistent Forest Service data to help address their own information needs as well as facilitate the ability to share information and data between entities.

Appendix B outlines how the larger suite of information needs can be compiled, coordinated, and prioritized. It also depicts some of the highest priority needs for the Tongass National Forest in the foreseeable future.

Monitoring and Evaluation Programs

The Forest Supervisor is responsible for coordinating the preparation of an annual monitoring and evaluation report. The report will summarize the monitoring activities conducted during the year and the results obtained. It will address and evaluate each of the questions listed in this monitoring plan at the reporting period identified. Generally the annual report will focus on the information gathered during the year and identification of issues requiring immediate attention, while the more comprehensive evaluation process will take place during the fifth year. The evaluation should include recommendations for remedial action, if necessary, to make management activities and their effects consistent with the Plan. Specific recommendations for corrective action will depend on the risk to the resource and type of disparity discovered. The types of action that could be recommended include the following:

- No action, if monitoring and evaluation indicate that the standards and guidelines are being followed and the results are meeting Forest Plan objectives.
- Additional monitoring, if initial results are inconclusive or indicate a pattern of minor discrepancies between the standards and guidelines and their implementation, or between expected and actual results.
- Referral to the appropriate line officer for action to ensure proper application of the standards and guidelines, if compliance is inconsistent.
- Changing a projected output, if it appears to be unachievable given funding and other constraints.
- Revising the budget, if the anticipated cost of Forest Plan implementation appears to be incorrect.
- Amending the Forest Plan to change, for example, the allocation of particular areas from one Land Use Designation to another, or changing one or more of the standards and guidelines.
- Revising the Forest Plan, if major changes are warranted.

6 Monitoring and Evaluation Plan

User Notes

Monitoring and evaluation provides for a periodic determination and evaluation of the effects of management practices. The implementation of the Plan evaluated through monitoring can be used to evaluate how well the objectives of the Plan are met and how closely the management standards and guidelines have been applied. Monitoring provides feedback for adaptive management planning.

Adaptive management is a term that generally describes a dynamic management approach where management guidelines can be modified in response to evaluated conditions, based upon established criteria. Basically, this approach promotes the idea of making changes to our management actions as a result of what we learn from actual activities and doing so efficiently. The Tongass Monitoring Plan facilitates adaptive management through the components of the monitoring plan illustrated in Table 6-1. These components include data collection reflected through the monitoring questions, the sampling and reporting period of the question evaluation, the evaluation criteria that references the applicable standard and guideline or policy that provides the baseline for monitoring, the relative work projects that contribute data and information, and the response reflected through feedback mechanisms.

Following is a description of how the monitoring and evaluation items in this Plan are organized in Table 6-1. Data collected for each monitoring item will be aggregated and evaluated on an annual basis unless otherwise noted. Monitoring items include the following five components:

1. **Monitoring Question—**Questions that can be answered to evaluate if the standards and guidelines are applied, if the standards and guidelines are effective, and if the resource objectives of the Forest Plan are met. Questions are organized under Physical and Biological Environment, Human Uses and Land Management, and Economic and Social Environment by Resource Group. Listed above the question is a brief description of goals and objectives applicable to the resource.

2. **Sampling/Reporting Period—**Sampling period is the frequency of data and information collection. Reporting period is the frequency of data evaluation and reporting. Data are generally collected annually and reported and evaluated at 5-year intervals. The reason for this is that annual variations may not be significant because of budget or other temporary factors. True trends are better evaluated over a longer period of time, such as 5 years. If the results of the annual data collection indicate a serious concern, the frequency of reporting and evaluation can be adjusted and immediate remedial action may be taken.

3. **Evaluation Criteria—**Management objectives, standards, guidelines, or other bases for monitoring. Where appropriate, the alpha-numeric code for standards and guidelines are listed (refer to Forest-wide Standards and Guidelines). In some cases, evaluation criteria are specific to a single monitoring question and in other cases, they are applicable to multiple questions.

4. **Data and Information Sources—**Ongoing work projects that are associated with collection of information, data, and evaluation specific to monitoring questions. In some cases, data and information sources are specific to a single monitoring question and in other cases, they are applicable to multiple questions.

5. **Feed Back Mechanisms—**Forest management practices and Standard and Guidelines that should be evaluated to identify if the practices and guidelines provide the resource protection and outcomes identified in the objectives, goals, and management prescriptions. In some cases, feed back mechanisms are

specific to a single monitoring question and in other cases, they are applicable to multiple questions.

The Forest will develop an annual monitoring action plan that utilizes the direction found here, the protocols described in the Monitoring Guidebook, and information on annual budgets. Items specifically included in the action plan include the following:

- **Sampling Methods—**General methods for collecting information needed to address the monitoring question. More detailed sampling methodologies are contained in the Monitoring Guidebook. These methods will be periodically updated. Descriptions of the expected precision and reliability of the monitoring process will be addressed in the Monitoring Guidebook. For the purposes of this monitoring and evaluation plan, precision refers to the closeness of repeated measurements, while reliability refers to the nearness of a measurement to the actual variable being measured.
- **Evaluation Criteria—**Management objectives, standards, guidelines, or other bases for monitoring. Where appropriate, the alpha-numeric code for standards and guidelines are listed (refer to Forest-wide Standards and Guidelines, Chapter 4).
- **References—**Statutory or regulatory foundations of the monitoring question.
- **Annual Cost—**Estimated cost of collecting and analyzing information and reporting results to address each question. Although actual annual funding may not correspond to the level projected in the Plan, the Forest will, subject to appropriations and higher level funding direction, ensure monitoring and evaluation is funded at a level commensurate with the level of funding provided for program implementation. The total annual estimated costs for field monitoring and evaluation is approximately $550,000.

6 Monitoring and Evaluation Plan

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (more detailed description of column headings is found on previous pages)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Physical and Biological Environment				
Air Quality The current air resource condition should be maintained to protect the Forest's ecosystems from on and off Forest air emissions sources. **Is air quality being maintained?**	Annual/5 year	Changes in air quality relative to state and federal ambient air quality standards. AIR2 II.A.	Air inventory and monitoring	Evaluate and change management practices; Air Standards and Guidelines
Climate Change: Permanent snowpack **What are the long-term changes to the permanent snowpack and how does it affect the physical and biological environment?**	5 year/5 year	Changes to permanent snowpack over the last 5, 10, and 15 years that are sources of water for sensitive watersheds and are important features for wildlife .	Remote sensing, GIS, watershed layers, wildlife habitat maps	Evaluate key changes and effects on selected resources and assess potential changes to the Forest Plan
Biodiversity Manage young-growth to improve habitat for wildlife and for commercial timber production. **Are harvested forest lands restocked within 5 years after harvest?** **Following young-growth treatments, is the change in understory vegetation providing improved habitat for key old-growth associated species?** **Are young-growth treatments improving other key habitat components for old-growth associated species?**	Annual/5 year Annual/5 year Annual/5 year	Restocking of all acres of harvested forest land following a regeneration harvest. TIM9 I.A.2 (f) and (g). Assessment of understory species composition: (WILD2)	Silviculture inventory (FACTS), wildlife inventory, Tongass-wide young-growth study (TWYGS)	Evaluate and change, if needed, silvicultural prescriptions; KV Plans; Timber Standards and Guidelines and; Wildlife Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Insects and Disease The Forest's management activities do no contribute to increasing levels of destructive insect and disease organisms. **Are destructive insects and disease organisms increasing to potentially damaging levels following management activities?**	Annual/5 year	Identify and quantify areas where insects and disease are occurring: HEALTH1.	Silviculture inventory, state and private forestry insect and disease surveys; Pacific Northwest Research Station alternatives to clear cut study	Evaluate and change, if needed, management practices; Timber Standards and Guidelines; Invasive Species Standards and Guidelines
Invasive Species The Forest has reduced the potential for introduction, establishment, and spread of invasive species and has reduced existing infestations. **What are the status and trends of areas infested by aquatic and terrestrial invasive species relative to the desired condition?** **How effective were our management activities, including those done through partnerships, in preventing or controlling targeted invasive species?**	Annual/5 year Annual/5 year	An assessment of changes noted in inventory of aquatic and terrestrial invasive species: INV1.	Silviculture inventory, state and private forestry insect and disease surveys; Pacific Northwest alternatives to clear cut study	Evaluate management practices and change, if needed,; Timber Standards and Guidelines; Invasive Species Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Biodiversity Ecosystem Forest biodiversity will be monitored with two coarse-filter approaches. The first assesses the spatial distribution and composition of old-growth reserves and the cumulative harvest of old-growth timber by biogeographic province. The second examines emerging information concerning conservation of plant and animal species on the Forest. We will also monitor biodiversity at the finer scale and look at selected species as well as implementation of standards and guidelines (i.e., Legacy Standards and Guidelines).				
Is the old-growth habitat protected under the Forest Plan being maintained to support viable and well distributed populations of old-growth associated species and subspecies?	Annual/5 year	Changes in the system of large, medium and small habitat reserves and non-development LUDs WILD1 II.B.	Silviculture inventory; wildlife inventory, Forest GIS layers	Evaluate management practices and change, if needed; Timber Standards and Guidelines; Wildlife Standards and Guidelines
Are the effects of biodiversity shown through the cumulative change in old-growth by biogeographic province consistent with the estimates of the Forest Plan (change could includes effects of timber harvest, land exchanges or conveyance, windthrow, insect and disease, climatic change, etc)?	Annual/5 year	Changes in the amount of old growth in relations to finer scale classification (i.e., plant associations) at appropriate scales: WILD1 II.B.		
Is old growth structure retained in the matrix adequate and is it representative of old growth types across VCUs and across the Forest?	Annual/5 year	Amount and effectiveness of retained old-growth structure, including legacy and other retained patches, within managed landscapes		
What are the cumulative effects of changes to habitats that sustain rare plants?	Annual/5 year	Habitat changes for threatened, endangered, and sensitive taxa: WILD4, FISH5, and PLA1.		

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Streams-Fish Habitat The natural range and frequency of aquatic habitat conditions on the Tongass National Forest should be maintained or restored to sustain the diversity and production of fish and other freshwater organisms.				
Are the trends in abundance of the fish management indicator species (Dolly Varden char, cutthroat trout, coho salmon, and pink salmon) related to changes in habitat associated with forest management, climate change or other factors?	Annual/5 year	Habitat changes and population trends for fish management indicator species.	Field collected data; Forest-wide databases	Evaluate site characteristics; stream protection measures and change, if needed,; Fish and Riparian Standards and Guidelines
Is the natural range and frequency of aquatic habitat conditions maintained?	Annual/5 year	Compliance with Fish Standards and Guidelines, FISH2 IV.A. and V.A		
Is riparian vegetation maintained or restored to a condition that supports key riparian functions?	Annual/5 year	Effects of management activities on riparian areas. Riparian Standards and Guidelines, RIP1 II.A		

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Wildlife Terrestrial Habitat The abundance and distribution of habitats, especially old-growth forests, to sustain viable populations of wildlife should be maintained. Also, maintain habitat capability sufficient to produce wildlife populations that support the use of wildlife resources for subsistence, recreation, and commercial activities.				
Are population and habitat trends for Management Indicator Species (MIS) consistent with expectations? Are these trends due to changes in habitat conditions or other factors? If they are tied to habitat conditions, is there a direct relationship with forest management, climate change or other factors? Terrestrial MIS include Red Squirrel, Black Bear, Brown Bear, Marten, River Otter, Sitka Black-tailed Deer, Mountain Goat, Gray Wolf, Vancouver Canada Goose, Bald Eagle, Red-breasted Sapsucker, Hairy Woodpecker and Brown Creeper.	Annual/5 year	Habitat changes and population trends for management indicator species: WILD1. II.E. Documentation for mammalian taxa with limited historical ranges including geographic extent and habitat distribution across islands and mainland Forest: WILD1.I.B.	Wildlife inventory and monitoring; population trend data from various sources (ADFG, Breeding Bird Survey, Alaska Landbird Monitoring,)	Evaluate management practices and change if needed; Wildlife Standards and Guidelines
Is current management providing for sufficient habitat of federally listed threatened or endangered species and Alaska Region sensitive species?	Annual/5 year			
What is the geographic distribution and habitat relationships of mammalian endemic species the Tongass?	Annual/5 year			

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Soil and Water Soil productivity is maintained to Alaska Region (R-10) Soil Quality Standards. Soil erosion from land disturbing activities is minimized. Sediment transport to streams from land disturbing activities should be minimized. The biological, physical, and chemical integrity of Tongass National Forest waters should be maintained to the State of Alaska Water Quality Standards. Ecological function is maintained within watersheds of the plan area while resource management activities sustain human needs and uses.				
Are the soil conservation practices implemented and effective in meeting Alaska Regional Soil Quality Standards and maintaining soil productivity?	Annual/5 years	Compliance and implementation of the Region 10 Soil Quality Standards SW3 I.A.4	Field-collected data; Forest wide data bases; BMP Soil and Water Monitoring	Evaluate site characteristics and change if needed;, logging systems implementation; road design and construction; recreation design and development; Soil and Water Standards and Guidelines Evaluate site characteristics and restoration practices
Are the soil and water conservation practices as described through the Best Management Practices and site specific prescriptions implemented and effective in minimizing soil erosion and maintaining the State Water Quality Standards?	Annual/Annual	Compliance and implementation of BMPs and the State Water Quality Standards SW3 I.A.2 and 3.		
What is the ecological condition and trend of watersheds in terms of key characteristics (such as soil productivity, water quality and quantity, invasive species, etc.) of watershed health identified in the desired condition (aquatic ecosystem potential) of the plan area? How effective are management actions in improving watershed health (maintaining or moving watersheds toward Condition Class I)?	Bi-annual/5 years	Effects of management activities on Watershed Condition Class SW4 I.A.1		

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Wetlands The destruction, loss or degradation of wetlands should be avoided to the extent practicable. Where wetlands cannot be avoided, impacts to wetlands should be minimized to the extent practicable. **Were the wetland conservation practices implemented and effective to avoid and/or minimize impacts to wetlands to the extent practicable?**	Annual/Bi-annual	Compliance and implementation of the Wetlands Standards and Guidelines: WET I.A and B	Field-collected data, forest wide database; BMP Soil and Water Monitoring	Evaluate site characteristics and change if needed;, logging systems implementation; road design and construction; recreation design and development; Soil and Water Standards and Guidelines
Karst and Cave Ecosystems The significant cave and karst ecosystems should be maintained and protected Forest-wide. Natural karst processes should continue and the productivity of the karst landscape should be maintained. **Are the biological, mineralogical, cultural, paleontological components, and recreational values of the karst and caves maintained?**	Annual/5 year	Effects of management activities on caves and karst landscape: KC1.II. A, C, and F; KC2 I.A.	Karst inventory and monitoring	Evaluate management practices and change if needed; Karst and Cave Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Human Uses and Land Management				
Timber Resources Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.				
Is the timber management program meeting the objectives of achieving economic timber sales and rebuilding the volume under contract and shelf volume components of the sale program?	Annual/5 year	Chapter 2 Timber Goals and Objectives.	Silviculture Inventory, Timber Monitoring Cut and sold monthly report and 6/12-month sale reports	Evaluate management practices and change if needed;; Timber Standards and Guidelines
Are timber harvest activities adhering to applicable timber management standards and guidelines relative to: created openings exceeding the maximum size limit for unit harvest, harvest on slopes greater than 72 percent slope gradient, or within the 1,000 feet beach and estuary buffer?	First 1 to 3 years, semi-annual greater than 3 years, as needed	Harvest units in compliance with Forest-wide Standards and Guidelines: TIM5 II.C, III.A,B and C. (unit size limits); SW3 I.A.5. (72 percent slopes); BEACH2 II.A.6 (beach and estuary fringe).	Silviculture inventory, timber monitoring, GIS layers of soils and streams	
Is the ASQ landbase consistent with resource information and programmed harvest?	Annual/5 year	New information leading to changes in timber utilization standards, timber inventory results, timber dispersion requirements, tentatively suitable land base, yield tables, operability inventory, projections on area managed for riparian, beach fringe, and estuary resources, implementation factors, spatial limitations of analysis, natural condition. TIM4.		
Is the timber demand being met within limits of the adaptive management strategy and TTRA?	Annual/5 year	Annual Demand Calculation.		
Has a Timber Sale Adaptive Management Strategy threshold been reached, so that it is appropriate to move to the next phase?	Annual/5 year	Annual scheduled volume harvested.		

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Timber Management Non-interchangeable Components (NIC). The annual allowable sale quantity was partitioned into two components based on operability to promote economic sustainability of the timber resource. This approach distinguishes portions of the timber supply at lower risk of attainment from those portions at higher risk of attainment. Volumes associated with each component will be identified separately in annual harvest plans for the Forest and are not to be substituted for volume from the other component to determine the allowable sale quantity. Land of normal operability is designated NIC I; all other land is designated NIC II.				
Are the non-interchangeable components (NICs) of the allowable sale quantity consistent with actual harvest?	Annual/5 year	Amount of harvest by NIC is consistent with amounts specified in Forest Plan.	Silviculture inventory, timber monitoring	Evaluate management practices and change if needed; Timber Standards and Guidelines
Is the proportional mix of volume in NIC I and NIC II as estimated in the Forest Plan accurate?	Annual/5 year	Estimate the amount of volume within NIC I and NIC II areas across the Forest.		

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Transportation System Roads, trails and utility systems are developed and managed to support resource management; recognize the potential for future development of major transportation and utility system. Each log transfer facility (LTF) is operated under terms of the LTF permits, in accordance with Alaska Water Quality Standards, and requirements from the Environmental Protection Agency for Storm Water Discharge (EPA NPDES permits). **Are the standards and guidelines used for forest development roads and log transfer facilities effective in limiting the environmental effects to anticipated levels?** **Are roads and trails maintained in accordance with management objectives?**	Annual/5 year Annual/5 year	Environmental effects of forest development roads and Log transfer Facilities. Focal areas include: drainage of rock pits (TRAN4 IV., BMP 14.9, TRAN4 II.A.6; BMP 14.17), and effectiveness of access management prescriptions in restricting access and preventing sediment transport: TRAN6 1.A.	Roads and LTF inventory and monitoring	Evaluate management practices and change if needed; Transportation Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Mining and Minerals Exploration Provide for environmentally sound mineral exploration, development, and reclamation in areas open to mineral entry and in areas with valid existing rights that are otherwise closed to mineral entry. Seek withdrawal of specific locations where mineral development may not meet Land Use Designation objectives. Encourage the prospecting, exploration, development, mining, and processing of locatable minerals in areas with the highest potential for minerals development. Insure that minerals are developed in an environmentally sensitive manner, and other high-valued resources are considered when minerals developments occur. **Are Federal regulations (36 CFR 228) to ensure surface resource protection implemented and is the administration of this regulation through the Forest Plan effective in limiting soil and water resource impacts?**	Annual/5 year	Changes in effects relative to anticipated effects on soil and water resources relative to observations: MG2 III. B.	Minerals inventory and monitoring	Evaluate management practices and change if needed; Minerals and Geology Standards and Guidelines
Subsistence Management Provide for the continuation of subsistence uses and resources by all rural Alaskan residents. **Are the effects of management activities on subsistence users in rural Southeast Alaska communities consistent with those estimated in the Forest Plan?**	Annual/5 year	Changes in traditional resource use patterns, traditional environmental knowledge, and subsistence needs and uses; Trends in changes both State and Federal harvest regulations SUB I.D.	Subsistence records, ADFG and Federal hunt reports and regulations	Evaluate management practices and change if needed; Subsistence Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Wilderness Extensive, unmodified natural environments characterize all designated Wilderness on the Tongass National Forest. Ecological processes and natural conditions are not measurably affected by past or current human uses or activities. Users have the opportunity to experience independence, closeness to nature, solitude and remoteness, and may pursue activities requiring self-reliance, challenge and risk. Motorized and mechanized use is limited to the minimum needed for the administration of the wilderness, access to state and private lands, subsistence uses, and for public access and other uses specifically allowed by ANILCA. **Is the wilderness character being maintained?**	Annual/5 year	Compliance with guidelines establishing levels of social encounters, development, and visitor impacts: REC3.	Wilderness inventory and monitoring	Evaluate management practices and change if needed; Wilderness Standards and Guidelines
Heritage Resources Identify, evaluate, preserve, protect, and enhance heritage resources through application of Forest guidance and on a project-specific basis pursuant to the National Historic Preservation Act (NHPA), as amended, as well as other relevant acts and implementing regulations (for example, the Archaeological Resources Protection Act and the Native American Graves Protection and Repatriation Act). **Are (1) project clearance/inventory, (2) project implementation, (3) mitigation, and (4) enhancement completed in accordance with the requirements and regulations for heritage resources?**	Annual/5 year	Compliance of activities with Heritage Resource Standards and Guidelines: HSS I, II, III, VI.	Heritage inventory and monitoring	Evaluate management practices and change if needed; Heritage and Sacred Sites Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Recreation Provide a range of recreational opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry. **Are areas of the Forest being managed in accordance with the prescribed Recreation Opportunity Spectrum (ROS) class in Forest-wide Standards and Guidelines? Is the ROS classification consistent with public demand?**	Annual/5 year	Compliance with guidelines: REC3 I, II,III, Appendix I (and other standards and guidelines specific to numbers of encounters allowed in each ROS class).	Recreation inventory and monitoring	Evaluate management practices and change if needed; Recreation and Tourism Standards and Guidelines
Wild and Scenic Rivers Wild Rivers and river segments are in a natural, free-flowing, and undisturbed condition. Scenic and Recreational Rivers and river segments are in a generally unmodified, free-flowing condition **Are Wild, Scenic, and Recreational River Standards effective in maintaining or enhancing the free flowing conditions and outstandingly remarkable values at the classification level for which the river was found suitable for designation as part of the National Wild and Scenic River System?**	Annual/5 year	Compliance of activities with standards and guidelines. The degree to which human activities maintain or enhance the resource values of the river: REC3.	Recreation inventory and monitoring	Evaluate management practices and change if needed; Recreation and Tourism Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Scenery Provide Forest visitors with visually appealing scenery with emphasis on areas seen along the Alaska Marine highway, State highways, major forest roads, and from popular recreation places; recognize that in other areas where landscapes are altered by management activities, the activity may visually dominate the characteristic landscape.				
Are the adopted scenic integrity objectives established in the Plan met?	Annual/5 year	Whether the standards and guidelines associated with unit harvest and view shed disturbed are adequate to meet the scenic integrity objectives: SCENE2 II.A, B, C, D	Scenery inventory and monitoring	Evaluate management practices and change if needed; Scenery Standards and Guidelines

Table 6-1. Forest Plan Monitoring Questions, Evaluation Criteria and Adaptive Management Feedback Mechanism (continued)

Forest Plan Objectives and Monitoring Plan Questions	Sampling/ Reporting Period	Evaluation Criteria	Data Sources	Feed Back Mechanism
Economic and Social Environment				
Economics Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska. Work with local communities to identify rural community assistance opportunities and provide technical assistance in their implementation. Support a wide range of natural-resource employment opportunities within Southeast Alaska's communities. **Are the effects on employment and income similar to those estimated in the Forest Plan?**	Annual/5 year	Effects of Forest Plan implementation of employment and income by resource sector.	Socio-Economic inventory	Evaluate management practices and change if needed; Rural Community Assistance Standards and Guidelines
Cost and Outputs The Forest is allocated funds annually to be used to accomplish Forest Plan Objectives. **What is the trend in outputs and costs associated with those outputs?**	Annual/5 year	Outputs and costs of desired goods and services from annual Tongass report	Forest budget and accounting	Evaluate management practices and change if needed; Forest Plan

CHAPTER 7
GLOSSARY

Chapter 7

Glossary

These definitions apply to Forest Service land management and planning. Meanings may differ when used in another context. Glossary definitions are not legal unless otherwise noted. Some definitions were shortened, paraphrased, or adapted to conditions in Southeast Alaska or on the Tongass National Forest and for ease of understanding.

A

Access The opportunity to approach, enter, and make use of public lands.

Access management Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands (physical attributes).

Acquired land Lands in federal ownership that were obtained by the Government through purchase, condemnation, gift, or by exchange.

Active channel As defined for purposes of the Riparian Standards and Guidelines, includes stream channels*, secondary channels*, and braided channels*. For the Alluvial Fan Process Group, it also includes gravel outwash lobes. (Words marked by an * have further definitions within the glossary.)

Activity fuel loading The amount of burnable debris left after logging.

Adaptive Management A continuous process of action-based planning, monitoring, research, evaluation, and adjustment with the objective of improving implementation and achieving desired management goals and objectives.

Adfluvial fish Species or populations of fish that do not go to sea, but live in lakes, and enter streams to spawn.

Administrative site Lands used as headquarters or administrative facility by a Federal agency.

Administrative unit A National Forest, National Grassland, Purchase Unit, Land Utilization Project, Columbia River Gorge National Scenic Area, Land between the Lakes, Lake Tahoe Basin Management Unit, Midewin National Tallgrass Prairie, or other comparable unit of the NFS, such as the Tongass National Forest (36 CFR 212.1).

AFHA See the definition for Anadromous Fisheries Habitat Assessment.

Aggradation The process of building up a land surface by deposition.

AHMU See the definition for Aquatic Habitat Management Unit.

AHRS See the definition for Alaska Heritage Resource Survey.

Glossary 7

Alaska Heritage Resource Survey (AHRS)	The official list of cultural resources in the State of Alaska, maintained by the Office of History and Archaeology, Alaska Division of Parks and Outdoor Recreation.
Allowable Sale Quantity (ASQ)	The maximum quantity of timber that may be sold in each decade from suitable lands covered by the Forest Plan.
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.
Alluvium	Recent soil deposits resulting from modern rivers, including the sediment laid down in river beds, flood plains, lakes, and at the foot of mountain slopes and estuaries.
Alpine	Parts of mountains above tree growth.
Alternative	An option proposed for decision making.
Ambient air	The air, external to buildings, encompassing or surrounding a specific region.
Ambient Air Quality Standard	The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.
Amenity	Resource use, object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value typically describes those resource properties for which monetary values (or market values) are not or cannot be established.
Anadromous fish	Fish that mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and steelhead are examples.
Anadromous Fish Habitat Assessment	An assessment conducted in 1994 within the Tongass National Forest (published in 1995) to study the effectiveness of current procedures for protecting anadromous fish habitat and to determine the need for any additional protection.
ANCSA	The Alaska Native Claims Settlement Act of December 18, 1971. Public Law 92-203, 92nd Congress, 85 Stat. 688-716.
ANILCA	The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551.
Annual demand	As used in this document, the amount of timber that buyers are willing to purchase each year. Estimates of annual timber demand are based on a number of factors, including Pacific Northwest projections, installed mill capacity, utilization rates and market trends.
Appropriation of land	The act of selecting, devoting, or setting apart land for a particular use or purpose, such as appropriating land for public buildings and military reservations or other public uses (Black 1979).
Aquaculture	Culture or husbandry of salmon or other aquatic fauna or flora.
Aquatic ecosystem	A stream channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.

Aquatic farm (or Aquafarming) Growing, farming, or cultivating aquatic products in captivity or under positive control. Current State of Alaska law (AS 16.40.100 - 16.40.199, July 1, 1990) does not allow the aquatic farming of finfish, but does allow the farming of shellfish.

ARCGIS Geographic Information System (GIS) software used for the Amendment database.

Area of potential effects The geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist.

ASQ See the definition for Allowable Sale Quantity.

Available timberlands Timberland not withdrawn from use in production of timber products as a result of administrative statue or regulation.

B

Background The distant part of a landscape. The seen, or viewed, area located from 3 or 5 miles to infinity from the viewer. (See the definitions for foreground and middleground.)

Bank The continuous margin along a river or stream where all upland vegetation ceases.

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

Beach fringe The area inland from salt water shorelines that is typically forested.

Beachlog salvage The salvage of logs that have been washed up on beaches. Special provisions in ANILCA allow beachlog salvage in Wilderness and National Monuments if it can be conducted without roads or use of vehicles on uplands.

Bedload Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the 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.

Benchmark An analysis of the supply potential of a particular resource, or set of resources, subject to specific management objectives or constraints

Benthic Pertaining to the sea bottom or organisms that live on the sea bottom.

Best Management Practices (BMPs) Land management methods, measure or practices selected by an agency to meet its non point 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. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility. BMPs are found in Forest Service Handbook 2509.22.

Biogeographic provinces

Twenty-one ecological subdivisions of Southeast Alaska that are identified by generally distinct ecological, physiogeographic, and biogeographic features. Plant and animal species composition, climate, and geology within each province are generally more similar within than among adjacent provinces. Historical events (such as glaciers and uplifting) are important to the nature of the province and to the barriers that distinguish each province.

Biological diversity

The variety of life forms and processes, including the complexity of species, communities, gene pools, and ecological functions, within the area covered by a land management plan.

Biomass

1. The total dry organic matter at a given time of living organisms of one or more species per unit area (species biomass) or of all the species in the community (community biomass)
2. The living or dead weight of organic matter in a tree, stand, or forest in units such as living of dead weight, wet or dry weight, ash-free weight, etc.
3. Harvesting the wood product obtained (usually) from in-woods chipping of all or some portion of trees, including limbs, tops, and unmerchantable stems, usually for energy production.

Blowdown

See the definition for windthrow.

BMPs

See the definition for Best Management Practices.

Board foot

A unit of timber measurement equaling the amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

Bole

The trunk or main stem of a tree (seedlings and saplings have stems rather than boles).

Boulders

Rounded or angular rocks greater than 12 inches in size.

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 by sediment deposited by the stream.

Bridge

A road or trail structure, including supports, erected over a depression or an obstruction, such as water, a road, a trail, or a railway, and having a deck for carrying traffic or other loads.

Buffer

An area of vegetation of varying size, shape, and character managed to mitigate effects on a particular resource.

C

Canopy gap

Natural openings created in the overstory of old-growth conifer forests from the loss of a single or small group of trees from windthrow, insects, or disease. Also, gaps created in young-growth conifer stands to increase light penetration to the understory by cutting all of the trees in a small area to maintain or increase the number of understory plant species.

Catastrophic event Events resulting from a great and sudden calamity or disaster. In the case of forest stands, such events may include windstorms, wildfire, floods, snowslides, and insect outbreaks. Whether a disturbance event is called catastrophic is dependent on the context within which the event occurs, the scale of the event, and the effects of the event.

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.

Capital investment cost Costs generally associated with construction, such as trails, roads, and physical structures.

Carrying capacity The estimated maximum number (or biomass) of organisms of a given species that can be sustained or survive on a long-term basis within an ecosystem.

Cave Cave is legally defined under federal law as "any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or human-made. Such term shall include any natural pit, sinkhole or other feature which is an extension of the surface," (Federal Cave Resource Protection Act of 1988). Speleologists use "cave" to refer to all parts, regardless of size, of an underground system that links openings and chambers and that may connect the system to the surface. Included in the term caves are tree molds and lava tubes associated with lava flows, erosional caves, and those formed by dissolution of bedrock.

CFL See the definition for commercial forest land.

CFR Code of Federal Regulations.

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

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.

Class (streams) See the definition for stream class.

Clearance Cultural resources: Certification by the Forest Supervisor documenting that the requirements of 36 CFR 800 have been fully met for each undertaking.

Clearcutting An even-aged regeneration method in which essentially all trees have been removed in one operation to create an even-aged stand that is composed of a single age class in which tree ages are usually +/- 20 percent of rotation. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning.

CMAI	See the definition for Culmination of Mean Annual Increment.
Coarse filter	An approach used for wildlife conservation management and analysis which focuses on the characteristics of entire ecosystems and landscapes. (Also see the definition for fine filter.)
Colluvial	Soil and material produced by the disintegration and weathering of rocks, including cliff debris, material of avalanches, and alluvium. This material accumulates at the foot of a slope.
Commercial forest land (CFL)	Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.
Commercial thinning	See the definition for thinning.
Commodities	Resources with monetary (market) or commercial value; all resource products that are articles of commerce, such as timber and minerals.
Confined streams	Streams that are confined within their channel banks; they are controlled by stream incision, geomorphic landform characteristics, and local geological conditions.
Confluence	The point where two streams meet.
Connectivity (landscape)	A measure of the extent that forest areas between or outside medium and large old-growth reserves provide habitat for breeding, feeding, dispersal, and movement.
Contributed funds	Funds used to pay for a portion of the work or materials needed to construct a road only to the standard needed for a timber sale, which could have properly been paid for by purchaser credits, if available.
Convey	To pass or transmit the title to property from one to another.
Conveyance	An instrument by which some estate or interest in lands is transferred from one person to another (Black 1979); a transfer of legal title to land.
Corridor (transportation)	A linear strip of land defined for the present or future location of transportation or utility rights-of-way within its boundaries. For planning purposes, potential and proposed corridors are depicted on the Plan map to show approximate corridor routes and widths. Actual corridor routes and boundaries for new systems will be identified through site-specific transportation and/or utility project planning.
Corridor (wildlife)	Habitats, often linear, that facilitate dispersal and movement of wildlife between larger patches of suitable habitat. (Also see the definition for connectivity.)
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 planning following inclusion of the River in the National Wild and Scenic Rivers system.

Cost efficiency The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values, but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate.

Created opening Openings in the forest canopy created by silvicultural practices, including shelterwood regeneration cutting, clearcutting, seed tree cutting, or group selection cutting.

Critical habitat Specific areas designated as critical by the Secretary of Interior or Commerce for the survival and recovery of species listed as Threatened or Endangered pursuant to the Endangered Species Act.

Crown The part of a tree or woody plant bearing live branches and foliage.

Cull logs Logs that do not meet merchantability specifications.

Culmination of Mean Annual Increment (CMAI) The age in the growth cycle of a tree or stand at which the mean annual increment (MAI) for height, diameter, basal area, or volume is at a maximum

Cultural resources See the definition for heritage resources.

Cumulative effects See the definition for effects.

Cumulative watershed effects (CWE) The effects on a watershed's streams and lakes that result from the incremental impact of individual actions within a watershed when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative watershed effects can result from individually minor but collectively significant actions taking place over a period of time.

D

DBH See the definition for diameter at breast height.

Debris avalanches The rapid downslope movement of a mixture of soil, rock, and forest litter with or without a relatively high water content. Also known as debris flows.

Debris torrents Landslides that occur as a result of debris; avalanche materials that either dam a channel temporarily or accumulate behind temporary obstructions such as logs and forest debris. Debris torrents are usually confined within the stream channel until they reach the valley floor where the debris spreads out, inundating vegetation and forming a broad surface deposit.

Decision criteria The rules, standards, or guidelines used to evaluate alternatives. They are measurements or indicators that are designed to assist a decision maker in identifying a preferred choice from an array of possible alternatives.

Degradation The general lowering of the surface of the land by erosive processes, especially by the removal of material through erosion and transportation by flowing water.

Demand The quantity of a commodity or service that buyers are willing to purchase at a given price over a specific time period.

Demographic	Pertaining to the study of the characteristics of populations, such as size, growth, density, distribution, and vital statistics.
Designated road, trail, or area	A National Forest System (NFS) road, an NFS trail, or an area on NFS lands that is designated for motor vehicle use pursuant to 36 CFR 212.51 on a motor vehicle use map (36 CFR 212.1).
Detrimental soil disturbance	The condition where established threshold values of soil properties are exceeded and result in significant change or impairment to long-term soil productivity. (Also see the definitions for significant change and significant impairment.)
Detritus	Material, produced by the disintegration and weathering of rocks, that has been moved from its site of origin. Also, pieces of dead or decomposing plant or animal material. In streams, detritus is the accumulation of leaves, needles, and other organic material that falls from overhead vegetation.
Developed recreation	The type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.
Development LUDs	Land use designations that permit commercial timber harvest (Timber Production, Modified Landscape, and Scenic Viewshed) and convert some of the old-growth forest to early-to mid-successional, regulated forests.
Diameter at breast height (DBH)	The diameter of the stem of a tree measured at breast height (4 feet, 6 inches from ground level).
Discharge	The volume of water moving past a given point on a stream or river over a given period of time, often expressed as cubic feet per second (cfs) in hydrology, or as millions of gallons per day (mgd) in engineering.
Discount rate	The rate used to adjust future benefits or costs to their present value.
Dispersal	The movement, usually one way, of plants and animals from their point of origin to another location where they subsequently produce offspring.
Dispersed recreation	The type of recreation use that requires few, if any, improvements and may occur over a wide area. This type of recreation involves activities related to roads, trails, and undeveloped waterways and beaches. The activities do not necessarily take place on or adjacent to a road, trail, or waterway, only in conjunction with it. Activities are often day-use oriented and include hunting, fishing, boating, off-highway vehicle use, hiking, and others.
Dissected landforms	A physical, recognizable form or feature of the earth's surface such as a mountain, hill, or valley, having a characteristic shape, that in part is the result of several shallow or deeply incised drainage channels.
Dissolved oxygen	The amount of free (not chemically combined) oxygen in water.
Distance zone	Areas of landscapes denoted by specified distances from the observer (foreground, middleground, or background). Used as a frame of reference in which to discuss landscape characteristics of management activities. (Also see the definitions for foreground, middleground, and background.)

Disturbance A force that results in changes in the structure and composition through natural events such as wind, fire, flood, avalanche, or mortality caused by insect or disease outbreaks, or by human caused events (e.g., timber harvest).

Diversity See the definition for biological diversity.

Draft Environmental Impact Statement (DEIS) The version of the statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for review and comment.

E

Easement An interest or right in land owned by another that entitles its holder to a specific limited use.

Ecological provinces See the definition for biogeographic provinces.

Ecological sections Ecosystems may be subdivided into ecological sections that consist of ecological subsections (see "Ecological Subsection"). There are 14 ecological sections on the Tongass.

Ecosystem A spatially explicit, relatively homogenous area that includes all ineracting organisms and the abiotic environment components. An ecosystem can be of various sizes (e.g., a log, a pond, a forest, or the earth's biosphere).

Ecosystem management Management guided by explicit goals, executed by policies, protocols, and practices and adapted through monitoring and research to sustain the composition, structure, and function over the long term.

Ecosystem services Ecosystem services include the full suite of goods and services that are vital to human health and livelihood provided by ecosystems—in this case, ecosystems on the Tongass National Forest.

Ecotone A transition or junction zone between two or more naturally occurring diverse plant communities (ecosystems).

Edge effect The effect of adjoining vegetative communities on the population structure along the margin, which provides for greater numbers of species and higher population densities than either adjoining community. Edge may also result in negative effects, since habitat along the edge is different than within the patch, reducing the effective area of the habitat patch.

Effect In Cultural Resources, the potential of an undertaking to alter the characteristics that may qualify a property for inclusion in the National Register of Historic Places.

Effects **Direct.** Results of an action occurring when and where that action takes place. **Indirect.** Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future. **Cumulative.** Results of collective past, present, and reasonably foreseeable future actions.

EIS See the definition for Environmental Impact Statement.

Emergent — A plant rooted in shallow water and having most of its vegetation above water (e.g., cattails).

Encumbrance — A claim, lien, charge, or liability attached to and binding real property (Black 1979).

Endangered species — Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Endemic — Living in or restricted to a particular locality. In this document the term endemic is used in two ways. First, it is used to describe plant and animal species, subspecies, or lineages that are native and restricted in their distribution to an island, a portion of Southeast Alaska, or Southeast Alaska. Second, it is used to describe a type of windthrow event that is a very localized windthrow event, where individual trees are blown over (see the definition for Windthrow in this Glossary).

Enhance — To improve, reinforce, enrich, or strengthen the existing condition, value, or beauty of a resource.

Entitlement — Right to benefits, income, or property that may not be abridged without due process.

Environmental analysis — An analysis of alternative actions and their predictable short- and long-term environmental effects, incorporating the physical, biological, economic, social, and environmental design arts and their interactions.

Environmental Impact Statement (EIS) — A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. It is prepared first in draft or review form, and then in a final form. An impact statement includes the following points: 1) the environmental impact of the proposed action, 2) any adverse impacts that cannot be avoided by the action, 3) the alternative courses of actions, 4) the relationships between local short-term use of the human environment and the maintenance and enhancement of long-term productivity, and 5) a description of the irreversible and irretrievable commitment of resources that would occur if the action were accomplished.

Epikarst — The upper surface of karst, consisting of a network of intersecting fissures and cavities that collect and transport surface water and nutrients underground; epikarst depth can range from a few centimeters to tens of meters.

Ephemeral stream — A stream, or a portion of a stream, that does not flow year round, but only when (a) it receives base flow during wet periods, or (b) when it receives groundwater discharge or protracted contributions from melting snow or other erratic surface or subsurface sources. See ephemeral stream.

Erosion — The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

Escapement — Adult anadromous fish that escape from all causes of mortality (natural or human-caused) to return to streams to spawn.

ESI — See the definition for existing scenic integrity.

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 an estuary is the limit of salt-intolerant vegetation, and the seaward extent is a stream's delta at mean low water.

Evapotranspiration

The sum total of water lost from the land by evaporation and plant transpiration. Transpiration is loss of water in vapor form from a plant.

Even-aged management

A regeneration method that result in the creation of stands comprised of a single age class in which tree ages are usually +/- 20 percent of rotation. Clear cut, shelterwood, or seed tree cutting methods produce even-aged stands.

Exchange

A trading of public lands (surface or subsurface estates) that usually do not have high public value for lands in other ownerships that do have value for public use, management, and enjoyment.

Executive Order

An order or regulation issued by the President or some administrative authority under his direction.

Existing data search

A systematic check and evaluation of available records, documents, and informant sources to gather information pertinent to cultural resources within a given area.

Existing scenic integrity (ESI)

Current state of the landscape, considering previous human alterations. ESI levels are as follows:

Very High. Landscapes where the landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level.

High. Landscapes where the landscape character "appears" intact. Deviations may be present but repeat form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.

Moderate. Landscapes where the landscape character "appears slightly altered." Noticeable deviations remain visually subordinate to the landscape being viewed.

Low. Landscapes where the landscape character "appears moderately altered." Deviations begin to dominate the landscape character being viewed, but borrow 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. Landscapes where the landscape character "appears heavily altered." Deviations may strongly dominate the landscape character. They do not borrow from attributes such as size, shape, edge effect, and pattern of natural openings, vegetative type changes, or architectural styles within or outside the landscape being viewed.

Unacceptable Low. Landscapes where the landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little, if any, form, line, color, texture, pattern, or scale from the landscape character.

F

Facility

Structures needed to support the management, protection, and utilization of the National Forests, including buildings, utility systems, dams, and other construction features. There are three types of facilities: recreation, administrative, and permitted.

Falldown — The difference between the number of acres planned for timber harvest and those actually harvested, usually experienced as a reduction in acres. Falldown results from many factors, including unmapped unsuitable timber land, newly available information, and project-level consideration of site-specific issues and non-timber resource needs. (Also see the definition for Management Implementation Reduction Factor.)

Feasible — Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, technical, and safety factors. In evaluating feasibility, the following are considerations: 1) the effectiveness and practicality of the measures being considered; and 2) the long- and short-term costs of the measures and the effect of those costs on long- and short-term economic viability of projects or programs.

Federally recognized Indian tribe — An Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a.

Fen — A nutrient medium peatland ecosystem dominated by sedges and brown mosses, where mineral-bearing groundwater is within the rooting zone and meneratrophic plant species are common.

Fine filter — An approach used for wildlife conservation management and analysis which focuses on individual species and their habitat needs. (Also see the definition for coarse filter.)

Fire suppression — All work and activities connected with fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

Fiscal Year (FY) — October 1 to September 30. The Fiscal Year is referred to by the calendar year, which begins on January 1. For example, October 1, 1996, to September 30, 1997, is referred to as Fiscal Year 1997.

Fish passage — The ability of both adult and juvenile fish to move both up and down stream.

Flash flooding — A very rapid responding, relatively high streamflow overtopping the banks in any reach of a stream.

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

Fluvial — Of, or pertaining to, streams and rivers.

Foodfish — Fish consumed by humans.

Footslope — The inner, gently inclined surface at the base of a hill or mountain slope. The surface profile is dominantly concave, and is the transition zone between upslope erosional sites and downslope depositional sites.

Forbs — A grouping/category of herbaceous plants that are not included in the grass, shrub, or tree groupings/categories; generally smaller flowering plants.

Foreground — A term used in scenery management to describe the detailed landscape generally found from the observer to 0.5 mile away. (See the definitions for background and middleground.)

Forest development road — See the definition for National Forest System road.

Forest Facility Master Plan — The plan that depicts the development and management of the Forest's facilities. This includes current volume of business and projections for the future, locations for needed skills to perform program work, existing administrative sites and proposed locations of new sites, and management strategies concerning consolidation or sharing services between units (FSM 7312.1).

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 or disease, and resilience to disturbance.

Forest Plan — Source of management direction for an individual forest, specifying activity and output levels for a period of 10 to 15 years. Management direction in the Forest Plan is based on the issues identified at the time of the plan's development.

Forest road or trail — A road or trail wholly or partly within or adjacent to and serving the National Forest System (NFS) that the Forest Service determines is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 CFR 212.1).

Forest transportation atlas — A display of the system of roads, trails, and airfields of an administrative unit (36 CFR 212.1).

Forest transportation facility — A forest road, trail, or airfield that is displayed in a forest transportation atlas, including bridges, culverts, parking lots, marine access facilities, safety devices, and other improvements appurtenant to the forest transportation system (36 CFR 212.1).

Forest transportation system — The system of National Forest System (NFS) roads, trails, and airfields on NFS lands (36 CFR 212.1). The forest transportation system should best serve current and anticipated management objectives and public uses of NFS lands, as identified in the applicable land management plan (FSM 1920).

Forest transportation system management — The travel planning, analysis, designation of roads, trails, and areas for motor vehicle use, recordkeeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, cost-effective, access for use, enjoyment, protection, administration, and management of NFS lands.

Forested land — Federal land management: Land at least 10 percent stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated

Forested wetland — A wetland whose vegetation is characterized by an overstory of trees that are 20 feet or taller.

Forest-wide Standards and Guidelines — A set of rules and guidance that directs management activities and establishes the environmental quality, natural renewable and depletable resource requirements, conservation potential, and mitigation measures that apply to several land use designations.

Fragmentation — The process by which a landscape is broken into small islands of forest within a mosaic of other forms of land use or ownership. Also, islands of a particular age class (e.g., old growth remaining within areas of young-growth forest).

Free use permit A permit that allows the removal of timber or other resources from public lands free of charge.

FSH Forest Service Handbook.

FSM Forest Service Manual.

Fuel The organic materials that will support the start and spread of a fire: duff, litter, grass, weeds, forbs, brush, trees, dead woody materials.

Function A term in ecology referring to the interreactions and influences between plant and animal species within an area (how each species uses its environment), and to natural processes of change or disturbance (such as wind or aging).

FY See the definition for Fiscal Year.

G

Genetic descendant A person known or reliably assumed to have a genetic relationship to a deceased person.

Glacial refugia The areas of Southeast Alaska that were not covered by glaciers during the last ice age.

Glacial rivers and streams Rivers and streams that receive their main flow characteristics from the presence and activities of ice and glaciers and their meltwater.

Glide or placid streams Grouping of channel types that have fairly consistent physical characteristics occurring on lowland landforms and are mostly associated with bogs, marshes, or lakes.

Goal A concise statement that describes a desired future condition normally expressed in broad, general terms that are timeless, in that there is no specific date by which the goal is to be achieved.

Goods and services The various outputs and on-site uses produced from forest resources.

Groundwater Water within the earth that supplies wells and springs. Specifically, water in the zone of saturation where all openings in soils and rocks are filled; the upper surface level forms the water table.

Group selection An uneven aged regeneration method in which trees are removed and new age classes are established in small groups where the widths of groups are commonly approximately twice the height of the mature trees. Note: the management unit or stand in which regeneration growth and yield are regulated consists of an aggregation of groups.

Guideline A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

H

Habitat The sum total of environmental conditions of a specific place occupied by a wildlife or plant species or a population of each species.

Habitat capability The estimated maximum number of fish or wildlife that can be supported by the amount and distribution of suitable habitat in an area.

Hard snags/soft snags Terminology used to described the state of the decay process in dead trees. Hard snags are dead trees that have little decay and are generally still merchantable. Soft snags are dead trees that have a considerable amount of decay and are generally soft, broken, non-merchantable wood.

Haul out Areas used by marine mammals for resting and other social/biological activities that occur in the intertidal zone.

Heritage resources The physical remains of districts, sites, structures, buildings, networks, events, or objects used by humans in the past. They may be historic, prehistoric, architectural, or archival in nature. Heritage resources are non-renewable aspects of our national heritage.

Highway legal vehicle Any motor vehicle that is licensed or certified for general operation on public roads within the State of Alaska.

Historic property Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. The term includes artifacts, records, and remains that are related to and located within such properties.

Horizontal distance Distance measured in a flat (horizontal) manner at zero angle.

Human remains The physical remains of human bodies.

Humus Black or brown organic material of complex composition that is the end-product of microbial breakdown of plant and animal residues at the soil surface.

Hunter day One hunter day is equivalent to one person hunting for any length of time during a 24-hour period.

Hydrologic cycle The complete cycle through which water passes, commencing as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along or into the ground surface, and finally again returning to the form of atmospheric water vapor by means of evaporation and transpiration. Also called Water Cycle.

I

IDT See the definition for Interdisciplinary Team.

Improvements Includes any structures of a permanent nature placed upon the land that tend to increase its value.

Incision

Stream channel incision depth is the vertical distance between the channel bottom at the thalweg and the first significant slope break occurring above the bankfull stage point.

Intermittent stream

A stream, or a portion of a stream, that flows only in direct response to precipitation, receiving little or no water from springs and no long continuous supply from snow or other sources, an whose channel is at all times above the water table. See ephemeral stream.

Indian religious practitioner

In Southeast Alaska, a Shaman or religious leader, or specific elder, that is identified by the appropriate tribal authority (tribal government or council) as the appropriate knowledgeable or authoritative person regarding the sacredness of a location.

Industrial wood

All commercial roundwood products, except fuelwood.

Infrastructure

The facilities, utilities, and transportation systems needed to meet public and administrative needs.

Inherent capability

Recreation capability for the physical, social, and managerial setting for recreation, based on remoteness from modern human development and activity, modification of the land, and social factors such as crowding.

Integrated pest management (IPM)

Integrated pest management, or IPM, is a long-standing, science-based, decision-making process that identifies and reduces risks from pests and pest management related strategies. It coordinates the use of pest biology, environmental information, and available technology to prevent unacceptable levels of pest damage by the most economical means, while posing the least possible risk to people, property, resources, and the environment. IPM provides an effective strategy for managing pests in all arenas from developed residential and public areas to wild lands. IPM serves as an umbrella to provide an effective, all encompassing, low-risk approach to protect resources and people from pests.

Inter

To place in a grave or tomb.

Interception

The process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs, and other vegetation, and lost by evaporation, never reaching the surface of the ground. Interception equals the precipitation on the vegetation minus stemflow and throughfall.

Interdisciplinary Team (IDT)

A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem.

Interest

A general term to denote a right, claim, title, or legal share in real estate (Black 1979).

Interior old-growth forest

The region of a forested stand that has a stable microclimate relative to light, wind, humidity, moisture regime, etc. Natural forest ecotones (see definition for ecotone) "seal" a forest's edge and stabilize these microclimate features. Ecotones created by management such as the old growth, clearcut edge may have "edge" effects that extend into a forest for several hundred feet (estimated 2 to 3 tree heights) before stable "interior forest" conditions are achieved and microclimatic effects of the edge are no longer evident.

Invasive species — A species that is non-native (or alien) to the habitat under consideration and 2) whose purposeful or accidental introduction causes, or is likely to cause, economic or environmental harm or harm to human health (Executive Order 13112).

Inventoried roadless area — An undeveloped area typically exceeding 5,000 acres that meets the minimum criteria for Wilderness consideration under the Wilderness Act.

Invertebrates — Animals without backbones. Land invertebrates include insects, snails, and slugs; freshwater invertebrates include aquatic insects; and marine invertebrates include crab, shrimp, and clams.

IPM — See the definition for integrated pest management.

Irretrievable commitments — A term that applies to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume timber production.

Irreversible commitments — A term that describes the loss of future options. Applies primarily to the effects of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time.

Issue — A point, matter, or section of public discussion or interest to be addressed or decided.

J

Jurisdiction over a forest transportation facility — The legal right to control or regulate use of a forest transportation facility derived from title, an easement, an agreement, or other similar source.

K

Karst — A type of topography that develops in areas underlain by soluble rocks, primarily limestone. Dissolution of the subsurface strata results in areas of well-developed, surface drainage that are sinkholes, collapsed channels, or caves.

L

Lacustrine wetland — Includes permanently flooded lakes and reservoirs, intermittent lakes, and tidal lakes with ocean-derived salinities of less than 0.5 percent. Typically, there are extensive areas of deep water and there is considerable wave action.

Land allocation — The decision to use land for various resource management objectives to best satisfy the issues, concerns, and opportunities, and meet assigned forest output targets.

Land exchange — The conveyance of non-federal land or interests to the United States in exchange for National Forest System land or interests in land.

Land Use Designation (LUD)

(As used in the 1979 Tongass Land Management Plan) General management direction applied to a Value Comparison Unit or group of Value Comparison Units. These four land use designations are defined as follows:

LUD 1. Forest Service recommended Wilderness areas, most of which became Wilderness through the 1980 Alaska National Interest Lands Conservation Act. In general, these undeveloped areas are managed for solitude and primitive types of recreation, and contain unaltered habitats for plants and animal species. These areas are managed as directed in the 1964 Wilderness Act and ANILCA, as amended.

LUD 2. Lands under this designation are managed in a roadless state to retain their wildland character. Primitive recreational facilities can be built and habitat improvements for fish and wildlife are permitted. Timber harvest on these lands is limited to salvage operations to protect other resources.

LUD 3. These lands are managed for a variety of uses. The emphasis is on managing for both amenity and commodity oriented uses in a compatible manner to provide the greatest combination of benefits. These areas usually have high amenity values in conjunction with high commodity values. Allowances in calculated potential timber yield have been made to meet multiple-use coordination objectives.

LUD 4. These lands are managed to provide opportunities for intensive development of resources. Emphasis is primarily on commodity or market resources and their use. Amenity values are also provided for. When conflicts over competing resource uses arise, conflicts would most often be resolved in favor of commodity values. Allowances in calculated potential timber yield have been made to provide for protection of physical and biological productivity.

Land Use Designation (LUD)

In the Forest Plan Amendment, a defined area of land specific to which management direction is applied.

Landform

Any physical, recognizable form or feature of the earth's surface, having a characteristic shape, and produced by natural causes. Major forms included are plains, plateaus, and mountains; minor forms are hills, valleys, slopes, eskers, and dunes.

Landing

A cleared area to which logs or trees are transported for loading onto trucks for transport to a mill or log transfer facility. Barges are sometimes used for landings in Southeast Alaska.

Landscape

A heterogeneous land area with interacting ecosystems that are repeated in similar form throughout (FEMAT).

Landslides

The moderately rapid to rapid downslope movement of soil and rock materials that may or may not be water-saturated.

Large woody debris (LWD)

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. Formerly called large organic debris.

Leasable minerals

Generally includes minerals such as coal, oil, gas, phosphate, sodium, potassium, oil shale, sulfur, and geothermal steam.

Lease

An authorization (usually long term) to possess and use public lands for a fixed period of time.

Leave strips A narrow band of forest trees left between cutting units.

Legacy trees A tree, usually mature or old growth, that is retained on a site after harvesting or natural disturbance to provide a biological legacy.

Locatable minerals Includes minerals such as gold, silver, lead, zinc, copper, and mercury.

Log transfer facilities (LTF) Formerly referred to as terminal transfer facilities, log transfer facilities include the site and structures used for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Logging residue (logging slash) The unused portion of trees cut during logging and left in the woods.

Logging systems

Ground Based. A system of log transportation in which logs are pulled from the woods to a landing by means of a crawler tractor, skidder, or similar ground-based equipment.
High-lead. A system of cable logging in which the working lines are elevated at the landing area by a rigged wooden tree or portable steel spar.
Skyline. A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable.
Helicopter. A system of transporting logs from the woods to a landing as an external load on a helicopter.

Long-term sustained yield (LTSY) timber capacity The highest uniform wood yield that may be sustained under a specific management intensity consistent with multiple use objectives on lands being managed for timber production.

LTF See the definition for log transfer facilities.

LTSY See the definition for long-term sustained yield timber capacity.

LUD See the definition for Land Use Designation.

LWD See the definition for large woody debris.

M

Macrophytes Any plant species that can be readily observed without the aid of optical magnification.

Major culvert A culvert that provides an opening of more than 35 square feet in a single installation or in a multiple installation in which the smallest opening is more than 19 square feet.

Managed stand A forested stand whose natural structure has been purposely altered through some regeneration or stocking control treatment.

MAI See the definition for mean annual increment.

Management area Combinations of adjacent Value Comparison Units having common management direction, as defined in the 1979 Tongass Land Management Plan.

Management concern	An issue, problem, or condition that constrains the range of management practices identified by the Forest Service in the planning process.
Management direction	A statement of multiple-use and other goals and objectives, the associated land use prescriptions, and standards and guidelines for attaining them.
Management Implementation Reduction Factor (MIRF)	An adjustment made to the timber outputs of the SPECTRUM computer model to account for anticipated effects on timber availability that cannot be accounted for in the computer model. (Also see the definition for falldown.)
Management Indicator Species	Plant or animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation to assess the effects of management activities on their populations and the populations of other species with similar habitat needs that they may represent.
Management practices	The activities applied to a defined area of land (land use designation as defined in the Forest Plan) to attain multiple-use and other goals and objectives.
Management prescription	Management practices and intensity selected and scheduled for application on a specific area (e.g., a land use designation) to attain multiple-use and other goals and objectives.
Management requirement	Standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, soil and water and diversity, to be met in accomplishing National Forest System goals and objectives. (See 36 CFR 219.17.)
Mariculture	The cultivation of plants and animals in saltwater, with no freshwater component. Mariculture does not include anadromous fish farming.
Marine access facility (MAF)	An area used by humans to transfer items from land to saltwater or vice versa, that contains a structure such as a mooring buoy, dock, LTF, boat ramp, or a combination of these.
Marine access point	An area that is used by humans to transfer items to saltwater generally where there is a trail that leads to saltwater and that has no associated structures.
Maritime climate	Weather conditions controlled by an oceanic environment characterized by small annual temperature ranges and high precipitation.
Mass-wasting	A general term for a variety of processes by which large masses of earth material are moved by gravity either slowly or quickly from one place to another. Also, mass movement.
MBF	Thousand board feet.
Mean annual increment (MAI)	The total increment of a tree or stand, up to a given age in years, divided by that age.
Memorandum of Understanding (MOU)	An agreement between the Forest Service and other agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund obligating document.
Microclimate	The temperature, moisture, wind, pressure, and evaporation (climate) of a very small area that differs from the general climate of the larger surrounding area.

Middleground The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the landscape. The area is located from 0.25 mile to 3 to 5 miles from the viewer. (See the definitions for foreground and background.)

Mineral development The activities and facilities associated with extracting mineral deposits.

Mineral entry Filing a mining claim on public land to obtain the right to mine any minerals it may contain. Also the filing for a mill site on federal land for the purpose of processing off-site minerals.

Mineral exploration The search for valuable minerals on lands open to mineral entry.

Mineral lease A lease that authorizes the development and production of leasible minerals from public lands.

Mineral production The extraction of mineral deposits.

Mineral rights The rights of one who owns the mineral estate (subsurface).

Mineral soils Soils consisting predominantly of, and having its properties determined by, mineral matter. These soils usually contain less than 20 percent organic matter, but can contain an organic surface layer up to within 20 inches of the surface.

Mineral withdrawal A formal designation by the Secretary of Interior that precludes entry or disposal of mineral commodities under the mining and/or mineral leasing laws.

Mining claims A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit.

MIRF See the definition for Management Implementation Reduction Factor.

Mitigate Take action to alleviate potential adverse effects of natural or human caused disturbances. For example, to lessen or minimize an adverse effect upon a cultural resource listed on or eligible for the National Register of Historic Places. The two categories of mitigation most often used for cultural resources are project modification and data recovery. Also to lessen or minimize an adverse effect upon a listed plant and animal species or on any resource.

Mixed conifer In Southeast Alaska, mixed conifer stands usually consist of the following species: western hemlock, mountain hemlock, yellow-cedar, redcedar, and Sitka spruce. Shorepine may occasionally be present depending on individual sites. Redcedar is not usually in mixed conifer stands on the central and northern portions of the Tongass. Mixed conifer sites indicate poor drainage and/or shallow soils.

MMBF Million board feet (see the definition for board feet).

Model An idealized representation of reality developed to describe, analyze, or understand it; a mathematical representation of the relationships under study (e.g., FORPLAN, wildlife habitat capability models).

Moderately well-drained soil Water in these soils is removed from them somewhat slowly, so that the profile is wet for a small, but significant, part of the time.

Moisture regime The variation of moisture content in a specified portion of soil during the year.

Monitoring Gathering information and observing results of management activities to provide a basis for the periodic evaluation of the Forest Plan.

Motor vehicle Any vehicle that is propelled by a motor, other than:
a. A vehicle operated on rails; and
b. Any wheelchair or mobility device, including one that is battery-powered, designed solely for use by a mobility-impaired person for locomotion, and suitable for use in an indoor pedestrian area (36 CFR 212.1).

Motor vehicle use map A map reflecting designated roads, trails, and other areas for motorized use on an administrative unit or a Ranger District of the NFS (36 CFR 212.1).

Motorized mixed use Designation of an NFS road for use by both highway-legal and non-highway-legal motor vehicles.

MOU See Memorandum of Understanding.

Multiaged (multicohort) stands A stand with two or more age classes or cohorts.

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; 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.

Municipal Watershed A watershed, designated on the Forest Plan Land Use Designation Map, that provides municipal water supplies (on the Tongass these include the municipal watersheds for Ketchikan, Petersburg, Sitka, Juneau, Wrangell, Kake, Klawock, Craig, or Hydaburg). Compare to public water supplies.

Muskeg Algonquin term for peatland. Usually applied to areas with sphagnum mosses, tussocky sedges, and an open growth of scrubby trees.

N

National Cooperative Soil Survey (NCSS) A program consisting of a joint effort of cooperating Federal agencies, land-grant universities, and other state and local agencies to map soils, collect soil data, interpret the maps and data, and promote their use. Federal leadership is provided by the National Resource Conservation Service.

National Environmental Policy Act of 1969 (NEPA) An act declaring a National policy to encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of man, 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 System road A forest road other than a road 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). The term “National Forest System road” is synonymous with the term “forest development road” as used in 23 U.S.C 205.

NFS 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 Forest Management Act (NFMA)	A law passed in 1976 that amends the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of Forest Plans.
National Forest System (NFS) land	Federal lands that have been designated by Executive Order or statute as National Forests, National Grasslands, or Purchase Units, or other lands under the administration of the Forest Service.
National Register of Historic Places	A register of cultural resources of national, state, or local significance, maintained by the U.S. Department of the Interior.
National Wild and Scenic River System	Rivers 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.
Native selection	Application by Native corporations formed under authority of the Alaska Native Claims Settlement Act of 1971 (ANCSA - Public Law 92–203, 85 Stat. 688) and by Native individuals (under Section 14(h)(5), ANCSA) to the USDI Bureau of Land Management (BLM) for conveyance of a portion of lands withdrawn under ANCSA in fulfillment of Native entitlements established under ANCSA. Native village corporations had 3 years from the date of ANCSA (December 18, 1971) to make their selections and regional corporations had 4 years. Native individuals who met the criteria had 2 years from the date of ANCSA to make application under Section 14(h)(5). BLM regulations allowed Native corporations formed under ANCSA to select in excess of their entitlements to ensure sufficient land would be available to meet full entitlement. Remaining lands in excess of entitlement, which have been selected but not conveyed, will revert back to unencumbered National Forest System land status after full entitlement is reached.
Net public benefit	The overall long-term value to the Nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index.
Net sawlog volume	Trees suitable in size and quality for producing logs that can be processed into lumber.
Net willingness-to-pay	The amount that a person would have paid for an activity above and beyond what the person actually did pay for that activity.
NFS	See the definition for National Forest System land.
NIC	See the definition for non-interchangeable components.
No-Action Alternative	The most likely condition expected to exist in the future if current management direction were to continue unchanged.
No adverse effect	A term used for cultural resources indicating the effect on a cultural resource would not be considered harmful to those characteristics that qualify the property for inclusion in the National Register.

No effect

A term used in a Biological Assessment indicating there would be no effect whatsoever, either positive or negative, or any effects are highly improbable or insignificant.

Noncommercial species

Tree species that have no economic values at this time or anticipated timber value within the near future.

Non-declining even flow

A flow of goods or services from a forest that does not decrease in successive periods.

Non-development LUDs

Land use designations that do not permit commercial timber harvest.

Non-forest land

Land that has never supported forests and lands formerly forested but now developed for such non-forest uses as crops, improved pasture, etc. (see the definition for forestland).

Non-highway legal vehicle

Any motor vehicle that is not licensed or certified for general operation on public roads within the State of Alaska.

Non-interchangeable components (NIC)

Non-interchangeable components (NICs) are defined as increments of the suitable land base and their contribution to the Allowable Sale Quantity (ASQ) that are established to meet Forest Plan objectives. NICs are identified as parcels of land and the type of timber thereon, which are differentiated for the purpose of Forest Plan implementation. The total ASQ is derived from the sum of the timber volumes from all NICs. NICs cannot be substituted for each other in the timber sale program.

NIC I. Normal Operability: This is volume scheduled from suitable lands using existing logging systems. Most of these lands are expected to be economic under projected market conditions. On average, sales from these lands have the highest probability of offering a reasonable opportunity for a purchaser to gain a profit from his/her investment and labor. This is the best operable ground.

Normal operability includes those systems most frequently used on the Tongass. These systems are tractor, shovel, standard cable, and some helicopter.

Tractor. Tractor logging includes all ground wheel or track system used for skidding logs to a landing. Shovel yarding is included; however, tractor or rubber-tire skidding used in conjunction with swing operations are not included.
Standard Cable. The most typical logging systems used on the Tongass. Included in the standard cable system component are highlead uphill, highlead downhill, slackline, running skyline, and flyer.
Standard Helicopter. Helicopter yarding with yarding distances up to 0.75 mile.

NIC II. Difficult and Isolated Operability: This is volume scheduled from suitable lands that are available for harvest using logging systems not in common use in Southeast Alaska. Most of these lands are presently considered economically and technologically marginal.

Difficult operability includes those systems used on the Tongass that have significantly higher cost. These may include balloon, long-span skyline, multi-span, or helicopter with yarding distances greater than 0.75 mile. This category also includes lands that have limited access as a result of being isolated by prior harvest activities or other management activities.

Long Span Cable. Cable systems that require longer than average yarding distances. Typical long-span cable systems considered are standing skylines and multispan.
Helicopter. Helicopter yarding with distances between 0.75 mile and 2 miles.
Isolated Operability. This class is comprised entirely of isolated stands. These are small stands of isolated timber that are extremely difficult to harvest. The harvest system could vary, but would be more costly due to the location of the stand. Typical harvest systems are helicopter with average yarding distances greater than 2 miles.

Nonmarket value

Products derived from National Forest resources that do not have a well-established monetary (market) value (e.g., wilderness and wildlife). (Noncash economic benefits.)

Nonpoint source (pollution)

Unlike point sources of water pollution, nonpoint sources are diffuse and can come from any land area. Nonpoint sources of water pollution originate from many undefinable sources such as agricultural and urban runoff, runoff from construction activities, and runoff from forestry practices. Nonpoint source pollutants are generally carried over or through the soil and ground cover via storm flow processes. The following activities are potential nonpoint sources of pollution: reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvest operations, surface drainage, and road construction and maintenance from which there is natural runoff. Best Management Practices are recognized as control mechanisms for nonpoint source pollution.

Non-timber forest products

All forest products except timber, including resins, oils, leaves, bark, plants other than trees, fungi, and animals or animal products. Previously called special forest products.

O

Objectives

The steps to be taken and the resources to be used in achieving goals.

Off-highway vehicle (OHV)

Any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (36 CFR 212.1).

OHV

See the definition for off-highway vehicle.

Old-growth forest

The (usually) late successional stage of forest development. Old-growth forests are defined in many ways; generally, structural characteristics used to describe old-growth forests include a) live trees: number and minimum size of both seral and climax dominants; b) canopy conditions: commonly including mulilayering; c) snags: minimum number and specific size; and d) logs and large (coarse) woody debris.

Old-growth associated species

Plant and animal species with habitat relationships that exhibit a strong association with old-growth forests.

Old-growth habitat reserve	A contiguous unit of old-growth forest habitat to be managed to maintain the integrity of the old-growth forest ecosystem.
Open road density	The length of forest development roads open for public access and use per unit area of land; usually expressed as miles of open road per square mile of land.
Operability	See the definition for non-interchangeable components.
Operation and maintenance costs	Costs associated with operating and maintaining facilities, program management, and support costs associated with management of other resources.
ORACLE	A relational database management system software package.
Order three inventory	A level of soil surveys made for extensive land uses that do not require precise knowledge of small areas or detailed soils information. Such survey areas are usually dominated by a single land use and have few subordinate uses. This information can be used in planning for range, forest, recreational areas, and similarly extensive land uses, and in community planning.
Order four inventory	A soil survey level made for extensive land uses that require general information for broad statements concerning land-use potential and general land management. This information can be used in locating, comparing, and selecting suitable areas for major kinds of land use in regional land-use planning, and in selecting areas for more intensive study and investigation.
Ordinary high water mark	The mark along the bank or shore up to which the presence and action of the nontidal water are common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore and indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics. (Consult 11 AAC 53.900 — Alaska Code.)
Organic soils	Soils that contain a high percentage (greater than 15 percent) of organic matter throughout the soil depth.
ORV	Off-road vehicle. (See the definition for off-highway vehicle.)
Unproductive forest land	Forest land incapable of yielding crops of industrial wood because of adverse site conditions.
Output	The measurable goods, end products, or services resulting from management activities that are purchased, consumed, or used directly by people.
Overflow	High runoff that overflows natural stream and river banks. Also known as flooding.
Overmature	A tree or an even-aged stand that has reached that stage of development when it is declining in vigor and health and reaching the end of its natural life span.
Overselection	Unconveyed lands selected in excess of entitlement. Overselections by the State of Alaska are authorized in Section 906 (f), ANILCA. They are authorized for Native corporations organized under ANCSA in Federal Regulations (43 CFR 2650).
Over-snow vehicle	A motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow (36 CFR 212.1).

Overstory The portion of trees in a forest that forms the uppermost canopy layer.

Overstory removal The cutting of trees constituting an upper canopy layer to release trees or other vegetation in an understory.

P

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 a condition in which free water covers the soil surface and is removed only by percolation, evaporation, or transpiration.

Palustrine wetland Includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 percent.

Parent material The unconsolidated, and more or less chemically weathered, mineral or organic matter from which soils develop.

PAOT See the definition for persons-at-one-time.

Partial cut (cutting) Removal of only part of a stand for purposes other than regeneration of a new age class. Partial cutting is not considered a regeneration method.

Parts per million (PPM) A measurement of concentration indicating the quantity of a substance per unit volume of a solution.

Payments to states A fund consisting of approximately 25 percent of the gross annual timber receipts received by the National Forests in that state. This is returned to the state for use on roads and schools.

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.

Peatland A generic term including all types of peat-covered terrain. Many peatlands are a complex of swamps, bogs, and fens.

Perennial A stream channel that flows continuously, year round. Compare to the definitions provided for ephemeral stream and intermittent stream.

Personal use 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 saw timber. 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 saw timber and 25 cords of wood, or an equivalent volume in other forms. Persons obtaining materials shall, on demand, forward to the supervisor a statement of the quantity taken and the location from which it was removed (36 CFR 223.10).

Persons-at-one-time Used to measure how many people can use a recreation facility at one time.

pH The degree of soil acidity or alkalinity.

Plan implementation — To carry out or fulfill Standards and Guidelines contained in the Land and Resource Management Plan (Forest Plan).

Plan of Operations — A Plan of Operations is required from anyone whose proposed operations, under the 1872 Mining Law, would cause, "significant surface disturbance." See 36 CFR 228, Subpart A.

Plan period — The period of time a Forest Plan is in effect, normally 10 years, but no longer than 15 years.

Planning area — All the lands addressed in a land management plan. For this document, it is the Tongass National Forest.

Planning cycle demand — As used in this document, the amount of timber that buyers are estimated to be willing to purchase over the next 10 to 15 years. Also see the definition for annual demand.

Planning horizon — The overall time period considered in the planning process that spans all activities covered in the analysis or plan, and all future conditions and effects of proposed actions that would influence the planning decisions more than 100 years.

Planning period — Generally a 10- to 15-year period. The time interval within the planning horizon that is used to show incremental changes to yields, costs, effects, and benefits.

Planning record — A system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment.

Plant association — A plant community type based on land management potential, successional patterns, and species composition.

Plant communities — An assemblage of plants that, in general, occur together on similar site conditions.

Point source (pollution) — A point at which pollution is added to a system, either instantaneously or continuously. An example is a smokestack.

Pole — A tree of a size between a sapling and a mature tree. On the Tongass, an immature tree between 5 and 9 inches diameter breast height.

Pollution — The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

Pond log value — Selling value minus manufacturing costs. Pond log values are the price a timber buyer would pay for a log at the mill site.

Pool — The portion of a stream with reduced current, often with deeper water than surrounding areas and with a smooth surface.

Poorly drained soils — Water in these soils is removed so slowly that the soil remains wet for a large part of the time. The water table is commonly at or near the surface during a considerable part of the year.

Population — The actual number of animals or plants present in an area at a certain time that share a common gene pool.

Population viability	Probability that a population will persist for a specified period of time across its range despite normal fluctuations in population and environmental conditions.
PPM	See the definition for parts per million.
Practicable	In reference to the Alaska Coastal Management Program, consistent with enforceable policies of approved management programs unless compliance is prohibited based upon the requirements of existing law applicable to the federal agency's operations.
Precommercial Thinning	See the definition for thinning.
Present Net Value (PNV)	The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area.
Prescribed fire	A wildland fire burning under planned conditions to accomplish specific land and resource objectives. It may result from either a management or natural ignition.
Preservation	A technique of conservation that maintains the resource in or on the ground in perpetuity.
Primary succession	Vegetation development initiated on newly formed soils or upon surfaces exposed for the first time (as by landslides or retreating glaciers), which have, as a consequence, never borne vegetation before. Any succession beginning on a bare area not previously occupied by plants or animals.
Priority use	A Forest Service commitment to the holder of a permit for outfitting and guiding to give priority consideration to granting the holder a specific amount of available future use.
Private road	A road under private ownership authorized by an easement granted to a private party, or a road that provides access pursuant to a reserved or outstanding right.
Process Group	A combination of similar channel types based on major differences in landform, gradient, and channel shapes. (A full description of process groups is located in Appendix D of the Forest Plan.)
Productive old growth (POG)	Old-growth forest capable of producing at least 20 cubic feet of wood fiber per acre per year, or having greater than 8,000 board feet per acre.
Programmatic Environmental Impact Statement	The document disclosing the environmental consequences of a program or plan that guides or prescribes the use of resources, allocates resources, or establishes rules and policies in contrast to disclosure of the environmental consequences of a site-specific project.
Programmed timber harvest	Timber harvest that occurs on suitable forested lands and that contributes to the allowable sale quantity.
Project	One or more site-specific activities designed to accomplish a specific on-the-ground purpose or result.
Proponent	An agency, institution, or individual applying to perform an activity on National Forest System lands under authority of a mining plan of operation, contract, license, special use authorization, or other agreement.

Public issue — A subject or question of widespread public interest relating to management of the National Forest System.

Public participation — Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Public road — A road under the jurisdiction of and maintained by a public road authority and open to public travel (23 U.S.C. 101(a)).

Public water supply — Public water supplies, or systems, include only state-designated Class A or Class B systems. These are defined by the State of Alaska's Drinking Water Regulations in 18 AAC 80.1990: "Class A public water system" means a public water system that (a) is expected to serve, year-round, at least 25 individuals, (b) is expected to serve, year-round, at least 15 residential service connections; or (c) regularly serves the same 25 or more individuals for at least 6 months of the year. "Class B public water system" means a public water system that is not a Class A public water system and regularly serves at least 25 individuals each day for at least 60 days of the year. A list of public water supplies is obtained from the Alaska Department of Environmental Conservation.

Purchase unit — A unit designated by the Secretary of Agriculture or previously approved by the National Forest Reservation Commission for purposes of Weeks Law acquisition (USDA Forest Service, undated, Land Areas of the National Forest System).

Q

Qualified Engineer — An engineer who by experience, certification, education, or license is technically trained and experienced to perform the engineering tasks specified, and is designated by the Director of Engineering, Regional Office.

R

Rare plants — Rare plants are those with potential conservation concerns on the Tongass National Forest. They may be common elsewhere; however, the edge of their range is known or suspected to be on the Tongass National Forest, or disjunct populations of the plant species occur the Tongass National Forest. The Alaska Natural Heritage Program tracks rare plant species, and gives them a state ranking of S1 to S5. This database will be the basis of the rare plant list for the Tongass National Forest. See the Alaska Natural Heritage plant list for guidance on rare plants known or suspected to occur on the Tongass National Forest.

RAW — See the definition for Reasonable Assurance of Windfirmness.

Reasonable Assurance of Windfirmness (RAW) Buffer — A managed area designed to contain windthrow within the area where timber harvest is allowed. It is use to protect Riparian Management Areas and adjacent stands. Also see the definition for Windthrow Management Area.

Real dollar value A monetary value that compensates for the effects of inflation.

Reburial and reinterment The replacement of disinterred human remains into the ground or otherwise disposing of such remains in a manner likely to approximate the wishes of the deceased (e.g., placement in burial caves, legal cemeteries, surface mortuary structures, or cremation where traditionally practiced).

Recreation capacity The number of people that can take advantage of the supply of a recreation opportunity during an established use period without substantially diminishing the quality of the recreation experience or the resources.

Recreation Opportunity Spectrum (ROS) A system for planning and managing recreation resources that categorizes recreation opportunities into six classes. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area and the relative density of recreation use. The seven classes are:

Primitive. An unmodified environment generally greater than 5,000 acres in size and located generally at least 3 miles from all roads and other motorized travel routes. A very low interaction between users (generally less than 3 group encounters per day) results in a very high probability of experiencing solitude, freedom, closeness to nature, tranquillity, self-reliance, challenge, and risk. Evidence of other users is low. Restrictions and controls are not evident after entering the land unit. Motorized use is rare.

Semi-Primitive Non-Motorized. A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located at least 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) but not further than 3 miles from all roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a high probability of experiencing solitude, freedom, closeness of nature, tranquillity, self-reliance, challenge, and risk. There is a minimum of subtle on-site controls. No roads are present in the area.

Semi-Primitive Motorized. A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located within 0.5 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer that 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) from better-than-primitive roads and other motored travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquillity along with a high degree of self-reliance, challenge, and risk in using motorized equipment. Local roads may be present, or along saltwater shorelines there may be extensive boat traffic.

Roaded Natural. Resource modification and utilization are evident, in a predominantly naturally-appearing environment generally occurring within 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) from better-than-primitive roads and other motorized travel routes. Interactions between users may be moderate to high (generally less than 20 group encounters per day), with evidence of other users prevalent. There is an opportunity to affiliate with other users in developed sites but with some chance for privacy. Self-reliance on outdoor skills is only of moderate importance with little opportunity for challenge and risk. Motorized use is allowed.

Roaded Modified. Vegetative and landform alterations typically dominate the landscape. There is little on-site control of users except for gated roads. There is moderate evidence of other users on roads (generally less than 20 group encounters per day), and little evidence of others or interactions at campsites. There is opportunity to get away from others but with easy access. Some self-reliance is required in building campsites and use of motorized equipment. A feeling of independence and freedom exists with little challenge and risk. Recreation users will likely encounter timber management activities.

Rural. The natural environment is substantially modified by land use activities. Opportunity to observe and affiliate with other users is important as is convenience of facilities. There is little opportunity for challenge and risk and self-reliance on outdoor skills is of little importance. Recreation facilities designed for group use are compatible. Users may have more than 20 group encounters per day.

Urban. Urbanized environment with dominant structures, traffic lights and paved streets. May have natural appearing backdrop. Recreation places may be city parks and large resorts. Opportunity to observe and affiliate with other users is very important as is convenience of facilities and recreation opportunities. Interaction between large numbers of users is high. Outdoor skills, risk, and challenge are unimportant except for competitive sports. Intensive on-site controls are numerous.

Recreation places — Identified geographical areas having one or more physical characteristics that are particularly attractive to people engaging in recreation activities. They may be beaches, streamside or roadside areas, trail corridors, hunting areas of the immediate area surrounding a lake, cabin site, or campground.

Recreation visitor day (RVD) — A measure of recreation use of an area. One recreation visitor day consists of 12 hours of recreation use of a site or area. Recreation visitor days are used to measure recreation production or output capacity.

Reducing soil condition — An environment in the soil conducive to the removal of oxygen and chemical reduction of ions caused by saturated soil conditions.

Reforestation — The re-establishment of forest cover either naturally (natural seeding, coppice, or root suckers) or artificially (direct seeding or planting).

Regeneration Method — A cutting procedure by which a new age class is created through methods of coppice, clear cutting, seed tree, shelter wood, and selection. Regeneration methods are grouped into four categories: coppice (stump sprouts not practiced in Southeast Alaska forests), even-aged, two-aged, and uneven-aged.

Rehabilitation — Actions taken to restore site productivity, water quality, or other resource values.

Research design — A statement of work to be done toward a particular goal. The research design details what will be done, how it will be done, what is required to do it, and why it is important or useful to do the work.

Research Natural Area (RNA) — An area in as near a natural condition as possible, which exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for scientific and educational purposes; commercial and most public uses are not allowed.

Reserve — A general term for an area of land recognized for, and managed to preserve or maintain, specific natural features. Wilderness is one common example. In the context of wildlife or fish habitat management, or biological diversity, an area set aside for the maintenance and perpetuation of its habitat or ecosystem features. (Also see the definitions for old-growth habitat reserve and non-development LUDs.)

Reserve trees — Trees that remain after timber harvest, for a variety of purposes purposes other than regeneration (e.g., to provide wildlife wildlife habitat or to mitigate effects on scenery).

Resident fish — Fish that are not migratory and complete their entire life cycle in fresh water.

Residual basal area — The basal area (per square feet per acre) of acceptable trees left standing after harvest.

Resource values — The tangible and intangible worth of forest resources.

Responsible official — The Forest Service employee who has the delegated authority to make a specific decision.

Restoration — **Ecology:** The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. The concept of ecological restoration is forward-looking. Restoration focuses on reestablishing composition, structure, and ecological processes to maintain or increase resilience of terrestrial and aquatic ecosystems in a dynamic, continually evolving world.
Recreation: The removal of non-historic elements from a historic structure and the replacement of missing elements.

Retention — The amount of commercial forest land removed from the timber base to protect other resource values.

Revegetation — The re-establishment and development of vegetation.

Riffles — Shallow rapids in an open stream, where the water surface is broken by waves caused by wholly or partially submerged obstructions.

Right-of-way — An easement, license, or permit to pass through another person's land. It does not grant an estate of any kind, only the right to use.

Rill — A very small channel.

Riparian area — Riparian areas encompass the zone of interaction between aquatic and terrestrial environments associated with streamsides, lakeshores, and floodplains, and display distinctive ecological conditions characterized by high species diversity, wildlife value, and resource productivity.

Riparian corridor — The floodplain and associated riparian soils, vegetation, and wetlands.

Riparian ecosystem — Land next to water where plants that are dependent on a perpetual source of water occur.

Riparian management area — Land areas delineated in the Forest Plan to provide for the management of riparian resources. Specific standards and guidelines, by stream process group, are associated with riparian management areas. Riparian management areas may be modified by watershed analysis.

Riverine wetland — A category in wetland classification that includes all wetlands and deepwater habitats contained within a channel, with two exceptions: 1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and 2) habitats with water containing ocean-derived salts in excess of 0.5 percent.

RMA — See the definition for riparian management area.

RNA — See the definition for Research Natural Area.

Road — A motor vehicle route over 50 inches wide, unless identified and managed as a trail (36 CFR 212.1).

Road construction or reconstruction — Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road (36 CFR 212.1).

Road decommissioning — Activities that result in the restoration of unneeded roads to a more natural state (FSM 7734).

Road density — The number of road miles per square mile of land area.

Roadless area — An area of undeveloped public land within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use. For purposes of this EIS, this is a generic term that includes inventoried roadless areas and unroaded areas (see these definitions).

Road Maintenance — The ongoing upkeep of a road necessary to retain or restore the road in accordance with its road management objective (FSM 7714).

Road Maintenance Level — Defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (FSH 7709.58, section 12.3).

Maintenance Level 1. Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period is 1 year or longer. Basic custodial maintenance is performed.

Maintenance Level 2. Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration.

Maintenance Level 3. Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.

Maintenance Level 4. Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.

Maintenance Level 5. Assigned to roads that provide a high degree of user comfort and convenience. Normally, roads are double-laned and paved, or aggregate surfaced with dust abatement.

Road management objectives

Define the intended purpose of an individual road based on management area direction and access management objectives. Road management objectives contain design criteria, operation criteria, and maintenance criteria.

Road subject to the Highway Safety Act

An NFS road that is open to public use in a standard passenger car. This includes a road with access restricted on a seasonal basis and a road closed during extreme weather conditions or for emergencies, but is otherwise open to public travel.

ROS

See the definition for Recreation Opportunity Spectrum.

ROS existing

The ROS setting in place, regardless of the official inventory.

ROS inventoried

A general inventory of the physical, social, and managerial setting for recreation, based on remoteness from modern human development and activity, modification of the land, and social factors such as crowding. (See the definition for Recreation Opportunity Spectrum.)

Rotation

In even-age systems, the period between regeneration establishment and final cutting.

Rotation age

The age at which final cutting occurs.

RPA

Forest and Rangeland Renewable Resources Planning Act.

RPA Assessment and Program

The RPA Assessment is prepared every 10 years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services. The RPA Program is prepared every 5 years to chart the long-term course of Forest Service management of the National Forests, assistance to state and private landowners, and research. They are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (16 U.S.C. 1601).

Rubble

All accumulations of loose angular rock fragments, commonly overlying outcropping rock.

Rural development

The management of human, natural, technical, and financial resources needed to improve living conditions, provide employment opportunities, enrich the cultural life, and enhance the environment of rural America. In the National Forest System, rural development is accomplished through partnerships.

S

Sacred sites

A place that has traditional spiritual values for Alaska Native people, reverently dedicated to a person or object or event or activity, and secured against violation or infringement or interference. Executive Order 13007 defines a 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 tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

Saleable minerals Include common varieties of sand, stone, gravel, pumice, pumicite, cinders, and clay. In general, these minerals are of wide-spread occurrence and are of relatively low unit value. They are generally used for construction materials and road building purposes.

Salmonid Any fish belonging to the family *Salmonidae*, which includes salmon and trout.

Salvage cutting The removal of dead trees or trees damaged or dying because of injurious agents other than competition to recover economic value that would otherwise be lost.

Saturated soils Soil condition where all the spaces between soil particles are filled with water.

Sawlogs (Sawtimber) The portion of a tree that is suitable in size and quality for the production of dimension lumber, collectively known as sawtimber.

Scenic Integrity Objective (SIO) A desired level of scenic quality and diversity of natural features based on physical and sociological characteristics of an area. Refers to the degree of acceptable alterations of the characteristic landscape. The adopted SIO is the SIO to be achieved as a result of management direction identified in the approved Forest Plan. SIOs are described below:

Very High: Landscapes where the landscape character is intact with only minute, if any, deviations. The existing landscape character and sense of place is expressed at the highest possible level.

High: Landscapes where the landscape character "appears" intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.

Moderate: Landscapes where the landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape being viewed.

Low: Landscapes where the landscape character "appears moderately altered." Deviations begin to dominate the landscape character being viewed but borrow valued attributes such as size, shape, edge effect, and pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.

Very Low. Landscapes where the landscape character "appears heavily altered." Deviations may strongly dominate the landscape character. They may not borrow from attributes such as size, shape, 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 so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

Scoping Determination of the significant issues to be addressed in an environmental impact statement.

Scree An accumulation of loose stones or rock debris lying on a slope or at the base of a cliff.

Scrub-shrub wetland Wetlands dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Southeast Alaska this includes forested lands where trees are stunted because of poor soil drainage.

Secondary channel Lateral channel with an axis of flow roughly parallel to the mainstem and fed by the mainstem.

Secondary stream production — Results from consumption by animals of materials produced in primary production in streams; this includes production of macroinvertebrates and some fish species.

Secondary succession — The process of re-establishing vegetation after normal succession is disrupted by fire, cultivation, lumbering, windthrow, or any similar disturbance.

Sediment — Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Seed tree cutting — The cutting of all trees except for a small number of widely dispersed trees retained for seed production to naturally regenerate a new age class. Seed trees are usually removed after regeneration is established.

Selection cutting — A silvicultural system used to create or maintain uneven-aged stands, usually by the periodic removal of groups of trees or individual trees. It is undertaken to provide periodic harvests, while maintaining full residual stand growth rates. It attempts to develop a balanced uneven-aged stand structure, including the encouragement of regeneration by providing the cultural measures needed for tree growth and seedling establishment. The selection system refers to the programs used to create or maintain the stand, while the selection method refers to the way in which the stand is regenerated. The cutting usually involves a mixture of regeneration and improvement cuts. Note that selection cutting is not the same thing as selective cutting (logging). Also see the definition for selective cutting.

Selective cutting — A cutting that removes only a portion of trees in a stand (see partial cutting). Note: Selective cutting is a general term that should not be confused with cutting done in accordance with the selection method.

Sensitive species — Plant or animal species that are susceptible or vulnerable to habitat alterations or management activities resulting in a viability concern for the species long-term persistence. Sensitive species may be those species under consideration for official listing as endangered or threatened species, are on an official state list, or are recognized by the Regional Forester as needing special consideration to ensure viable populations and to prevent their being placed on federal or state lists.

Sensitive travel route — A road system or marine water way that receives a moderate to high degree of use by the public, both Alaskan residents and tourists.

Sensitivity zone — A body of land that has been classified on the basis of cultural and environmental data, as having a high, medium, or low likelihood for containing cultural resources.

Settlement sale — The disposition of timber or other National Forest products, cut, damaged, or destroyed in conjunction with an authorized occupancy of a right-of-way or other use of National Forest land. In Wilderness it would be the sale of timber removed from an inholding access road or privately developed hatchery site. Also, the compensation of the United States for property taken or rendered unusable for other purposes incidental to some lawful use of National Forest land. When timber has a value, clearing the land for some use other than growing timber constitutes a forced sale.

Shelterwood — An even-aged regeneration method that removes most of the trees in a stand, except for those needed to produce sufficient shade to produce a new age class in a moderated microenvironment. The trees are removed in a series of cuts where the last removal cut releases the established regeneration from competition with the overwood.

SHPO — See the definition for State Historic Preservation Officer.

Side-slope break The abrupt change (usually decreases) in slope gradient defining the upper limit of channel incision.

Significant change Under NEPA, refers to the severity of the impact (i.e., the extent of harm on public health, historic resrouces, wetlands, or ecologically critical areas) and the extent of the impact (i.e., local, regional, or national). Refer to 40 CFR Part 1508.27. As used in the Soils section, it refers to change in productivity of the land as indicated by changes in soil properties that are expected to result in a reduced productive capacity over the planning horizon. Based on available research and current technology, a guideline of 15 percent reduction in inherent soil productivity potential is used as a basis for setting threshold values for measurable or observable soil properties or conditions. The threshold values, along with areal extent limits, will serve as an early warning signal of reduced productive capacity. A more stringent basis than 15 percent can be used where appropriate and documented.

Significant impairment Changes in the productivity of the land as indicated by changes in soil properties that would result in significant changes in the inherent productive capacity that last beyond the planning horizon.

Significant surface disturbance Changing the aboveground environment so much that returning that site to the condition it was in before the change is difficult or impossible. Road construction, use of mechanical earthmoving equipment, including backhoes and bulldozers, construction of buildings, and cutting of timber are all examples of activities that are considered to cause significant disturbance to surface resources. An evaluation of proposed operations must be made on a case-by-case basis to determine if disturbance is considered significant. For example, a mining activity in an alpine area may result in significant disturbance that takes years to reclaim, while the same activity conducted at a lower elevation where natural conditions are not as severe may result in a disturbance that would take only a few months to successfully reclaim.

Silvicultural system A planned series of treatments for tending, harvesting, and re-establishing a stand. Note: The individual system name is based on the number of age classes (even-aged, two-aged, uneven-aged) or the regeneration method (clearcutting, seed tree, shelterwood, selection) used.

Silviculture The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

Single-tree selection A regeneration method used to develop and maintain uneven-aged stands by removing individual trees of all sizes more or less uniformly throughout the stand, to promote growth of remaining trees and to provide space for regeneration.

SIO See the definition for Scenic Integrity Objective.

Site index A species-specific measure of actual or potential forest productivity (site quality, usually for even-aged stands), expressed in terms of the average height of trees included in a specified stand component (defined as a certain number of dominants, codominants, or the largest and tallest trees per unit area) at a specified index or base age. Note: Site index is used as an indicator of site quality.

Site preparation Hand or mechanized manipulation of a site designed to enhance the success of regeneration.

Site-potential tree height	The average height of a given species of tree when mature on a given site.
Site productivity class	A species-specific classification of forest land in terms of inherent capacity to grow crops of industrial, commercial wood.
Skyline logging	See the definition for logging systems.
Slash	The residue (e.g., treetops and branches) left on the ground after logging or accumulating as a result of storm, fire, girdling, or delimbing.
Slope distance	Distance measured along the contour of the ground.
Slough	A creek in a marsh or tide flat. The water level fluctuates with the tide.
Smolt	A young silvery-colored salmon or trout that moves from freshwater streams to saltwater.
Snag	A non-living standing tree usually greater than 5 feet tall and 6 inches in diameter at breast height. The interior of the snag may be sound or rotted.
Soil conservation practices	Practices that are mechanisms used to protect soil quality while managing for other resource goals and objectives. They can be administrative, preventive, or corrective measures. They are identified during project planning and design.
Soil drainage	The rapidity and extent of the removal of water from the soil, in relation to additions especially by surface runoff and by flow through the soil to underground spaces.
Soil mass movement	See the definition for mass movement.
Soil productivity	The capacity of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific system of management.
Soil quality standards	Standards that are a combination of 1) “threshold” values for severity of soil property alteration, or significant change in soil properties conditions; and 2) areal extent of disturbance.
Soil Resource Inventory (SRI)	An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.
Somewhat poorly drained soil	Water in the soil is removed from the soil slowly enough to keep it wet for significant periods but not all of the time.
Special Interest Areas	A designation for areas possessing unique or unusual scenic, historic, prehistoric, geodesic scientific, or other characteristics.
Special Use Authorization	A permit, term permit, temporary permit, lease, or easement that allows occupancy or use of, or rights and privileges on National Forest System lands.
Special Use Permit	Permits and granting of easements (excluding road permits and highway easements) authorizing the occupancy and use of land.
SPECTRUM	The Forest planning model. A linear programming software package used for the 2007 Plan Amendment to analyze management alternatives for land use patterns and timber harvest scheduling and out puts.

Speleothem Any secondary mineral deposit or cave formation that is formed by the action of water. Examples are stalagmites, stalactites, flow stone, bacon rind drapery, helictites, soda straws, and crystal growths.

Split lines The process of separating the direction of timber harvest yarding into opposite directions.

SRI See the definition for Soil Resources Inventory.

Stabilization The process of arresting the deterioration of a damaged cultural resource in order to prevent further damage from occurring. Stabilization may include reconstructing portions of the cultural resource.

Stand A contiguous group of trees sufficiently uniform in composition, age class distribution, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

Standard A course of action or level of attainment required by the Forest Plan to promote achievement of goals and objectives.

Stand Density Model (SDM) A recently developed forest-mapping model based on average tree size (quadratic mean diameter) and average tree density (stand density index), used to describe stand structural characteristics

State Historic Preservation Officer (SHPO) The official appointed or designated pursuant to Section 101(b)(1) of the National Historic Preservation Act of 1966, as amended, to administer the State Historic Preservation Program.

State selection (from National Forest System lands) Application by Alaska Department of Natural Resources to the USDI Bureau of Land Management for conveyance of a portion of the 400,000 acre State entitlement from vacant and unappropriated National Forest System lands in Alaska, under authority of Section 6(a) of the Alaska Statehood Act of 1959 (Public Law 85-508, 72 Stat. 340). For lands to be conveyed, State selections must be approved by the USDA Forest Service, Regional Forester, Alaska Region under criteria of the Statehood Act. Until approved by the Regional Forester, the State application is not considered a valid selection. The State can select up to 25 percent in excess of its remaining entitlement.

Strata See the definition for volume strata.

Stratigraphic Depositional units or layers of sediment distinguished by composition or appearance that are associated with archaeological and historic sites.

Stream bed The substrate plane bounded by the stream banks, over which the water column moves. Also called the stream bottom.

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 break in slope from the stream bottom. An obvious change in substrate may be a reliable delineation of the bank.

Stream class A means to categorize stream channels based on their fish production values. There are four stream classes on the Tongass National Forest ***(FSH 2090.21 (2001) Chapter 10, Section 12)***, including:

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

known 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 (15 feet).

Streams that do not meet both the width and incision criteria may be classified as Class III streams based on a 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 mobile fine sediments, sand deposits, or deep soils that can provide an abundant source area for sedimentation.
b. Very steep gradient channels (greater than 35 percent slope).
c. Recently transported bedload or woody debris wedges (especially if deposited outside high water mark).
d. High water indicators (scour lines, drift lines, etc.) that greatly 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 capacity 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. Class IV streams must have bankfull width of at least 0.3 meter (1 foot) over the majority of the stream segment. For perennial streams, with average channel gradients less than 30 percent, special care is needed to determine if resident fish are present (resident fish presence dictates a Class II designation).

Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in width, little or no incision into the surrounding hillslope, and with little or no evidence of channel scour. (Note: These micro-drainage features are not mapped in GIS hydrography layers.)

Streamflow The discharge of water from a watershed that occurs in a natural stream channel.

Steam order First order streams are the smallest unbranched tributaries; second order streams are initiated by the point where two first order streams meet; third order streams are initiated by the point where two second order streams meet, and so on.

Structure A term in ecology referring to the arrangement of plant communities or ecosystems across a landscape and how they are connected, and to variations in tree heights and diameters within a stand or between stands.

Subsistence Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use 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 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."

Subspecies An aggregate of similar populations of a species generally inhabiting a geographic subdivision of the range of the species and differing taxonomically (e.g., different size or color) from other populations of the species.

Substrate The size of rock in the bed (bottom) of rivers and streams.

Suitable forest land Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions; there is reasonable assurance that such lands can be adequately restocked; and there is management direction that indicates that timber production is an appropriate use of that area (see Appendix A). The term suitable Forest land is sometimes used to represent three slightly different land bases, as follows:

Mapped Suitable. The suitable forest land that can be defined on a map at the planning stage. It is based on the available mapping of soils, streams, and other resources used to define suitable forest land (see Appendix A).

Estimated Actual Suitable. The estimated actual suitable forest land after subtracting the estimated falldown from the mapped suitable.

Scheduled Suitable. The amount of the estimated actual suitable that is scheduled for harvest over a planning period.

Supplemental funds Funds or materials used to finance the additional cost of a road to a higher standard than is needed for a timber sale.

Suppression *Fire*: The act of extinguishing or confining a fire.
Silviculture: The process whereby a tree or other vegetation loses vigor and may die when growing space is not sufficient to provide photosynthate or moisture to support adequate growth.

Surface rights All rights in the surface of the land except oil, gas, and other mineral or subsurface rights.

Suspended sediment The very fine soil particles that remain in suspension in water for a considerable period of time without contact with the stream or river channel bottom.

Sustained yield The yield that a forest can continuously produce at a given intensity of management.

Swale A slight, marshy depression in generally level land. A depression in glacial ground moraine.

Symbol Inclusive of all rock art, totemic, and clan symbols.

T

Taxa For the purposes of this Plan and FEIS, taxa are animal species or sub-species.

Temporary facility Any structure or other human-made improvement that can be readily and completely dismantled and removed from the site when the authorized use terminates.

Temporary roads Roads authorized by contract, permit, lease, or emergency operation, not intended to be part of the forest transportation system and not necessary for long-term resource management.

Tentatively suitable forest land Forest land that is producing or is capable of producing crops of industrial wood, and a) has not been withdrawn by Congress, the Secretary of Agriculture, or the Chief of the Forest Service; b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity or watershed conditions; c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock adequately within 5 years after final harvest; and d) adequate information is available to project responses to timber management activities.

Thinning A cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality. Thinning may also be done to manipulate stand characteristics to improve wildlife or riparian habitat, or to enhance scenery. Types of thinning include:

Precommercial (PCT). The removal of trees not for immediate financial return but to reduce stocking to concentrate growth on the more desirable trees.
Commercial (CT). Any type of thinning producing merchantable material at least equal to the value of the direct costs of harvesting,

Threatened species A plant or animal species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Threshold The point or level of activity beyond which an undesirable set of responses begins to take place within a given resource system.

Tiering Elimination of repetitive discussions of the same issue by incorporating, by reference, the general discussion in an environmental impact statement (EIS) of broader scope. For example, a project environmental assessment could be tiered to the Forest Plan EIS.

Timber Wood, other than fuelwood, potentially useable for lumber.

Timber classification Forested land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose:

Non-Forest. Land that has never supported forests, and land formerly forested where use for timber production is precluded by development or other uses.
Forest. Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for non forest use.
Suitable. Land to be managed for timber production on a regulated basis.
Unsuitable. Land withdrawn from timber utilization by statute or administrative regulation (e.g., Wilderness), or identified as inappropriate for timber production in the Forest planning process.
Commercial Forest. Land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

Timberlands

Forest lands producing or capable of producing crops of industrial wood. Areas qualifying as timberland can produce more than 20 cubic feet per acre per year of industrial wood at culmination of mean annual increment.

Timber production

The purposeful growing, tending, harvesting, and regeneration of trees for industrial or consumer use.

Timber Stand Improvement

An intermediate treatment made to improve the composition, structure, condition, health, and growth of even or uneven aged stands.

Timed meander

A proven floristic survey method where the surveyor enters the field, records the time, and records all species, while moving through the unit in a meandering search path covering all habitat variations. If after a certain time no new species are found, the survey is considered complete.

Tongass Resource Use Cooperative Survey (TRUCS)

A study done to gather information on subsistence uses of the Forest.

Total stream discharge

Total water outflow from stream or river.

Traffic Service Level (TSL)

Describes a road's significant traffic characteristics and operating conditions. The levels reflect a number of factors, such as speed, travel time, traffic interruptions, freedom to maneuver, safety driver comfort, convenience, and operating costs. These factors, in turn, affect design elements such as number of lanes, turnout pacing, lane widths, type of driving surface, sight distances, design speed, clearance, horizontal and vertical alignment, curve widening, and turnarounds.

TSL A. Reflects transportation efficiency and mobility with few interruptions to flow and a stable smooth driving surface.

TSL B. Generally would have alignment more influenced by topography and more interruptions, but still usually a stable smooth driving surface.

TSL C. One could expect much more sinuous alignment to reduce construction costs with a surface that may not be stable under all traffic or weather conditions.

TSL D. Generally constructed for a single purpose, and traffic is discouraged for other purposes; surface and alignment is rough and irregular; very low speeds are anticipated to be able to safely negotiate the road.

Transportation and Utility System (TUS)

Significant corridors with their associated sites used to accommodate public transportation and energy transmission needs.

Avoidance Area. An area where the establishment and use of transportation or utility corridors and sites is not desirable given the land use designation emphasis. A search for "windows" should be exhausted before TUS facilities are considered in avoidance areas. When practical, these areas should be avoided through site-specific analysis during project-level planning. Avoidance areas often include Congressionally and administratively designated areas. Although special environmental and procedural considerations may be required for these areas, these special designations do not preclude consideration and use as a TUS. Avoidance areas are designated through the allocation of lands to management prescriptions specifically identified as TUS avoidance areas in their Standards and Guidelines.

Exclusion Area. A large area (large enough to cause significant barriers) that legislatively precludes transportation and utility systems. Due to special authorities provided in Title XI, ANILCA, there will be no exclusion areas on the Tongass.

Window. An area potentially available for the location of transportation or utility corridors and sites.

Transportation/Utility corridor — A linear strip of land identified for the present location of transportation or utility rights-of-way within its boundaries (USDA Forest Service, Region 6 memo dated December 2, 1987 from Director of Lands and Minerals to Director of Planning).

Travel management — Providing for the safe, environmentally responsible, and customer responsive movement of vehicles and people to and through public lands (social attributes).

Travel Management Plan — The plan for the system of access roads, trails, and airfields needed for the protection, administration, and utilization of the National Forests and other lands administered by the Forest Service, or the development and use of resources upon which communities within or adjacent to the National Forests are dependent (36 CFR 212.1). The plan also addresses permanent or temporary road closures necessary for resource protection or public safety.

TRUCS — See the definition for Tongass Resource Use Cooperative Survey.

Trust — A right of property, real or personal, held by one party for the benefit of another (Black 1979).

TTRA — Tongass Timber Reform Act of 1990.

Turbidity — An expression of the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through a water sample; turbidity in water is caused by the presence of suspended matter such as clay, silt, finely divided organic and inorganic matter, plankton, and other microscopic organisms.

TUS — See the definition for Transportation and Utility System.

Two-aged management — A regeneration method that regenerates and maintains a stand with two-age classes where the reserved trees are distributed somewhat evenly as individual or clumps and represent 15 percent or more of the stand's pre-treatment basal area. The resulting stand may be two-aged or trend towards an uneven-aged condition as a consequence of both an extended period of regeneration establishment and the retention of
reserved trees that may represent one or more age classes. Two-aged stands are created using these regeneration methods:

1. Clearcutting with reserves
2. Seed tree with reserves
3. Shelterwood with reserves.

The reserved trees are not harvested to attain goals other than regeneration.

Type conversion — The act of converting a plant community from one vegetative type to another. In forestry, it is the act of changing the existing dominant tree species from one type to another.

U

Unconfined streams — Streams that, due to lack of stream incision, and effects of geomorphic landform characteristics and local geologic conditions, result in streams overflowing their

banks, changing flows to other channels, and establishing new channels during flood conditions.

Understory vegetation — All forest vegetation growing under an overstory

Undertaking — In cultural resources, any project, activity, or program that can result in changes in the character or use of historic properties, if any such properties are located in the area of potential effects. The project, activity, or program must be under the direct or indirect jurisdiction of a federal agency or be licensed or assisted by a federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106, National Historic Preservation Act of 1966, as amended.

Uneven-aged management — A planned sequence of treatments designed to maintain and regenerate a stand with three or more age classes.

Unprogrammed timber harvest — Timber harvest that occurs on unsuitable forested lands and does not contribute to the allowable sale quantity.

Unroaded area — An undeveloped area typically less than 5,000 acres but of a size and configuration sufficient to protect the inherent characteristics associated with its roadlless condition.

Unsuitable lands — Forest land not managed for timber production because: 1) Congress, the Secretary, or the Chief has withdrawn it; 2) it is not producing or capable of producing industrial wood; 3) technology is not available to prevent irreversible damage to soils productivity or watershed conditions; 4) there is no reasonable assurance, based on existing technology and knowledge, that it is possible to restock lands within 5 years after final harvest; 5) there is, at present, a lack of adequate information about responses to timber management activities; or 6) timber management is inconsistent with or not cost efficient in meeting the management requirements and multiple-use objectives specified in the Forest Plan.

Upland — Areas that do not classify as wetlands or riparian areas.

Utilization volume — Logs that do not meet minimum requirements for sawtimber but are suitable for the production of usable chips.

Utility standards
Utility volume — Standards guiding the use and removal of timber. They are measured in terms of diameter at breast height (DBH), top of the tree inside the bark (top DIB), and the percentages of “soundness” of the wood.

V

VAC — See the definition for visual absorption capability.

Valley — An elongated, relatively large, externally drained depression of the earth’s surface that is primarily developed by stream erosion.

Valley bottom — A general term for the nearly level to gently sloping part of a valley. Also referred to as the valley floor.

Value Comparison Unit (VCU)

First developed for the 1979 Tongass Land Management Plan as distinct geographic areas that generally encompass a drainage basin containing one or more large stream systems. Boundaries usually follow easily recognizable watershed divides. There are 926 units established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made.

VCU

See the definition for Value Comparison Unit.

Veneer log

A log considered suitable in size and quality for producing veneer that is a thin sheet of wood of uniform thickness.

Very poorly drained soils

Water is removed from the soil so slowly that the water table remains at or on the surface the greater part of the time. Soils of this drainage class usually occupy level or depressed sites and are frequently ponded.

Viable population

For forest planning purposes, a fish or wildlife population that has the estimated number and distribution of reproductive individuals to insure its continued existence is well distributed in the National Forest.

Viewshed

An expansive landscape or panoramic vista seen from a road, marine waterway, or specific viewpoint.

Visual absorption capability (VAC)

The capability of the landscape to visually absorb management activities. Landscapes are rated with high, intermediate, or low abilities to absorb management activities. These ratings reflect the degree of landscape variety in an area, viewing distance and topographic characteristics. As an example, steep, evenly sloped landscapes viewed in the foreground to middleground are typically given a low VAC rating.

V-Notches

A deeply incised valley along some waterways that would look like a “V” from a frontal view. These abrupt changes in terrain features are often used as harvest unit or yarding boundaries.

Volume strata

Divisions of old-growth timber volume derived from the interpreted timber type data layer (TIMTYP) and the common land unit data layer (CLU). Three volume strata (low, medium, and high) are recognized in the Forest Plan. These have been further subdivided in the size density model.

W

WAA

See the definition for Wildlife Analysis Area.

Watershed

The area that contributes water to a drainage or stream. Portion of the forest in which all surface water drains to a common point. Watersheds can range from tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.

Third order watershed. A watershed where there are (generally) two major branches to the mainstream of the watershed. (Also see the definition for stream order.)

Fourth order watershed. A watershed that contains at least two third order watersheds.

Watershed analysis — A systematic procedure for characterizing and evaluating ecological processes within a watershed to meet specific management and social objectives. Forest Plan Appendix C explains the process for watershed analysis on the Tongass .

Water table — The upper surface of the ground water or that level below which the soil is saturated with water.

Well-drained soils — Water is removed from the soil readily, but not rapidly.

Wetlands — Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wild and Scenic Rivers — Rivers or sections of rivers designated by congressional actions under the 1968 Wild and Scenic Rivers Act. Wild and scenic rivers may be classified and administered under one or more of the following categories:

Wild river areas. Rivers or sections of rivers that are 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 river areas. Rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

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

Wilderness — Areas designated by congressional action under the 1964 Wilderness Act or subsequent Acts. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historic value as well as ecologic and geologic interest. On the Tongass National Forest, Wilderness has been designated by the Alaska National Interest Lands Conservation Act of 1980 and Tongass Timber Reform Act of 1990.

Wildfire — Any wildland fire not designated and managed as a prescribed fire within an approved prescription. All wildfires will be given an appropriate suppression action.

Wildlife Analysis Area — A division of land used by the Alaska Department of Fish and Game for wildlife analysis (WAA).

Wildlife Reserve Trees — Dead, dying, defective, or damaged trees left standing after harvest to provide wildlife habitat.

Windfirm — Trees not likely to be blown over by the wind. These are usually trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features or other trees.

Windthrow — The act of trees being uprooted by the wind. In Southeast Alaska, Sitka spruce and hemlock trees are shallow rooted and susceptible to windthrow. There are generally three types of windthrow—endemic where individual trees are blown over;

catastrophic where a major windstorm can destroy hundreds of acres; and management related, where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.

Windthrow management area — A managed area designed to minimize windthrow within an adjacent no-harvest area.

Winter range — An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.

Withdrawal — The withholding of an area of federal land from settlement, sale, location, or entry under some or all of the general land laws for the purpose of limiting activities under those laws in order to maintain other public values in the area.

Y

Yarding — To convey logs or trees to a landing by cable, helicopter or other systems. Shovel-yarding is also used in Southeast Alaska.

Young growth — Forest growth that has regenerated naturally or has been planted after some disturbance (e.g., clearcut harvest, serious fire, catastrophic windthrow, or insect attack) to the previous forest growth.

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APPENDIX A
TIMBER RESOURCE LAND SUITABILITY

Appendix A

Timber Resource Land Suitability

Introduction

This appendix presents the results and describes the process followed to identify the lands on the Tongass National Forest that are suitable for timber production. This is accomplished in two major steps: 1) the identification of lands that are legally and practicably capable of timber production, called *tentatively suitable* lands; and 2) from the tentatively suitable lands, the selection of lands that are *suitable* for timber production based on all the multiple-use objectives for the Forest. Suitable lands in the Forest Plan constitute the land base for determining the Allowable Sale Quantity (ASQ) and all vegetation management practices associated with timber production.

Tentatively Suitable and Suitable Acres

The suitability process depends heavily on the various resource layers within the Tongass-wide geographic information system (GIS) library. This library has been substantially updated over the past 11 years (since publication of the 1997 Plan). In addition, the Tongass land base has undergone minor changes due to land adjustments. Therefore, the identification of tentatively suitable forest lands was updated for the current Plan amendment. In addition, lands suitable for timber production based on multiple-use objectives were identified for each of the alternatives analyzed in detail in the Final EIS for the amendment. The general process defined in National Forest Management Act (NFMA) Regulations 36 Code of Federal Regulations (CFR) 219.14 was followed. Table A-1 displays the results of the tentatively suitable and suitability processes and lists the acreage of those lands identified as not appropriate for timber production.

Table A-1.
Land Classification (thousands of acres) of Tentatively Suitable and Suitable Lands

Classification	Acres (thousands)[1]
Total National Forest Land (items 1 and 2)	16,774
1. Non-Forest land (includes water)	6,918
2. Forest land	9,856
3. Forest land withdrawn from timber production	4,234
4. Available Forest land (item 2 minus item 3)	5,621
5. Non-productive Forest land	2,339
6. Available timberlands (item 4 minus item 5)	3,282
7. Timberlands physically unsuitable for timber management	572
8. Timberlands with inadequate information	345
9. Tentatively suitable timberlands (item 6 minus items 7 and 8)	2,365
10. Tentatively suitable timberlands allocated to Land Use Designations that do not allow timber management	1,365
11. Mapped suitable (item 9 minus item 10)	1,000
12. Model implementation reduction factor (MIRF) acreage	226
13. Estimated actual suitable (item 11 minus item 12)	773
14. Scheduled suitable (based on modeling)	663

[1] Based on GIS database; numbers are approximate due to rounding.

Background

The criteria used on the Tongass for identifying tentatively suitable forest lands were originally developed prior to the 1997 Forest Plan by a task force established in 1987. This task force was comprised of a technical working group and consultant/reviewers.

Working group members included the following:

Bill Wilson	Interdisciplinary Team Timber Planner - Chairman
Bob Gerdes	Stikine Area Forester
Dave Loggy	Ketchikan Area Soils Scientist
Jim Russell	Chatham Area Silviculturist
Jim Douglas	Society of American Foresters Representative

Consultant/reviewers included the following:

Paul Alaback	Forest Science Lab
Don Finney	Alaska Loggers Association
Bart Koehler	Southeast Alaska Conservation Council

The role of the task force was limited to identifying the biologic criteria and availability of Forest lands to be considered as suitable for producing industrial wood products as described in the National Forest Management Act (NFMA) Regulations 36 Code of Federal Regulations (CFR) 219.14 (a)(1) through (4). NFMA Regulations 36 CFR 219.14 - Timber Resource Land Suitability were used. The task force was responsible for Section (a)(1) through (4).

Forest Service Handbook (FSH) 2409.13 contains criteria for identifying tentatively suitable and suitable forest lands in accordance with 36 CFR 219.14. The process for identifying suitable lands using these criteria is summarized in the following chart.

Modifications to Process for Identification of Lands Suitable for Timber Production

There have been several changes to the 1987 timber resource land suitability process. The changes are described below.

1. Process 3: Is Irreversible Damage Likely to Occur?

   Extreme Hazard Soils. On July 5, 1995, the Forest Service published an overview of the characteristics controlling hillside stability in Southeast Alaska. The paper concluded, based on the findings, that Mass Movement Index 3 and 4 (MMI 3 and MMI 4, respectively) should be adjusted for the 1997 Forest Plan Revision. MMI 3 should be from 51 to 72 percent slope and MMI 4 should be slopes greater than 72 percent. Previously, 75 percent slope had been used for the cutoff.

2. Process 4: Can the Area be Restocked within 5 Years?

   McGilvery Soils. Harvest may occur on McGilvery soils on a case-by-case basis. The areas were included in the tentatively suitable land base because previous harvest using partial suspension on these soil series has been certified as regenerated, and are moderately productive.

PROCESS FOR IDENTIFICATION OF LANDS SUITABLE FOR TIMBER PRODUCTION (FSH 2409.13-92-1)

Is land forested? YES	NO	Unsuitable (non-forest)
Is land capable of producing crops of industrial wood? YES	NO	Unsuitable (non-industrial wood)
Is irreversible damage likely to occur? NO	YES	Unsuitable (irreversible damage)
Can area be restocked within 5 years? YES	NO	Unsuitable (restocked)
Is adequate response information available? YES	NO	Unsuitable (no information)
Is land withdrawn from timber production? NO. Land is then tentatively suitable for timber production.	YES	Unsuitable (withdrawn)
Is land selected in alternative for timber production? YES. Land is then suitable for timber production.	NO	Not appropriate (unsuitable in preferred alternative and Forest Plan)

Process 1

Is Land Forested?

Forest Land. Land at least 10 percent occupied by forest trees or formerly having had such tree cover and not currently developed for non-forest use. Forest trees are defined as woody plants having a well-developed stem and usually more than 12 feet in height at maturity. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative areas, improved (constructed) roads of any width and adjoining road clearing, and power line clearing of any width. The term occupancy, when used to define forest land, shall be measured by canopy cover of live forest trees at maturity. The minimum area for classification of forest land is 5 acres or greater, consistent with regional mapping standards. Unimproved roads, trails, streams, and clearings in forest areas are classified as forest, if they are less than 120 feet in width.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the definition will be classified as forested.
   a) Vegetative Inventory—National Forest lands identified as having a forested Cover Type (CT) in the Forest Plan Geographic Information System (GIS) Database include all existing forest types meeting the 10 percent crown cover and currently non-stocked forest land formerly having had 10 percent crown cover.

Code	***Description***
F	Forested

b) Soils Inventory—National Forest lands with soils inventoried as having forested plant association in the Forest Plan GIS Database will be compared to the vegetative inventory to ensure all Nonwilderness forested lands are identified. Forested lands in the Soil Mapping Unit (SMU) are identified in the CT of the SMU look-up table (SMUT).

Code	*Descriptions*
F	Forested

c) Lands Inventory—National Forest lands currently developed for non-forest use, including administrative sites and powerline clearings, will be identified in the Forest Plan GIS Database and classified as unsuitable. Forested encumbered National Forest lands satisfy the forested criteria until selections are conveyed to the State of Alaska or Native corporations.

d) Roads Inventory—Existing specified roads and adjoining road clearings on National Forest lands will be identified in the Forest Plan GIS Database and classified as unsuitable. The existing road status (STATUS) is listed below.

Code	*Description*
E	Existing

Note: All resource inventory information will not be available for existing Wilderness. As a minimum, the vegetative inventory will be used to identify forested lands within Wilderness.

Process 2

Is Land Capable of Producing Crops of Industrial Wood?

Forest Land Capable of Producing Industrial Wood. Lands that are not capable of producing crops of industrial wood are, by definition, to be classified as unsuitable for timber production. Species of trees that are not currently utilized or not expected to be utilized within the next 10 years, constitute the primary criterion for assigning lands to this category. This does not preclude, however, the formulation of an alternative to display management opportunities, if a demand develops.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), but are not capable of producing industrial wood products, will be classified as unsuitable.
   a) Vegetative Inventory—Mature stands of non-industrial forest types will be identified in the Forest Plan GIS Database and classified as unsuitable. Forest Type (FT) codes are listed below.

Codes	*Description*
P	Black Cottonwood
L	Lodgepole Pine
A	Alder

Note: A review of the soils GIS inventory indicates that there are no SMUs that have occurrences of Plant Associations with 50 percent or greater of the noncommercial species listed above on the Tongass National Forest. The vegetation inventory will be used to identify unsuitable lands in both Wilderness and Nonwilderness.

Physically Suitable Forest Land. Forest lands physically suitable for timber production are lands where technology is available to ensure timber production, without irreversible resource damage to soil productivity or watershed conditions, and lands where there is reasonable assurance can be adequately restocked within 5 years. The latest developments in technology that are documented in current research and experience are to be considered in these determinations. Economic efficiency is not a factor in the determination of physical suitability.

The next two steps (Process 3 and Process 4) are subparts of the Physically Suitable screen.

Process 3

Is Irreversible Damage Likely to Occur?

Irreversible Damage. The first test of physically suitable forest land is for irreversible damage. This test shall be performed by an Interdisciplinary Team. It shall determine if activities involved in timber production can be carried out on forest land without irreversible resource damage to soil productivity or watershed conditions. At a minimum, activities considered should include access, harvesting, slash disposal, and regeneration. If these items can be accomplished with available technology and without impairment to the site or drainage, the land shall be considered tentatively suitable. Available technology is technology that is in use or which current research and experience indicates is feasible to use. Current research and experience should indicate that the technology is feasible to use successfully for the site, species, and other factors involved. Current does not have to be within the Forest or region.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1) and capable (Process 2), but cannot be managed for industrial wood products without irreversible resource damage, will be classified as unsuitable.
   a) Soil Inventory—Soils identified as meeting criteria for irreversible resource damage will be identified in the Forest Plan GIS Database and classified as unsuitable.
      i) SMUs that are unsuitable will be identified in an interpretation lookup table for very high (code 4) mass movement probability rating.
      ii) Those SMUs in the table having high (code 3) mass movement probability ratings will be identified as needing technology capable of supplying partial or full suspension over nearly the entire length of the yarding distance to ensure timber production without irreversible resource damage to soil productivity or watershed conditions. These lands satisfy the criteria for tentatively suitable, but will continue to be tracked to ensure that alternatives include the appropriate logging system.
      iii) SMUs with any occurrence of McGilvery soils will meet the criteria for tentatively suitable in this process, but will be identified as requiring harvest systems capable of at least partial suspension over nearly the entire length of the yarding distance.

Classes of McGilvery Soils
HOCL
MCG
MCGF
MCGC

      iv) SMUs with slopes 72 percent or greater will be classified as unsuitable.

Note: The soils inventory is not available for all existing Wilderness. At a minimum, the Digital Elevation Model (DEM) will be used to identify forested lands (from the vegetative inventory) with slopes 75 percent or greater. These lands will be classified as unsuitable.

Process 4

Can the Area be Restocked within 5 Years?

Restocking within 5 years. The second test of physically suitable forest land (after irreversible damage discussed in Process 3) is whether there is reasonable assurance that the remaining forest lands can be adequately restocked within 5 years of final harvest, based on existing technology and knowledge. Current research and experience shall be the basis for determining whether the practice planned can be expected to be successful at the time final harvest is planned. If existing knowledge is inadequate to determine which practices will be successful on certain lands, but research is underway that should resolve this question prior to when final harvest is planned; then, the applicable lands may be included as tentatively suitable, but shall be maintained as a separate, noninterchangeable component of the ASQ. For the purpose of this test, final harvest is defined in 36 CFR 219.27(c)(3). Such assurance applies to normal conditions for the site and does not constitute a guarantee. Abnormal conditions, such as drought, disease, or other unplanned events, may preclude meeting this requirement. Forest lands failing to meet this test shall be classed as unsuitable for timber production.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), and not causing irreversible resource damage (Process 3), but restocking cannot be assured within 5 years, will be classified as unsuitable.
   a) Soils Inventory—SMUs not restockable will be identified in the Forest Plan GIS Database and are classified as unsuitable. These include:
      i) SMUs in the database identified with the dominant plant associations as listed below can be restocked but require special technology to meet restocking within 5 years. These plant associations will satisfy the restocking criteria for tentatively suitable, but will be tracked to ensure that alternatives include the cost of these special restocking requirements (planting and site preparation).

Code	*Description*
330	Spruce - Devils Club
335	Spruce - Devils Club/Salmon Berry
340	Spruce - Devils Club/Skunk Cabbage
350	Spruce - Alder
380	Spruce - Salmon Berry
800	Spruce - Black Cottonwood/Alder
810	Spruce - Black Cottonwood/Willow
830	Spruce - Cottonwood/Devils Club
840	Spruce - Cottonwood/Alder - Devils Club
850	Spruce - Cottonwood/Blueberry - Devils Club

Note: The soils inventory is not available for all existing Wilderness. The vegetation layer will be used to establish a correlation between soils and vegetation outside of Wilderness to be applied within Wilderness.

Process 5

Is Adequate Response Information Available?

Inadequate Response Information. Forest land shall be classified as unsuitable for timber production, if there is not adequate information available, based on current research and experience, to project response to timber management practices. These lands shall be identified as needing further inventory, research, or information and shall not be considered as part of the tentatively suitable land base, until such time those adequate response data are available. Give special attention to lands classified as incapable of producing 20 cubic feet/acre/year if they formerly met this criterion and were included in the timber base. In those situations where significant acreages are involved, the lands shall be considered tentatively suitable for timber production. The yield projections for these lands shall be limited to regeneration harvest practices, where response data to intensive management practices are inadequate, during the development of management prescriptions.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), not causing irreversible resource damage (Process 3), and restocking assured within 5 years (Process 4), but have inadequate response information, will be classified as unsuitable.
   a) Vegetative Inventory—Low site forested lands that have never been managed for industrial wood products have no response information and will be identified in the Forest Plan GIS Database and classified as unsuitable. These include forested lands with Forest Productivity (FPROD) identified as:

Code	*Description*
A	Low Productivity due to Alder
G	Low Productivity due to Glacier Forest
H	Low Productivity due to High Elevation
M	Low Productivity due to Muskeg
R	Low Productivity due to Rock cover
S	Low Productivity due to Recurrent Slide Zone
T	Low Productivity due to Willow
L	Low Productivity due to Low Site Index

   b) Soils Inventory - Soils with inadequate response information will be identified in the Forest Plan GIS Database and classified as unsuitable. These include:
      (1) All SMUs having a site index of less than 40 (on a 50-year base).
      (2) SMUs that have never been logged and have no response information available.

Code	*Description*
305	Spruce - Myrica Gale/Sedge
315	Spruce - Willow
325	Spruce - Blueberry/Willow

Note: The soils inventory will not be available for all existing Wilderness. At a minimum, the vegetative inventory will be used to identify land with inadequate response information.

Process 6

Is Land Withdrawn from Timber Production?

Forest Land Withdrawn from Timber Production. Lands designated by the Congress, the Secretary, or the Chief for purposes that preclude timber production are to be classified as unsuitable. The act, order, or decision must include a legal description of the designated land, or a reference to a map, pending boundary

survey and description, and include an effective date. Congressionally designated Wilderness study areas and roadless areas endorsed by the Administration for Wilderness classification are also withdrawn from timber production. Examples are units of the National Wilderness Preservation System, Primitive Areas, Research Natural Areas, and areas withdrawn by the Tongass Timber Reform Act. No other RARE II lands shall be considered withdrawn unless an individual state Wilderness act so designates. Lands not withdrawn shall be further considered for timber production suitability.

Management objectives for Experimental Forests shall be obtained from the Station Director. Where objectives preclude timber production, the areas shall be considered withdrawn.

Tentatively Suitable Criteria

1. Tongass National Forest lands meeting the criteria of forested (Process 1), capable (Process 2), not causing irreversible resource damage (Process 3), restocking assured within 5 years (Process 4), and having adequate response information (Process 5), but are withdrawn from timber management, will be classified as unsuitable.
   a) Administrative Inventory—National Forest Wilderness and Monument Areas identified in the Forest Plan GIS Database. Forested land within these areas will be classified as unsuitable.
   b) Boundaries Inventory—Existing Research Natural Areas, Enacted Municipal Watersheds, and Experimental Forests identified in the Forest Plan GIS Database are classified as withdrawn. These are listed below.

Research Natural Areas	***Municipal Watersheds***
Cape Fanshaw	Craig
Dog Island	Hydaburg
Limestone Inlet	Juneau
Old Tom Creek	Kake
Pack Creek	Ketchikan
Red River	Klawock
Gambier Bay	Petersburg
	Sitka
	Wrangell
Experimental Forests	
Maybeso	
Young Bay (recommended for deletion)	
Cowee-Davies* (recommended for inclusion)	

* The Cowee-Davies Experimental Forest would replace the Young Bay Experimental Forest, if the change is approved.

   c) The Tongass Timber Reform Act includes the following:
   - Lands within 100 feet of either side of all Class I streams, and Class II streams that flow directly into Class I streams
   - Lands given a Congressional designation of "Land Use Designation II"
   - Additional Wilderness

Suitable Lands

This section describes the process used to identify the suitable lands, or more precisely, the portion of tentatively suitable lands that are not appropriate for timber production. The criteria used for this process are contained in 36 CFR 219.14 (c) and (d).

Lands identified as appropriate for timber production are classified as *suitable* lands. The lands identified as not suitable for timber production are classified as

unsuitable. The number of acres assigned to each of these categories during the Forest planning process is displayed in Table A-1.

Suitable lands are those lands identified from the tentatively suitable land base as appropriate for timber production. Tentatively suitable lands not appropriate for timber production were identified (36 CFR 219.14(c)) using the criteria described below.

(1) *Multiple-use Objectives.* These lands are identified as not appropriate for timber production because of other multiple-use values, or the land is proposed for resource uses that preclude timber production. Land Use Designations that preclude timber production include Old-Growth Habitat, Remote Recreation, Semi-Remote Recreation, proposed Research Natural Areas, Special Interest Area, proposed Wild Rivers, and others. Beach fringe and estuarine areas may also be unavailable for timber production depending on the alternative.

(2) *Management Requirements.* These lands are identified as not appropriate for timber production activities because it is anticipated that the management requirements of 36 CFR 219.27 cannot be met. 36 CFR 219.27 includes direction for resource protection, vegetative manipulation, silvicultural practices, even-aged management, riparian areas, soil and water, and diversity. Most lands that would have met these criteria, such as 1) the 100 feet on either side of Class I streams and 100 feet on either side of those Class II streams that flow directly into Class I streams (as a result of the Tongass Timber Reform Act), and 2) lands with extreme mass movement hazard soils, were removed from timber harvest consideration in the analysis of tentatively suitable forest lands (36 CFR 219.14(a)).

The classification of unsuitable lands will be reviewed at least every 10 years (36 CFR 219.14(d)). This review is part of a monitoring item contained in Chapter 6 of this Forest Plan. Land suitability may be adjusted at any time due to changed conditions; monitoring will assess the magnitude of any changes and could lead to amendments to the Plan.

Refinement of the Suitable Lands

The suitable lands estimated following this process and identified in Table A-1 represent a first cut at estimating the acreage of suitable forest land. However, this estimate overestimates the actual suitable acreage because it is based on the limitations of available mapping. When projects are implemented typically more streams, karst or other factors are found that reduce the acreage of suitable lands. In order to account for this reduction, the Tongass has defined a correction factor that is used for modeling called the Model Implementation Reduction Factor or MIRF. The estimation of this correction factor is documented in the planning record. Thus, in Table A-1 two estimates of suitable are given. The mapped suitable is the estimated suitable using available mapping and based on the above process. The estimated actual suitable is the mapped suitable minus the MIRF acres. The final number in Table A-1 represents the scheduled suitable. This acreage is based on Forest Plan modeling and is equal to the acreage that is scheduled for harvest by the model, assuming the maximum timber harvest permitted under the Forest Plan ASQ is to be harvested over the long term (i.e., 100 years or more).

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APPENDIX B
INFORMATION NEEDS

Appendix B

Information Needs

Introduction

This appendix outlines a framework for identifying high priority information needs and updating them through time. It also identifies current areas of interest the Forest would like to pursue with the State of Alaska, other federal agencies, and internal and external partners. Identifying and addressing higher priority information needs will substantially strengthen the scientific information base needed to support future planning efforts and provide insights into the assessment of management actions. Information needs are a critical component of the “adaptive management" feedback loop for future Plan amendments or revisions that will influence management adjustments to address economic, social, and environmental concerns on the Forest. As a part of this identification and priority setting process, statistically sound sampling design and analysis techniques need to be developed to ensure reliability of data and interpretations and ultimately to maintain scientific creditability of the Tongass Forest Plan.

As information is gathered and the implications of the identified high priority needs are evaluated, other high priority information needs may emerge. Periodic use of this framework promotes the incorporation of additional needs such as emerging issues that may not have been formerly evident, and provides context for adjustment to the prioritization schema. The new information will be useful for Plan implementation at the project level or as already mentioned for changes to the Plan itself. Funding for some of these items is already included in the Forest or regional budgets, while additional funding will vary depending on the resource emphasis and needs in any given year.

Process for Updating and Prioritizing Information Needs

It is our intention to work with the State of Alaska, the Pacific Northwest Research Station, and other federal agencies and partners and use this framework to assist in jointly determining priority information needs. The framework process is a tool for updating and prioritizing information needs that will allow rapid response to emerging issues, address changes in budget allocations, and reprioritize as new information becomes available.

Use of the framework will provide context for prioritizing existing and newly proposed or emerging information needs into existing programs of work. It will also help determine what the priority needs are, what type of information need it entails (inventory, research, monitoring, etc.), and who might be best suited to do the work. The intent is that its use will result in refinement of information needs so they are more likely to address key management questions and improve integration of information needs for cost effectiveness purposes. The ultimate concept behind the framework is that it will be an ongoing process, posted on the Web as part of the Forest Plan monitoring effort, and available to all interested parties.

Framework Process

The steps outlining the framework process are described below.

1. Determine the most important environmental, social, and economic stressors, factors, or information gaps for each resource.
2. For each resource, define the crucial question or questions facing that resource tied to the goals and objectives of the Forest Plan.
3. Prioritize information needs based on:
   a. Degree of risk;
   b. Degree of uncertainty;
   c. Extent of knowledge need;
   d. Role in ongoing program; and
   e. Likelihood of success.
4. Determine:
   a. General approach (inventory, monitor, research study, white paper, integrated analysis);
   b. Cost and potential availability of funds;
   c. Who potentially could pursue relative to various partner agencies, private interested parties, and groups within the Forest Service; and
   d. Timeframe for addressing.
5. Use the prioritized list as input to the funding allocation process and inter-agency prioritization.
6. Schedule review of policy/practice when new results are available.
7. Periodically validate steps 1 and 2 and repeat steps 3 through 7.

Areas of Current Interest

The 1997 Tongass Land Management Plan's Appendix B listed the top information needs and many other information needs by resource area. While this lengthy list may have reflected information needs at that time, it was not as useful as it could have been because it was not prioritized and quickly became outdated. Therefore, the areas of current interest listed below are intended to be examples, as well as, a starting point for future work using the framework described above for evaluation and prioritization.

Young Growth

- What is the response of the prey of old growth associated wildlife within varying age classes of thinned and un-thinned stands?
- What are the unique marketing characteristics of products produced in varying age classes of thinned and un-thinned stands (lumber, poles, house logs, biomass for alternative fuels)?

Matrix Management

- How can the matrix component of the conservation strategy best be managed to provide a range of important wildlife habitat conditions, including food production (for both predators and prey), connectivity, and other key habitat components for endemic mammals? Habitats include all ages of trees/forest, as well as major cover types (productive forest, non-productive forest, muskeg, estuarine, sub-alpine etc.).

Deer

- What mix of age classes and young growth treatments on the landscape are best for Sitka black-tailed deer?
- What are the best methods for assessing deer population trends to help better manage to provide for subsistence, recreational hunting, and wolf prey needs?

Recreation

- What are the sampling protocols to effectively estimate both commercial and non-commercial recreational use patterns for capacity analysis determination?

Restoration and Enhancement

- How do we measure the effectiveness of forest restoration and enhancement activities including watershed health, fish, deer habitat, and other ecosystem values? Additionally, how can we determine the contribution of these activities to the diversity and sustainability of the local economy?

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APPENDIX C
WATERSHED ANALYSIS

Appendix C

Watershed Analysis

Applicability

In the context of this Forest Plan, the term "watershed analysis" is very narrowly defined. Cumulative watershed effects analysis should not be confused with watershed analysis as described in this appendix. The Forest-wide Soil and Water Standards and Guidelines provide direction to evaluate and minimize cumulative effects during project planning and analysis.

Watershed analysis is required *only* in the following circumstances:

1. Before making site-specific adjustments to Forest-wide Riparian Standards and Guidelines (including timber salvage in riparian areas), ensure adjustments will achieve channel process group objectives described in the Riparian Standards and Guidelines. (In accordance with the Tongass Timber Reform Act, no commercial timber harvest is allowed within 100 feet horizontal distance either side of Class I streams, and Class II streams that flow directly into a Class I stream; therefore, no adjustments to allow commercial timber harvest will be considered within this zone.)
2. Before authorizing management activities in public water system source watersheds, ensure activities are not authorized that create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system (in compliance with Alaska's Drinking Water Regulations, 18 AAC 80).
3. Any other time a line officer determines that a watershed analysis is necessary to make an informed decision.

A watershed analysis must be documented as part of the National Environmental Policy Act (NEPA) decision *in these circumstances.* Watershed analysis (as described in this appendix) is otherwise not required. The watershed analysis does not propose actions or make decisions.

Introduction

Watershed analysis is a procedure for assessing important riparian and aquatic values and processes in a watershed context. It is designed to:

1. Help set the stage for project-level planning and decisions
2. Strengthen the project NEPA analysis and decision
3. Focus interdisciplinary discussion on key watershed resources

Approach

When watershed analysis is required, it must occur prior to or during NEPA analysis for a specific project or projects. The scope and intensity of watershed analysis should be commensurate with the level of risk associated with the NEPA decision, and the information necessary to support the decision.

A journey-level watershed or fisheries specialist will recommend the scope and intensity of the watershed analysis.

A primary consideration is the scale of the proposed activity. For example, a one-time, isolated activity in a 1st order tributary, such as salvage of one or two down trees from within a single Class III riparian area, is not expected to require an expensive, lengthy watershed analysis. In this example, if this activity will achieve process group objectives, it is expected that the procedures (described below)

could be quickly and concisely documented in a few paragraphs to justify the activity. On the other hand, adjustment of Riparian Standards and Guidelines at many sites, or repeatedly, within a 3rd or 4th order watershed will require more time and effort in order to demonstrate that the adjustment will achieve process group objectives.

When determining the scope and intensity of a watershed analysis to justify site-specific adjustments to Forest-wide Riparian Standards and Guidelines (including timber salvage in riparian areas), consider risks associated with not achieving the channel process group objectives that are described in the Riparian Standards and Guidelines.

When determining the scope and intensity of a watershed analysis to support authorizing management activities in public water system source watersheds, consider risks associated with polluting a public water supply and effects on public health.

Procedures

Watershed analysis requires field-based site evaluations. There is a wide array of analytical tools and procedures that may be used. At a minimum, follow the procedures listed below.

1. Before making site-specific adjustments to Forest-wide Riparian Standards and Guidelines (including timber salvage in riparian areas):
   a. Conduct field inventory of all affected stream reaches, including downstream reaches connecting to fish habitat, to verify fish presence, stream classes, and channel types (Tier I survey as described in the Alaska Region's Aquatic Habitat Management Handbook, FSH 2090.21).
   b. Consult with logging systems personnel; document the site-specific adjustments, rationale, and trade-offs between logging systems and riparian objectives.
   c. Evaluate site specific windthrow risk (Landwehr 2006).
   d. Consider cumulative effects of past practices such as riparian harvest and roads, and natural disturbances such as landslides.
   e. Assess current condition and trend of channel process group objectives (refer to Process Group information in Forest-wide Riparian Standards and Guidelines and fish habitat objectives in Forest-wide Fish Standards and Guidelines).
   f. Explain how adjustments to Riparian Standards and Guidelines will achieve channel process group objectives.

2. Before authorizing management activities in public water system source watersheds:
   a. Consult with Alaska Department of Environmental Conservation (ADEC), affected municipality, and/or owner/operator of water system.
   b. Refer to Forest Service Manual (FSM) Guidance for Municipal Watersheds (FSM 2542) and the Code of Federal Regulations for management of municipal watersheds (36 CFR 251.9) for guidance. Refer to Alaska's Drinking Water Regulations, specifically 18 AAC 80.620(c)(3), for systems that seek to avoid filtration.
   c. Review completed Source Water Assessment for the watershed, available from ADEC.
   d. Consider cumulative effects of past practices such as riparian harvest, road condition, potential pollution sources and natural disturbances such as landslides, without regard to landownership.
   e. Develop site-specific Best Management Practices (BMPs) for any authorized activity. Consider, at a minimum, BMPs that limit ground disturbance, restrict public access (in consultation with landowners), and restrict hazardous materials and hazardous waste.

f. Explain how proposed management activities will not create or maintain a condition that has a significant potential to cause or allow the pollution or contamination of a public water system.

Documentation

Complete a watershed analysis report. The report documents each of the items listed above. The report will provide recommendations that respond to the key management issues and analysis findings. Include the watershed analysis report in any subsequent or concurrent documentation of project-level decisions.

Literature Cited

Landwehr, D.J. 2006. Reasonable Assurance of Windfirmness Guidelines, Tongass National Forest, June 13, 2006.

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APPENDIX D
RIPARIAN BUFFER STANDARDS AND GUIDELINES CRITERIA

Appendix D

Riparian Buffer Standards and Guidelines Criteria

Introduction

Riparian areas encompass the zone of interaction between aquatic and terrestrial environments associated with streamsides, lakeshores, and floodplains, and display distinctive ecological conditions characterized by high species diversity, wildlife value, and resource productivity. The Riparian section of Chapter 4 contains Forest-wide Standards and Guidelines for managing riparian areas. The desired conditions, objectives and management direction for each channel type and process group contained in this appendix are an important component of the Forest-wide Standards and Guidelines. In this Plan, channel types and process groups are central to the direction for riparian area management (see the Riparian Forest-wide Standards and Guidelines in Chapter 4). Channel types and process groups are used for guiding land management activities and predicting the effects of those activities along all stream and river systems of the Tongass National Forest. For more information on riparian management considerations for each of the channel types, consult Paustian et al. (1992).

In the early 1980s, a method of inventorying channel types was developed for the Tongass National Forest to identify, classify, and map the distinguishing parts of stream and river (fluvial) systems. This inventory system, which was finalized for the Tongass National Forest in 1992 (Paustian et al. 1992), allows for the logical categorization of fluvial channels and provides a process for predicting channel response to management- or naturally-caused changes.

The inventory groups channels into nine basic fluvial process groups (Table D-1) as well as one additional group covering lakes and ponds. These process groups describe streams and rivers with similar physical "processes," that are with similar interrelationships between watershed runoff, landform relief, geology, and glacial or tidal influences on fluvial erosion and deposition.

Each process group includes a number of channel types. Channel types represent a finer delineation than process groups. They more precisely characterize a channel and help predict the probable responses to natural and human influences. Like process groups, channel types are defined by physical attributes, but channel types also incorporate other aspects of channel gradient, channel pattern, stream bank incision and containment, and riparian community composition. A description of each channel type is listed in Table D-2.

Process Groups

Beginning on page D-5 is a discussion of each process group, including a listing of the channel types that are incorporated within the process group. A summary of process group characteristics can be found in Table D-3. An illustration of the typical setting of each of the process groups, and their relationship within a watershed, is provided in Figure D-1.

Table D-1
Stream Classification and Stream Length by Process Group

Stream Process Groups	Channel Type Classification	Miles
Flood Plain	FPO, FP1, FP2, FP3, FP4, FP5	4,303
Glacial Outwash	GO1, GO2, GO3	1,189
Alluvial Fan	AF1, AF2, AF8	1,564
Low Gradient Contained	LC1, LC2	695
Moderate Gradient, Mixed Control	MM1, MM2	4,827
Moderate Gradient Contained	MM0, MC1, MC2, MC3, GO4	3,238
High Gradient Contained	HC0, HC1, HC2, HC3, HC4, HC5, HC6, HC8, HC9	35,403
Palustrine	PA0, PA1, PA2, PA3, PA4, PA5	1,824
Estuarine	ES1, ES2, ES3, ES4, ES8	646

Source: Paustian et. al. (1992) and Revision GIS Database Query #Q3012E. Miles are adjusted for estimates of channels missed in the inventories.

Table D-2
Channel Type Descriptions

Channel Type	Description
AF1	Moderate Gradient Alluvial Fan Channel
AF2	High Gradient Alluvial Cone Channel
AF8	Glacial Alluvial Cone Channel
ES1	Silt Substrate Estuarine Channel or Slough
ES2	Narrow Small Substrate Estuarine Channel
ES3	Narrow Large Substrate Estuarine Channel
ES4	Large Estuarine Channel
ES8	Braided Glacial Outwash Estuarine Channel
FP0	Micro Flood Plain
FP1	Uplifted Beach Channel
FP2	Uplifted Estuarine Channel
FP3	Narrow Low Gradient Flood Plain Channel
FP4	Low Gradient Flood Plain Channel
FP5	Wide Low Gradient Flood Plain Channel
GO1	Glacial Outwash Flood Plain Side Channel
GO2	Large Meandering Glacial Outwash Channel
GO3	Large Braided Glacial Outwash Channel
GO4	Moderate Width Glacial Channel
HC0	Micro High Gradient Contained
HC1	Shallowly Incised Muskeg Channel
HC2	Shallowly to Moderately Incised Footslope Channel
HC3	Deeply Incised Upper Valley Channel
HC4	Deeply Incised Muskeg Channel
HC5	Shallowly Incised Very High Gradient Channel
HC6	Deeply Incised Mountain Slope Channel
HC8	Moderate/High Gradient Glacial Cascade Channel
HC9	High Gradient Incised Glacial Torrent Channel
LC1	Low Gradient Contained Channel
LC2	Moderate Gradient Contained Channel
MC1	Narrow Shallow Contained Channel
MC2	Moderate Width and Incision Contained Channel
MC3	Deeply Incised Contained Channel
MM0	Micro Moderate Gradient Contained
MM1	Narrow Mixed Control Channel
MM2	Moderate Width Mixed Control Channel
PA0	Micro Palustrine
PA1	Narrow Placid Flow Channel
PA2	Moderate Width Placid Flow Channel
PA3	Shallow Groundwater Fed Slough
PA4	Flood Plain Backwater Slough
PA5	Beaver Dam/Pond Channel

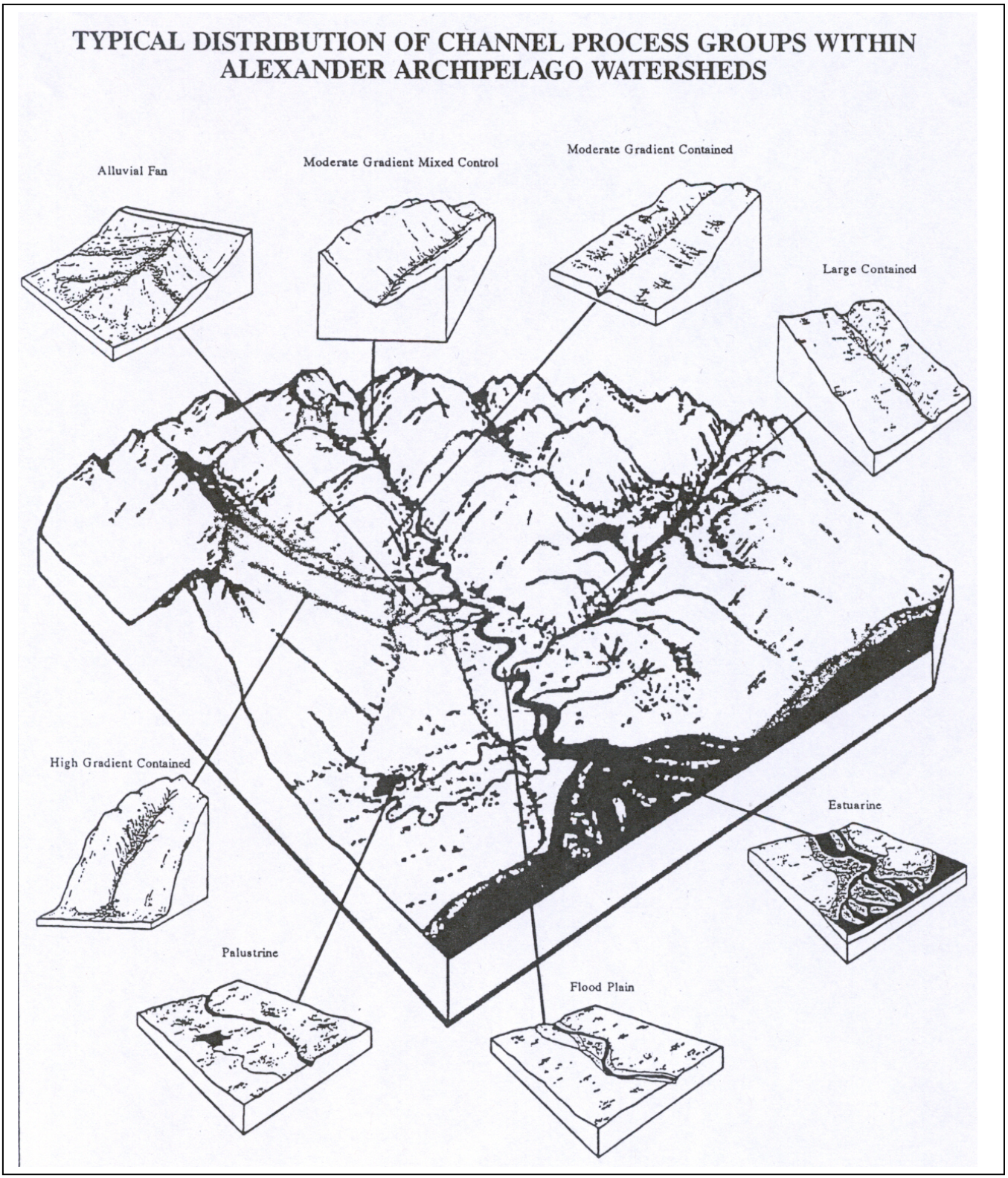

Figure D-1. Typical Distribution of Channel Process Groups within Alexander Archipelago Watersheds

Flood Plain and Glacial Outwash

Channel Types: FP0, FP1, FP2, FP3, FP4, FP5, GO1, GO2, GO3

Description: Flood plain and glacial outwash channels are associated with the valley bottom flood plain landform. These two process groups contain low gradient sinuous singular or anabranched channels. Braided channels are more prevalent in the glacial outwash process group. Mountain slope runoff and groundwater discharge control stream flow in the flood plain process group, while glacial melt controls flow in the glacial outwash group. Peak flows occur in the spring and fall in the flood plain process group, while in summer for the glacial outwash group. Sediment deposition is the dominant process in both groups. Substrate material ranges from sand to cobble size material in both groups.

Flood plains commonly support standing old-growth spruce with heights of up to 130 feet. Downed wood provides nurse logs for regeneration, sediment retention, and infiltration. Flood plain width may exceed 200 feet on FP4 and FP5 channels, but are generally less than 200 feet on FP3 channels. These areas are typically highly productive for fish. Beaver ponds, sloughs, ephemeral side channels, commonly referred to as “off channel areas,” are of particular significance as flood plain and glacial outwash habitat features. Early successional forest species, such as black cottonwood, are common in the glacial outwash process group.

Stream channels in the flood plain process group include FP0 (mcro flood plain) FP1 (uplifted beach), FP2 (uplifted estuary) foreland channel types, and FP3 through FP5 (narrow to wide) flood plain channel types. Generally, alluvial deposition is prevalent in these low gradient (less than 2 percent gradient) channels. High stream flows often are not contained within channel banks resulting in flood plain development.

Flood plain streams are relatively efficient at trapping nutrients from riparian forest detritus and inorganic sediment delivered from headwater areas. These streams also buffer against flood disturbances by spreading runoff across densely vegetated flood plains and into numerous side channels and sloughs. Shallow alluvial aquifers associated with these streams store runoff from flood flows and hillslope tributaries and slowly release groundwater to surface channels during periods of low rainfall. The ability of flood plain channels to dampen the effects of runoff extremes and to store nutrients are primary factors contributing to productive aquatic communities found in these streams.

Channel materials are composed of fine sediments, small boulders, and cobble, which are deposited by the stream. Stream banks consist of unconsolidated materials such as sand, gravel, or organic materials and are often unstable. Channel migration and braiding may occur. Root networks of trees and shrubs have an important role in holding unconsolidated stream banks together. Large woody debris (LWD) also plays a role in controlling streambed and bank stability by regulating the stream's energy dissipation. Pools and cover from LWD provides good fish habitat.

Glacial outwash channel types are alluvial channels with stream gradients usually less than 3 percent. This process group includes GO1 (glacial side channel), GO2 (large meandering), and GO3 (large braided) glacial outwash channel types. These are generally valley or lowland streams. Because mountain glacier meltwater is the source of runoff to these streams, they carry extremely high sediment loads and have very turbid water. Riparian areas are wide and may extend for many hundred feet in large braided river systems.

Glacial outwash channel types share many of the attributes of the flood plain process group. However, glacial streams tend to have larger seasonal variations in stream flow and large sediment loads that result in more dynamic or unstable

channels and flood plains. These factors, along with colder water temperatures, tend to limit overall aquatic productivity.

Desired condition: Flood plains are highly productive as fish and wildlife habitat. Natural flood plain functions occur, such as flood mitigation, surface-groundwater exchange, water temperature moderation, and the formation of streams providing off-channel fish habitat. Large wood is distributed across the flood plain, except where non-forest or early successional species naturally occur. Old-growth habitat provides high-quality habitat for riparian-associated wildlife species.

Glacial outwash plains range from low to highly productive fish and wildlife habitat. Fine sediments may limit spawning. Natural flood plain functions such as flood mitigation, surface groundwater exchange, water temperature moderation, and stream formation provide off-channel fish habitat. Areas of off-channel spawning and rearing may be highly productive where areas of upwelling occur. Large wood is distributed across the flood plain, except where non-Forest or early successional species dominate naturally.

Objectives: Maintain near-natural quantities of large wood by assessing the site's old-growth type and managing for the natural frequency and size distribution for large, downed wood and standing trees on the flood plain. (Consult Ecological Definitions for Old-growth Forest Types in Southeast Alaska, Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution, pool size and frequency, and channel morphometry. (Consult the Alaska Anadromous Fisheries Habitat Assessment, Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives.)

Minimize soil disturbance and the formation of new channels (BMP 13.9). Maintain fish access to entire range of habitat. Avoid diverting surface drainage channels.

Minimize damage to large standing trees from yarding activities.

Implement riparian vegetation improvement projects in young-growth stands, where appropriate, to help in attaining desired future condition.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I, II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. Although not required by the Tongass Timber Reform Act, no commercial timber harvest in the flood plain until the completion of watershed analysis. No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet [the height of one site-potential tree]). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct), III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet [the height of one site-potential tree]). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

I, II, and III/Harvest Controls

Yard in a manner to minimize baring of mineral soil (less than 5 percent) and such that new channelization does not occur across the flood plain. The objective is to minimize alder growth and formation of new channels (BMP 13.9).

I, II, and III/Roads, Borrow Pits, Drainage Structures

Locate roads only when other feasible routes do not exist (BMP 14.2). Develop stream course protection plans when stream crossings are necessary. Do not develop borrow pits within the active flood plain (BMP 14.9). The objective is to maintain fish passage and access to all available habitats and avoid diverting surface drainage channels.

Alluvial Fan

Channel Types: AF1, AF2 and AF8

Description: Alluvial fan channels flow directly over the alluvial fan landform. These are dynamic multi-branched channels that periodically change course within the landform. Stream gradient ranges from 1 to 3 percent on the lower half of the alluvial fan and increases toward the fan apex. The alluvial fan channel is associated with high-gradient contained channels; therefore, streamflow is dependent on mountain slope runoff. Groundwater discharge is also significant. Surface flow may be intermittent as substrate consists of sand to cobble size material. During low flow periods, stream flow may run subsurface due to infiltration of water into coarse gravel substrate in the middle section of the alluvial fan and emerge on the lower section. Aggradation of material is the dominant process on the alluvial fan, and fine sediment may be deposited in the low gradient section. The active channels on alluvial fans often include multiple high flow channels and unvegetated gravel or cobble outwash lobes with ill-defined channel banks. Alluvial fans typically support large spruce with diameters (diameters at breast height [DBH]) of 30 inches and have average site-potential tree heights of 140 feet. Downed wood serves as nurse logs for regeneration.

This process group includes AF1 (moderate gradient), AF2 (high gradient), and AF8 (glacial) alluvial fan/cone channel types. These are generally tributary streams that are located on footslope landforms in a transitional area between valley flood plains and steep mountain slopes. Alluvial fans are formed by the rapid change in sediment transport capacity as the high energy mountain slope stream segments spill onto the valley bottoms. Stream channels change course frequently, resulting in a multi-branch stream network. Sediment deposition tends to create elongated islands of bare cobbles and gravel between these multi-branched channels. Alluvial fan stream channels are often unstable. Riparian areas commonly associated with these poorly contained streams are very narrow at the top of the fans and become wider as the fan spreads out. Due to the complex stream network, riparian areas for alluvial fan channels may be extensive.

LWD can play a major role in trapping sediment on the fan surface and within stream channels. Scour and dam pools formed by LWD can be very important for fish rearing habitat in alluvial fan streams. Gravel aquifers associated with alluvial

fan drainages are commonly an important source of groundwater discharge to adjacent valley bottom streams.

Desired condition: Stream systems relocate naturally in an unpredictable pattern across the alluvial fan. Large wood occurs across the fan, and is important for the retention and metering of sediment into stream systems, and to create pools for fish rearing habitat. Some amount of large wood is available to the stream wherever the stream may be located on the fan. Wood may be excavated by fluvial processes on the fan.

Objectives: Maintain near-natural quantities of large wood by assessing the site's old-growth type and managing for the natural frequency and size distribution for large, downed wood and standing trees on the fan. (Consult Ecological Definitions for Old-growth Forest Types in Southeast Alaska, Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution described in the Alaska Anadromous Fisheries Habitat Assessment (Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives).

Implement BMP 13.9. Provide for natural fish migration. Do not divert stream channels.

Implement riparian vegetation improvement projects in young-growth stands, where appropriate, to help in attaining desired future condition.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I, II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, which is the greater of the active portion of the alluvial fan or 140 feet (the height of one site-potential tree) from the current channel(s). Manage across the remainder of the fan (no more than 10 percent of the fan harvested in a 30-year period) with the objective of leaving large trees within the stand for future recruitment to stream channels.

II (non-direct), III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, which is the greater of the active portion of the alluvial fan or 140 feet (the height of one site-potential tree) from the current channel(s).

I, II, and III/Harvest Controls

Yard in a manner to minimize baring of mineral soil and such that new human-caused channelization does not occur across the entire alluvial fan. The objective is to minimize alder growth and formation of new channels (refer to BMP 13.9). Where trees are removed, utility/cull logs should be left distributed across the alluvial fan.

I, II, and III/Roads, Borrow Pits, Drainage Structures
Recognize that alluvial fans are places of inherent instability where roads, borrow pits, or structures will be continually threatened by migrating stream channels.

Moderate Gradient / Mixed Control

Channel Types: MM0, MM1, MM2, and GO4

Description: These channels are commonly found in transition zones between high gradient contained streams and flood plain channels. They are located in narrow valleys, footslopes, or sloping and rolling lowlands. Stream channel gradients range from 2 to 6 percent. Channel containment is variable as structural control may be intermittent or only along one bank. Overall channel pattern is straight. Stream flow is dependent upon mountain slope runoff and the sediment regime is balanced (input equals output). Channel substrate ranges from coarse gravel to boulder size material. Typical site potential tree is 120 feet.

This process group includes MM0 (micro moderate gradient contained) MM1 (narrow) and MM2 (moderate width) channel types that are a mixture of stream channel containment. This process group also includes GO4 (moderate width glacial channel). These channel types are moderate gradient (2 to 6 percent) streams where sediment deposition processes are limited. Some segments are constrained by bedrock outcrop or the valley walls, while other areas develop narrow flood plains. Stream banks are dominated by coarse alluvium (boulders, cobbles) or bedrock. Riparian vegetation is important in regulating stream energy losses through LWD input. LWD forms such water energy dissipaters as log step pools and lateral scour pools. LWD can strongly influence channel form, sediment storage, and pool and cover habitat in streams with minor bedrock control. Riparian areas seldom extend beyond 100 feet from stream banks.

Desired condition: Large wood is recruited and retained in the stream channel. Riparian vegetation provides shade, is a source of organic inputs to the stream, and maintains dynamic flood plain processes. Large wood is distributed across the flood plain. Old-growth habitat provides high quality habitat for riparian-associated wildlife species.

Objectives: Maintain near-natural quantities of large wood by assessing the site's old-growth type and managing for the natural frequency and size distribution for large, downed wood and standing trees. (Consult Ecological Definitions for Old-growth Forest Types in Southeast Alaska, Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution, pool size and frequency and channel morphometry. (Consult the Alaska Anadromous Fisheries Habitat Assessment, Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives.)

Minimize soil disturbance and the formation of new channels (BMP 13.9). Maintain fish migration where needed and maintain natural surface drainage patterns for flood plain areas.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Implement riparian vegetation improvement projects in young-growth stands, where appropriate, to help in attaining desired future condition.

Stream Class/Activity

I, II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils, riparian associated wetland fens, or 120 feet [the height of one site-potential tree]). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct), III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils, riparian associated wetland fens, or 120 feet [the height of one site-potential tree]). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

I, II, and III/Harvest Controls

Fully suspend trees over the bankfull width of the stream when yarding. Minimize yarding corridors within the RMA. Yard in a manner to ensure no baring of mineral soil (less than 5 percent) and such that new channelization does not occur across the entire flood plain. The objective is to minimize surface soil disturbance and formation of new channels (BMP 13.9).

I, II, and III/ Roads, Borrow Pits, Drainage Structures

Borrow pits are generally not appropriate. Special road construction techniques may be required to ensure fish passage. Maintain fish migration where needed and avoid diverting surface drainage channels.

Low Gradient Contained

Channel Types: LC1 and LC2

Description: Low gradient contained channels are associated with canyons or sloping lowlands. These are low gradient (less than 3 percent), singular, straight, and entrenched channels with gravel to bedrock substrate. Sediment regime balances input with output. Stream flow is dependent upon mountain slope or lowland runoff. Habitat is often limited by a scarcity of stable large wood structure. Riparian vegetation communities are varied. Riparian width, including flood plain and sideslope breaks, reach 150 feet (LC1) to 190 feet (LC2). A site potential tree reaches an average height of 100 feet.

Stream flow in channels in this process group are well contained by adjacent landforms. Bedrock outcrops that constrain or control channel migration and downcutting are common. This process group includes LC1 (low gradient) and LC2 (low to moderate gradient 1 to 3 percent) large contained channel types. The riparian influence zone often extends up channel side slopes on these entrenched streams. Channel side slope vegetation plays a major role in controlling the rate of downslope soil movement and LWD into stream channels. LWD accumulations also dissipate stream energy (slow its velocity) and store sediment within the stream channel. The larger valley and lowland streams often have narrow alluvial terraces

within the river gorge. Streambed and banks are dominantly composed of coarse alluvium (cobble to boulder size) and occasional bedrock outcrops. These streams generally have a balance between sediment transport and deposition. Waterfalls and cascades that form at bedrock knick points can be barriers to upstream anadromous fish migration.

Desired condition: Natural integrity of channel sideslopes is maintained. Large wood is recruited and retained in the stream channel. Riparian vegetation provides shade and is a source of organic inputs to the stream. Old-growth habitat provides high-quality habitat for riparian-associated wildlife species.

Objectives: Maintain near-natural quantities of large wood by assessing the site's old-growth type and managing for the natural frequency and size distribution for large, downed wood and standing trees. (Consult Ecological Definitions for Old-growth Forest Types in Southeast Alaska, Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution, and pool size and frequency. (Consult the Alaska Anadromous Fisheries Habitat Assessment, Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives.)

Allow no increase over natural rates of channel sideslope surface erosion or mass wasting.

Minimize changes to the natural rates of sediment transport. Ensure fish passage for all Class I and II streams.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I and II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as within the channel sideslope break. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct)/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as within 100 feet of the stream or to the top of the side-slope break, whichever is greater. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as the side-slope break. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay

special attention to the area within one site-potential tree height of the RMA).

I and II/Harvest Controls

Fully suspend trees over the bankfull stream when yarding. Minimize yarding corridors within the RMA. Yard in a manner to ensure no delivery of sediment from channel sideslopes; baring of mineral soil is minimized (less than 5 percent); and new channelization does not occur across the flood plain.

I, II, and III/Roads, Borrow Pits, Drainage Structures

Do not develop borrow pits within the active flood plain (BMP 14.9). Where road crossings are required, minimize erosion and sedimentation associated with road crossing approaches within inner gorge. Fish migration should not be impeded by road crossings.

Moderate Gradient Contained

Channel Types: MC1, MC2 and MC3

Description: Moderate gradient contained channels are associated with sloping or rolling lowlands. Stream gradient ranges from 2 to 6 percent for these singular, straight, and entrenched channels. Stream flow is dependent upon mountain slope runoff. Sediment is transported through these channels. Substrate is dominated by cobble, boulder, and bedrock material. Habitat is often limited by stable large wood structures. Riparian vegetation communities are varied. Riparian width, including flood plain and sideslope breaks, reach 60 to 70 feet. A site potential tree height is 100 feet.

This process group includes MC1 (narrow, shallow incision), MC2 (moderate width and incision), and MC3 (deeply incised) moderate gradient contained channel types. Stream flow in this process group is completely contained by adjacent landforms and channel side slopes. Stream bank and streambed erosion are frequently controlled by bedrock outcrops. Gravel bars are infrequent channel features (plain bed channels). LWD within the wetted channel provide localized sediment storage sites and habitat diversity. Riparian areas are limited to the bank influence zone and generally less than 100 feet.

Desired condition: Natural integrity of channel sideslopes is maintained. Large wood is recruited and retained in the stream channel. Riparian vegetation provides shade and is a source of organic inputs to the stream.

Objectives: Maintain near-natural quantities of large wood by assessing the site's old-growth type and managing for the natural frequency and size distribution for large, downed wood and standing trees. (Consult Ecological Definitions for Old-growth Forest Types in Southeast Alaska, Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution, and pool size and frequency. (Consult the Alaska Anadromous Fisheries Habitat Assessment, Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives).

Allow no increase over natural rates of channel sideslope surface erosion or mass wasting.

Minimize changes to the natural rates of sediment transport. Ensure fish passage for all Class I and II streams.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make

site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I and II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed within the remainder of the RMA, defined as within the channel sideslope break. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct)/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within 100 feet or within the channel side-slope break, whichever is greater. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as the side-slope break. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

I, II, and III/Harvest Controls

Fully suspend trees over the bankfull stream when yarding. Minimize yarding corridors within the Riparian Management Area. Yard in a manner to minimize delivery of sediment from channel sideslopes.

I, II, and III/Roads, Borrow Pits, Drainage Structures

Borrow pits are generally not appropriate. Where road crossings are required, minimize erosion and sedimentation associated with road crossing approaches within inner gorge. Maintain fish passage at road crossings and avoid diverting surface drainage channels.

High Gradient Contained

Channel Types: HC0, HC1, HC2, HC3, HC4, HC5, HC6, HC8 and HC9

Description: High gradient contained channels are located on mountain slopes. These are singular straight incised channels with steep slopes and channel gradients greater than 6 percent. Stream flow is dependent upon mountain slope runoff and may be intermittent. Channel substrate is mostly comprised of large material, either bedrock or well-packed boulders and cobbles.. RMAs include incised channel sideslopes. Hemlock series dominate vegetation although spruce is also common. Some streams have intermittent flows. Steep gradients (greater than 6 percent) limit fish capability. Typical site-potential tree height is 120 feet.

Channels in this process group include HC0, HC1, HC2, HC3, HC4, HC5, HC6, HC8, and HC9 channel types. High gradient glacial meltwater streams, HC8 and

HC9 channel types, are also included in this process group. These steep, headwater streams are important source areas for runoff, organic and inorganic sediment transported to downstream riparian and fish habitats. Stream channels are well contained within the narrow valley bottoms or ravines. High stream energy enables these streams to transport large sediment loads during spring and fall flood events. Riparian areas generally extend to the upper stream side slope break. Riparian vegetation consists of narrow strips (often less than 50 feet wide) of alder, salmonberry, devil's club, or currant/shrub communities. Spruce and hemlock forests are also present on ravine side slopes. These channels are predominantly influenced by hillslope erosion processes. Soils in the adjacent upland area are shallow and subject to mass wasting. Although these are dominantly transport or erosive channels, significant amounts of forest litter and sediment can be trapped and stored temporarily behind woody debris jams.

Desired condition: Natural integrity of channel sideslopes is maintained. Sediment is "metered out" to downstream reaches by large wood structure. Over the long term, high gradient contained streams act as conduits to move large wood and gravel into downstream fish bearing streams during debris flow events.

Objectives: Activities should not accelerate sideslope surface erosion or mass wasting. Maintain some instream large wood structure over the long term where important for downslope channel processes that require wood as a component of natural debris torrents.

Retain natural drainage patterns and minimize changes to the natural rates of sediment transport.

Design, install, and maintain stream crossings to pass flow, bedload, and wood debris from peak events with minimal impacts to stream channel and road integrity.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I, II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as within 100 feet of the stream or to the top of the V-notch (side-slope break), whichever is greater. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct)/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as within 100 feet of the stream or to the top of the V-notch (side-slope break), whichever is greater. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

III/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within the RMA, defined as the V-notch (side-slope break). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

IV/Timber Harvest

Protect Class IV streams using the following techniques, depending on the situation:

a) Directional felling along streams and full suspension of logs yarded across streams, immediate cleanout of logging debris. May include partial retention of standing trees along stream courses or.

b) Split yarding when practicable, partial log suspension when yarding across channels and stream cleanout once logging is completed. Use stream protection measures most amenable to local site conditions: (refer to "b" and "c" stream protection measures, FSH 2409.18).

I, II, III, and IV/Harvest Controls

Minimize yarding corridors within the RMAs.

I, II, III, and IV/Roads, Borrow Pits, Drainage Structures

Borrow pits are generally not appropriate. Road and road crossings should be designed and constructed to minimize soil runoff to the channel, retain natural drainage patterns, and minimize changes to the natural rates of sediment transport.

Palustrine

Channel Types: PA0, PA1, PA2, PA3, PA4 and PA5

Description: Palustrine channels are associated with lowland landforms and wetlands. Channel gradients are less than 1 percent. Palustrine channels are singular and sinuous. Stream flow is dependent on peatland and lowland runoff. Sediment storage is the dominant process. Substrate material ranges from fine organic material to coarse gravel.

Riparian vegetation includes mixed conifer, shore pine, and non-forest. Site-potential tree height is generally less than 85 feet.

This process group includes PA0 through PA5 palustrine channel types. Streams within this process group are associated with low relief landforms dominated by wetlands. Water movement and sediment transport rates are low. Stream banks are composed of dense organic root mats that are resistant to bank erosion. Streambeds consist of fine alluvial gravel and sand, and organics. Flood waters spread out across adjacent wetlands to buffer against downstream flooding. Another important function of these channels is to sustain streamflows during dry periods. Slow flowing palustrine streams can have elevated water temperatures that can be detrimental to some aquatic species during summer months. Riparian areas are usually wider than 100 feet and can be very wide in peatland landscapes.

Desired condition: Highly complex stream and riparian systems provide canopy shading, instream organic recruitment for food and cover, and habitat diversity for rearing salmonids. Undercut banks are often present. Old-growth habitat provides high quality habitat for riparian-associated wildlife species.

Objectives: Maintain near-natural quantities of large wood (primarily for cover habitat) by assessing the site's vegetation type and managing for the natural frequency and size distribution for large, downed wood and standing trees. (Consult "Ecological Definitions for Old-growth Forest Types in Southeast Alaska," Forest Service publication R10-TP-28.) In the stream channel, meet the natural range of aquatic habitat features for large wood size and distribution, and channel morphometry. (Consult the Alaska Anadromous Fisheries Habitat Assessment, Forest Service publication R10-MB-279, Appendix C.1. on fish habitat objectives.)

Maintain streambank structure and wetland functions and values.

Apply the following management direction at the project level to streams in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Stream Class/Activity

I and II (direct)/Timber Harvest

No commercial timber harvest within 100 feet of Class I streams and Class II streams that flow directly into Class I streams. No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils or riparian associated wetland fens). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

II (non-direct)/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed in the RMA (greatest of flood plain, riparian vegetation or soils, or riparian associated wetland fens). Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of the RMA (pay special attention to the area within one site-potential tree height of the RMA).

III/Timber Harvest

Consider no harvest (or limited harvest) areas to benefit water quality or palustrine-associated wildlife species.

I, II, and III/Harvest Controls

Fully suspend trees over the bankfull stream when yarding. Minimize width and number of yarding corridors within the RMA. Yard in a manner to minimize delivery of sediment from channel sideslopes. Follow Forest-wide Wetland Standards and Guidelines.

I, II, and III/Roads, Borrow Pits, Drainage Structures

Wetland functions and fish passage receive special attention in locating roads.

Lakes and Ponds

Description: Lakes and ponds can be located throughout a watershed from near sea level to the alpine. Very high elevation lakes (over 1,000 feet) are often frozen much of the year. Low elevation lakes are often high quality fish rearing habitat, and provide for many species of wildlife (especially beaver, loons, eagles, swans, and other water birds). Lakes and ponds function to mitigate downstream flooding during large precipitation events, and are important for surface-groundwater

exchange and moderating water temperatures. Low elevation, fish-abundant lakes, are commonly used for customary and traditional subsistence harvests, sport fishing, and recreational camping. Small ponds, particularly beaver ponds, can be highly productive on a per unit area basis.

Riparian and near-lake vegetation can often be mixed and a mosaic. It can include old-growth forests, hardwoods (e.g., alder or cottonwood), shore pine, and non-forest.

Desired condition: Low elevation lakes and ponds provide high quality fish rearing, wildlife habitat, and recreation. In forested areas, adjacent riparian areas provide the lake or pond canopy shading, organic recruitment for food and cover, and habitat diversity for fish. Old-growth habitat surrounding the lakes and ponds provides high quality habitat for lake and riparian-associated wildlife species. Lakes offer scenic diversity and attract recreationists for both consumptive and non-consumptive pursuits.

Objectives: In forested areas, maintain near-natural quantities of large wood for near-shore lake habitat and lake and riparian-associated wildlife.

Maintain lake shore character, including vegetation, bank conditions, and near-shore substrate (except occasionally for localized areas developed for recreation or other conforming uses); maintain hydrologic and wetland function and values.

(Note: Because lakes and ponds are so variable in their physical and biological characteristics, additional objectives should be set on a project basis.)

Apply the following management direction at the project level to lakes in this process group. Include a watershed analysis in NEPA documents that make site-specific adjustments to process group direction. Adjustments to the direction may be made only if the objectives of the process group can be met.

Lake Class/Activity

I (lakes with anadromous fish or with high value resident fisheries) and II (lakes with lower value resident fisheries; lakes grater than or equal to 3 acres)/Timber Harvest

No commercial timber harvest that counts toward the allowable sale quantity is allowed within 100 horizontal feet of the lake margin or within the RMA (greatest of the riparian vegetation or soils, riparian associated wetland fens, or the height of one-site potential tree [to be determined at the project level]). Consider an additional no harvest (or limited harvest) area beyond the no commercial timber harvest area to benefit lake-associated scenic quality, wildlife species (e.g., spotted frogs, Vancouver Canada geese, tree nesting ducks), and recreation, subsistence, and visitor uses. Typically larger lakes in lesser development LUDs with higher resource values should have wider additional buffers than smaller lakes in the more highly developed LUDs with lower resource values. Manage an appropriate distance beyond any no-harvest zone to provide for a reasonable assurance of windfirmness of the desired standing timber (pay special attention to the area within one site-potential tree height of the no-harvest zone).

II (lakes with lower value resident fisheries; lakes less than 3 acres) and III/Timber Harvest

Consider no harvest (or limited harvest) areas to benefit lake-associated scenic quality, wildlife species and recreation, subsistence, and tourism uses.

I and II Harvest Controls

Yard in a manner to minimize baring of mineral soil (less than 1 percent) and such that new channelization does not occur in areas that would drain into a lake, pond, or wetland.

I, II, and III/Roads, Borrow Pits, Drainage Structures, Facilities

Special attention shall be given to wetland/riparian functions and values. Normally, locate roads and borrow pits outside the no commercial timber harvest area. Roads, trails, and other facilities that are dependent on, or make specific use of, the lake or pond may be located to the lake edge.

Estuarine

Channel Types: ES1, ES2, ES3 and ES4

Description: This process group includes ES1 (silt substrate) ES2 (narrow sand substrate), ES3 (narrow cobble substrate), ES4 (large estuary), and ES8 (glacial outwash) estuarine channel types. These channel types occur at the mouths of watersheds with estuarine landforms (located along inlets and deltas at the head of bays). Water level fluctuations, channel morphology, sediment transport, and water chemistry are influenced to some degree by saltwater inundation in these channel types. Riparian areas consist of saltwater marches, meadows, mudflats, and gravel deltas that are depositional environments. Estuarine channels are usually single to multiple thread channels, shallowly entrenched, and poorly constrained. Stream substrate is fine textured alluvium that is easily eroded by currents and wave action. Much of the sediment produced from any given watershed is ultimately deposited in or along the estuarine channel types; consequently, these channels are highly sensitive to upstream disturbances. Sedge and grass communities dominate the riparian vegetation. The amount of stream migration and channel braiding vary, depending on bank and bed materials and upstream erosion and sediment transport regimes. Riparian areas are normally more than 100 feet wide and are often several hundred's of feet wide on large river deltas.

Desired condition: Natural processes dominated by diurnal and seasonal tidal flooding and fluvial sediment deposition sustain estuary wetland functions and habitat. Streambank condition and function and substrate composition exist within natural ranges. Upstream and riparian input of allocthonous organic material and large woody debris are maintained at natural rates. Channel condition (width to depth ratio, pool frequency, and depth) and large woody debris (density, recruitment rate, and size distributions) meet process group habitat objectives.

Objectives: Maintain near-natural rates of sediment deposition and quantities of large wood by assessing the condition of the watershed for the natural rates of erosion and the size distribution for large, downed wood and standing trees in the riparian management area.

Minimize increases in deposition of fine sediments by applying BMP 13.16 (channel protection) and BMP 14.17 (bridge design and implementation). Minimize impacts to stream channels (BMP 14.14).

Maintain intertidal wetland functions associated with these channels including sediment retention, shoreline stabilization, nutrient cycling, and wildlife and fish

habitats. The natural rates of sediment deposition and volume and frequency of freshwater and tidal flooding are key processes that maintain these estuarine functions.

Maintain the integrity and structure of sensitive streambanks. Keep stream substrate particle size distributions within the natural range for channel types in similar geophysical areas.

Estuarine associated riparian management areas have high values for many wildlife species and are important for rearing marine fishes. Minimum 1,000-foot buffers are required for these streams.

Maintain streambank structure and wetland functions and values.

Apply the following management direction at the project level to streams in this process group. Complete a watershed analysis before making project site-specific adjustments to process group direction. Deviate from this direction only if the objectives of the process group can be met.

Stream Class/Activity

Timber Harvest

No commercial timber harvest may occur within 1,000 feet of the estuary, defined as the landward extent of salt tolerant vegetation. Where estuarine channels occur other than in association with a defined estuary, no commercial timber harvest is allowed in the riparian management area). Manage beyond the no harvest zone to provide for a reasonable assurance of a windfirm boundary along the riparian management area, with special attention given to the area within one site-potential tree height of the riparian management area.

Harvest Controls

Consider no-harvest (or limited harvest) areas to benefit water quality or estuarine associated wildlife species.

Roads, Borrow Pits, and Drainage Structures

Give special attention to wetland functions and fish passage when locating roads. Road design and construction should minimize erosion and sedimentation and ensure that lateral channel migration patterns are maintained. Borrow pits are not appropriate for this channel process group.

Table D-3
Stream Process Group Characteristics, Alaska Region (Paustian et al. 1992)

	Glacial Outwash	Palustrine	Estuarine	Flood Plain and Alluvial Fan	Low Gradient Contained	Moderate Gradient Mixed Control	Moderate Gradient Contained	High Gradient Contained
Landform	Glacial River Flood Plain	Lowland/ Wetlands	Estuary/Delta	Flood Plain/ Alluvial Fan-Cone	Canyon or Entrenched in Lowlands	Footslope/ Narrow Valleys	Entrenched in Hills or Lowlands	Mountain Slope
Flood Plain Width	>2 times Channel Width	>2 times Channel Width	>2 times Channel Width	>2 times Channel Width	<1.5 times Channel Width	1 to 2 times Channel Width	<1 times Channel Width	<1 times Channel Width
Stream Gradient	<6%	<1%	0.5 to 1%	0.5 to 2% (fans can be steeper)	1 to 3%	2 to 6%	2 to 6%	>6%
Channel Form	Meandering/ Braided	Meandering (high sinuosity)	Meandering/ Anabranch	Meandering/ Multi-branch	Straight, Single Thread	Straight	Straight, Single Thread	Straight, Single Thread
Water Source	Glacial Meltwater	Peatland Runoff/ Groundwater	Mountain slope source area runoff dominates in these stream segments. Groundwater discharge is also significant in flood plain and alluvial fan segments.					
Sediment Regime	Deposition/ Aggrading	Deposition	Deposition/ Aggrading	Deposition/ Aggrading	Balanced	Balanced	Erosive	Erosive
Stream Class	Class I and II	Class I and II	Class I	Class I and II	Class I and II	Class I and II	Class I and II	Class II, III, and IV

APPENDIX E
COMMUNICATION SITES

Appendix E

Communication Sites

Appendix E provides a listing of approved communication sites on the Tongass National Forest (Table E-1). A communication site is an area of National Forest System land designated through the Forest land and resource management planning process for telecommunication uses. A communication site may be limited to a single communication facility, but most often encompasses more than one facility. Sites approved for telecommunication facilities are characterized by antennas, electronic transmitters, equipment shelters, and a wide variety of electronic communication support equipment such as those listed in Forest Service Handbook (FSH) 2709.11, Chapter 90. Telecommunication uses are authorized by the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C. 1761) (Forest Service Manual [FSM] 2720) and the Telecommunications Act of 1996 (47 U.S.C. 332) (FSH 2709.11, Chapter 90).

New sites may be added as non-significant Forest Plan amendments and shall be made through the Forest land and resource management planning process (FSM 1920).

Proposals for new communication uses on the Tongass National Forest will be encouraged to co-locate on an approved communication site, unless the proponent demonstrates that communication sites approved in the Forest Plan are not technically feasible due to geographic location, or are incompatible with the requested use. The analysis for new site designation and new proposals for communication sites will adhere to the guidelines in the Forest Service Communication Site Management handbook, Chapter 90 of FSH 2709.11, directions for processing new special use proposals found in Title 36, Code of Federal Regulations, part 251, Subpart B, and direction in Chapter 10 of FSH 2709.11.

Communication Sites

Table E-1
Approved Communication Sites on the Tongass National Forest

District	Site Name	Site Location	Site Size (in acres)	Elevation (in feet)
Admiralty NM	Angoon Admin. Site	SW4, Sec. 31, T50S, R68E, CRM 57° 30´ 02" N, 134° 34´ 44" W.	1	100
Admiralty NM	Greens Creek #1	SE4, Sec. 11, T44S, R65E, CRM 58° 03´ 28" N, 134° 44´ 15" W.	17	1,550
Admiralty NM	Greens Creek #2	SW4, Sec. 4, T44S, R66E, CRM 59° 05´ 05" N, 134° 37´ 54" W.	100 sq.ft.	1,550
Admiralty NM	Washburn Peak	NE4SW4, Sec. 14, T46S, R70E, CRM 57° 49´ 51" N, 133° 56´ 52" W	1	1,400
Admiralty NM	Wheeler Creek	NW4, Sec. 28, T44S, R65E, CRM 58° 01´ 58" N, 134° 41´ 49" W	1	100
Admiralty NM	Windfall Harbor	SW4NW4, Sec. 34, T47S, R69E, CRM 57° 45´ 15" N, 134° 13´ 30" W	1	2,920
Craig	Hill 1400	Sec. 31, T75S, R82E, CRM 55° 19´ 25" N, 133° 00´ 21" W	1.25	1,399
Craig	Sukkwan Island	NE4NW4 Sec. 21, T78S, R82E, CRM 55° 06´ 36" N, 132° 46´ 22" W	2	2,160
Hoonah	Adolphus	NE4NE4, Sec. 6, T49S, R59E, CRM 58° 15´ 06" N, 135° 48´ 42" W	0.43	1,670
Hoonah	Neka Mtn.	SW4NW4NW4, Sec. 33, T43S, R59E, CRM 58° 06´ 11" N, 135° 47´ 15" W	1	3,139
Hoonah	Pelican	SE4SE4, Sec. 26, T44S, R55E, CRM 58° 01´ 08" N, 136° 22´ 04" W	1	2,095
Hoonah	Point Althorp	E2, Sec. 33, T44S, R55E, CRM 58° 05´ 36" N, 136° 24´ 46" W.	2	2,393
Hoonah	Sisters Island	E2NW4, Sec. 3, T43S, R62E, CRM 58° 10´ 20" N, 135° 15´ 24" W	42	30
Juneau	Auke Mtn. #1	NW4NE4, Sec. 20, T40S, R65E, CRM 58° 23´ 26" N, 134° 42´ 37 W	0.7	1,870
Juneau	Beezer Mtn.	SE4, Sec. 13, T49S, R74E, CRM 57° 37´ 06" N, 133° 27´ 25" W	1	4,100
Juneau	Bessie Mtn.	SW4, Sec. 16, T38S, R64E, CRM 58° 34´ 43" N, 134° 51´ 16" W	0.9	2,850
Juneau	Heintzleman Ridge	SW4, Sec. 29, T40S, R66E, CRM 58° 22´ 12" N, 134° 32´ 54" W	1	1,400
Juneau	Mt. Robert Barron	SE4, Sec. 18, T42S, R65E, CRM 58° 13´ 38" N, 134° 50´ 21" W	1	3,475
Juneau	Point Bishop	NW4, Sec. 28, T42S, R69E, CRM 58° 12´ 12" N, 134° 08´ 36" W.	0.1	20
Juneau	Point Howard	E2, Sec. 3, T41S, R63E, CRM 58° 20´ 23" N, 135° 04´ 38" W	1.3	1,748
Juneau	Salisbury Ridge	SE4SE4, Sec. 5, T42S, R69E, CRM	0.25	3,000

Table E-1 (continued)
Approved Communication Sites on the Tongass National Forest

District	Site Name	Site Location	Site Size (in acres)	Elevation (in feet)
Juneau	Speel Point	NW4, Sec. 19, T43S, R72E, CRM	0.1	1,400
Juneau	Sullivan River	NE4, Sec. 23, T34S, R60E, CRM 58° 54´ 31" N, 135° 21´ 18" W	0.9	182
Juneau	William Henry Peak	SE4SW4, Sec. 17, T36S, R61E, CRM 58° 44´ 50" N, 135° 17´ 00"W	1	3,458
Juneau	Williams Mtn.	SW4, Sec. 7, T43S, R70E, CRM 58° 09´ 09" N, 134° 01´ 55" W.	1	3,336
Ketchikan – Misty Fiords NM	Bell Island	SE4, Sec. 11, T68S, R89E, CRM 55° 54´ 30" N, 131° 42´ 05" W	0.5	2,000
Ketchikan – Misty Fiords NM	Betton Head	SE4, Sec. 25, T73S, R89E, CRM 55° 30´ 32" N, 131° 49´ 21" W	0.46	1,138
Ketchikan – Misty Fiords NM	Black Mountain #1	NW4, Sec. 14, T75S, R92E, CRM 55° 17´ 30" N, 131° 22´ 00" W	0.25	2,052
Ketchikan – Misty Fiords NM	High Mtn. (Gravina Island)	SW4, Sec. 18, T75S, R90E, CRM 55° 21´ 45" N, 131° 45´ 15" W	0.01	2,506
Ketchikan – Misty Fiords NM	High Mtn. (Revillagigedo Island)	NE4, Sec. 19, T80S, R97E, CRM 54° 55´ 05" N, 130° 50´ 26" W	0.459	1,976
Ketchikan – Misty Fiords NM	Mt. Dolly	NE4, Sec. 18, T68S, R100E, CRM 55° 58´ 16" N, 130° 00´ 30" W	0.5	5,475
Ketchikan – Misty Fiords NM	Mt. Lazaro (Duke Island)	S2, Sec. 35, T80S, R93E, CRM 54° 52´ 40" N, 131° 22´ 35" W.	.01	1,720
Ketchikan – Misty Fiords NM	Quartz Hill	SE4, Sec. 35, T74S, R98E, CRM 55° 18´ 10" N, 130° 32´ 10" W	0.1	3,800
Ketchikan – Misty Fiords NM	Saw Ridge	NE4, Sec. 25, T76S, R93E, CRM 55° 15´ 25" N, 131° 12´ 22" W.	1	2,250
Ketchikan – Misty Fiords NM	Shoal Cove	Secs. 22 and 23, T74S, R93E, CRM 55° 26´ 26" N, 131° 15´ 25" W.	241	300
Petersburg	Cape Fanshaw	SE4, Sec. 10, T54S, R75E, CRM 57° 12´ 22" N, 133° 28´ 07" W. (State selection land but still in US Govt. ownership as of 11/2006)	2	2,100
Petersburg	Crystal Mountain	SW4NW4, Sec. 13, T61S, R80E, CRM 56° 35´ 05" N, 132° 51´ 55" W.	0.25	3,317
Petersburg	Duncan Canal	SW4NW4, Sec. 17, T59S, R78E, CRM 56° 45´ 12" N, 133° 09´ 50" W	2	2,606
Petersburg	Farragut Peak	NE4, Sec. 8, T55S, R78E, CRM 75° 07´ 22" N, 133° 02´ 35" W	1	3,810
Petersburg	Kah Sheets	NW4SW4, Sec. 20, T61S, R78E, CRM; 56° 33' 57" N, 133° 16' 50" W	0.5	1,880
Petersburg	Kuiu Mtn. #1	SW4NW4, Sec. 5, T61S, R73E, CRM 56° 36´ 45" N, 134° 02´ 07" W.	2	3,500
Petersburg	Kuiu Mtn. #2	NW4, Sec. 9 T61S, R73E, CRM 56° 36´ 42" N, 132° 02´ 50" W	1	3,355

Table E-1 (continued)
Approved Communication Sites on the Tongass National Forest

District	Site Name	Site Location	Site Size (in acres)	Elevation (in feet)
Petersburg	Level Island	Sec. 28, T62S, R79E, CRM 56° 28′ 05" N, 133° 05′ 00" W.	120	25
Petersburg	Lindenberg Peak	SW4NE4, Sec. 23, T59S, R78E, CRM 56° 44′ 38" N, 133° 04′ 30" W	1	3,249
Petersburg	Mt. McArthur	SE4SE4, Sec. 12, T67S, R72E, CRM; 56° 04' 06" N, 134° 11' 43" W	1	1,650
Petersburg	Petersburg Mtn.	SW4SW4, Sec. 21, T58S, R79E, CRM 56° 49′ 33" N, 132° 59′ 10" W	1	1,600
Sitka	Biorka Island	NE4, Sec. 7, T58S, R63E, CRM 56° 51′ 32" N, 135° 33′ 40" W	151	230
Sitka	Manley Mtn.	Sec. 7, T55S, R66E, CRM 57° 06′ 54" N, 134° 48′ 38" W	5	2,214
Sitka	Moore Mtn.	NW4NE4, Sec. 31, T49S, R64E, CRM 57° 35′ 04" N, 135° 11′ 58" W	1	3,075
Sitka	Mt. Furuheim Area	SW4SW4, Sec. 18, T56S, R66E, CRM 57° 00′ 52" N, 134° 59′ 17" W	1	5,328
Sitka	Mud Bay	SE4SW4, Sec. 25, T54S, R61E, CRM 57° 09′ 09" N, 135° 38′ 45" W	1	1,055
Sitka	Rodman Bay	SW4, Sec. 4, T52S, R63E, CRM 57° 22′ 55" N, 135° 18′ 45" W	2	3,100
Sitka	South Passage	Sec. 36, T47S, R64E, CRM 57° 44′ 48" N, 134° 58′ 04" W	5	2,031
Sitka	Steelhead	NW4SE4, Sec. 13, T47S, R59E, CRM 57° 47′ 27" N, 135° 56′ 26" W	1	2,339
Sitka	Upper Kruzof	SE4NW4, Sec. 18, T53S, R61E, CRM 57° 16′ 30" N, 135° 46′ 36" W	1	2,350
Thorne Bay	Cape Pole	NE4SE4NW4, Sec. 22, T68S, R75E, CRM 55° 57′ 57" N, 133° 47′ 33" W	0.04	10
Thorne Bay	Coffman	SE4, Sec. 35, T67S, R81E, CRM 56° 48′ 02" N, 132° 48′ 16" W	0.156	30
Thorne Bay	Manty Mtn.	SE4, Sec. 26, T69S, R82E, CRM 55° 51′ 10" N, 132° 47′ 30" W	1	3,156
Thorne Bay	Ratz Mtn. #1	SE4, Sec. 9, T70S, R83E, CRM 55° 37′ 07" N, 132° 22′ 39" W	0.1	2,862
Thorne Bay	Tolstoi II	Sec. 16, T72S, R85E, CRM 55° 37′ 07" N, 132° 22′ 39" W	1	2,210
Wrangell	Elbow Mtn.	NW4, Sec. 3, T60S, R86E, CRM 56° 42′ 12" N, 133° 52′ 45" W	1	3,900
Wrangell	Etolin (Keating)	W2SW4, Sec. 17, T66S, R83E, CRM 56° 08′ 50" N, 132° 37′ 20" W	1	3,051
Wrangell	Etolin - Burnett	NE4, NW4, Sec. 22, T66S, R84E, CRM 56° 08′ 10.6" N, 132° 24′ 17.7" W.	1	3,500

Table E-1 (continued)
Approved Communication Sites on the Tongass National Forest

District	Site Name	Site Location	Site Size (in acres)	Elevation (in feet)
Wrangell	Fools Peak	SW4, Sec. 21, T65S, R87E, CRM 56° 13´ 02" N, 131° 58´ 27" W	1	3,133
Wrangell	Horn Cliff	SW4NW4, Sec. 14, T58S, R80E, CRM 56° 50´ 50" N, 132° 46´ 36" W	1	2,880
Wrangell	Kashevarof (Shrubby Island)	NW4, Sec. 13, T65S, R80E, CRM 56° 14´ 12" N, 132° 58´ 46" W	1	500
Wrangell	Zarembo	SE4SW4, Sec. 1, T64S, R80E, CRM 56° 20´ 42" N, 132° 51´ 35" W	2	2,444
Wrangell	Tyee Bench	SW4SW4, Sec. 23, T65S, R90E, CRM 56° 12´ 48.995" N, 131° 27´ 18.313" W	1	2,520
Yakutat	Akwe River	SW4SW4, Sec. 9, T30S, R39E, CRM 59° 20´ 40" N, 139° 53´ 50" W	5	1,210
Yakutat	Russell Fiord #1	NW4NE4, Sec. 3, T24S, R34E, CRM 59° 51´ 33" N, 139° 36´ 20" W	1	3,950
Yakutat	Russell Fiord #2	Sec. 7, T26S, R36E, CRM 59° 40´ 40" N, 139° 22´ 35" W.	1	2,505

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APPENDIX F
VISUAL PRIORITY ROUTES AND USE AREAS

Appendix F

Visual Priority Routes and Use Areas

Introduction

This appendix lists routes and use areas from which scenery will be emphasized. Viewsheds are identified and viewpoints are established to assess the existing scenic integrity of any given project area and to develop project designs that will be consistent with the Scenic Integrity Objective (SIO) for each Land Use Designation (LUD). (See the Scenery Forest-wide Standards and Guidelines in Chapter 4 for a listing of the Scenic Integrity Objectives for foreground, middleground, and background views by LUD.)

Visual priority routes and use areas are arranged by each of the Ranger Districts. Wilderness areas are not listed because they have a SIO of High that applies throughout the area within the boundaries. Routes are separated into several categories, including the Alaska Marine Highway, tour ship routes, roads, small boat and mid-size tour boat routes, and hiking trails. Use areas are categorized into state marine parks, recommended Wild, Scenic, and Recreational Rivers, saltwater use areas, dispersed recreation areas, communities, Forest Service cabins, developed recreation sites, and boat anchorages.

The SIO and the following list provide some of the tools needed to institute the design art of landscape architecture in projects. The SIO and this list also help convey to the interested public how the Scenic Management System (SMS) will be considered in project design for any given area on the Forest.

As part of the process of applying the SMS to the Forest, a viewshed analysis of the entire Tongass National Forest was completed using GIS. The analysis was completed separately for each Ranger District. Step one involved identifying the Visual Priority Routes (VPRs) and use areas. These are the major points from which people view the forest. They include the Alaska Marine Highway; cruise ship and small boat routes; major roads, trails, and anchorages; and important recreation areas on the land. The viewshed analysis identified points at regular intervals along the VPRs and use areas. Each viewpoint along a route was assigned a viewing height from which a person would observe the forest. For example, the average height of a person was selected for the viewing height along a hiking trail, and the height of the cruise ship's deck was used for the cruise ship route. Each cell in the digital elevation model was evaluated for visibility from each of the points along each VPR and use area. Visibility was assessed separately for each marine viewpoint and land viewpoint.

The second phase of the analysis identified distance zones, breaking the visible areas into foreground, middleground, and background from each viewpoint, based on distance. Foreground is the visible area within 0.5 mile of a VPR; background is the visible area greater than 5 miles and less than 15 miles from a VPR; and middleground is the visible area between foreground and background of a VPR. Areas more than 15 miles from any viewpoint and those not seen from any of the VPRs or Use Areas were considered seldom seen. Distance zones were also assessed separately for land and water viewpoints. The final layers for each Ranger District were generated by combining the results from the marine analysis and the land analysis. Any point that was visible from either a land or marine viewpoint was considered visible in the final layer. Any area that was foreground from either a land or marine viewpoint was considered foreground, and any land that

was background from either a land or marine viewpoint became background. All other visible land became middleground. The distance zones were subsequently overlaid with the LUDs to generate the SIOs (refer to the Forest-wide standards and guidelines in the Tongass Land and Resource Management Plan for details on how SIOs were determined for each LUD).

The following description illustrates how these visual priority areas and routes are used in project planning to identify the scenery management objectives for a specific area.

As an example, for a proposed timber sale that is to be located within a Modified Landscape LUD, the scenery component of the prescription for this LUD directs that foreground areas will be managed for a Moderate Scenic Integrity Objective and that middleground and background areas will be managed for a Low Scenic Integrity Objective. (See chart in the Scenery Forest-wide Standards and Guidelines and direction under "Scenery Operations" of Modified Landscape LUD in Chapter 3.)

Within the area defined for this timber sale, review all the Visual Priority Routes and Use Areas identified in the Forest GIS database that are within the project area or from which one may look into the project area and make adjustments in the Forest GIS layer if needed. Using the Forest Service GIS database, verify all the foreground, middleground, and background seen areas (viewsheds) from these Visual Priority Routes and Use Areas. Proposed harvest units and other timber sale associated activities located in the foreground areas are then designed to meet the Scenic Integrity Objective of Moderate as seen from these Visual Priority Routes or Use Areas. Proposed activities in the middleground and background zones are designed to meet Low Scenic Integrity Objective as seen from these Visual Priority Routes or Use Areas.

Petersburg Ranger District

Travel Routes

Alaska Marine Highway

Wrangell Narrows
Frederick Sound from Petersburg to Chatham Strait and Kake

Tour Ship Routes

Frederick Sound from LeConte Bay to Chatham Strait
Chatham Strait from Cape Decision to Frederick Sound
Sumner Strait between Wrangell and Cape Decision
Decision Passage
Wrangell Narrows

Public Use Roads

Mitkof Island

Mitkof State Highway: Petersburg to Blaquiere Point
Road 6235 Three Lakes Loop
Kake to Seal Point Road

State Marine Parks

Security Bay
Beecher Pass

Recommended Wild, Scenic, and Recreational Rivers

Blind River	Petersburg Creek	Farragut River
Fall Dog Creek	Kah Sheets Creek and Lake	Kadake Creek
Kutlaku Creek and Lake		

Small Boat and Mid-Size Tour Boat Routes

Beecher Pass	Keku Strait	Towers Arm
Whiskey Pass	Duncan Canal to Salt Chuck	W. Coast of Kuiu Island
Dry Strait	Petersburg Creek Estuary	Rowan Bay
Rocky Pass from Beacon Island south to Meadow Island		

Saltwater Use Areas

Thomas Bay	Seclusion Harbor	Saginaw Bay
Scenery Cove	Little Duncan Bay	Bay of Pillars
Kadake Bay	Farragut Bay (North and South Arms)	Ideal Cove
Kah Sheets Bay	Duncan Canal to Indian Point	Portage Bay
Hamilton Creek Estuary	Totem Bay east to Mitchell Point	Agate Beach
Blind Slough, Mitkof Island	Mouth of Narrows	Beacon Pt.
Frederick Pt.	Mouth of Blind Slough	Big Creek
Banana Pt.	Fanshaw Bay	Woodpecker Cove
Jap Creek	Rowan Bay	

Dispersed Recreation Areas

Petersburg Creek	Kah Sheets Lake	Crystal Lake and Mountain
Kadake Creek	Swan Lake	Kutlaku Lake
Farragut River to Section 21	Petersburg Lake	Alecks Lake
Agate Beach, west of Totem Bay	Goose Lake (Kupreanof Island)	Hamilton Creek
Dry Bay	Thomas Bay	Castle Islands
Ernie Haugen Public Use Area (State)		

Petersburg Ranger District (continued)

Communities

Petersburg	Kake	Kupreanof

Forest Service Cabins

Beecher Pass	Kadake Bay	Towers Arm
Big John Bay	Kah Sheets Bay	Devil's Elbow
Breiland Slough	Petersburg Lake	Swan Lake
Cascade Creek	Kah Sheets Lake	Spurt Cove
Castle Flats	West Point	Salt Chuck East
Castle River	Portage Bay	Ravens Roost
DeBoer Lake	Harvey Lake	

Developed Recreation Sites

Mitkof Island Sites

Blind Slough Complex:
- Blind Slough Swan Observatory
- Ohmer Creek Campground
- Blind Slough Picnic Area
- Man Made Hole Picnic Area and Trail

Three Lakes Picnic Area, Shelter, and Loop Trail
Twin Creek Shelter
Frenchy Ridge Shelter
LeConte Overlook Picnic Site

Other Sites

Bay of Pillars Shelter
Falls Lake Shelter

Hiking Trails

Mitkof Island

Ideal Cove Trail (#508)
Blind River Rapids Trail (#454)
Upper Twin Ski Trail (#605)
Twin Ridge Ski Trail (#606)
Three Lakes Loop Trails (#600-602)
Raven Trail (#607)
Ohmer Creek Trail (#603)

Kupreanof Island

Kah Sheets Lake Trail (#503)
Goose Lake Trail (#462)
Petersburg Lake Trail (#534)
Petersburg Mountain Trail (#585 and 586)
Castle River Trail (#459)
Colp Lake Trail (#461)
Hamilton Creek Trail (#463)
Cathedral Falls Trail (#467)
Big John Bay Trail (#465)
Portage Mtn. Loop Trail (#535)

Other Locations on the District

Harvey Lake Trail (#488)
Bay of Pillars Portage Trail (#617)
Affleck Canal Portage Trail (#618)
Spurt Lake Trail (#457)
Cascade Creek Trail (#458)
Threemile Arm Portage Trail (#619)

Boat Anchorages

Portage Bay (2)	Bay of Pillars	Cape Fanshaw: Whitney Island area
Thomas Bay (2)	Bear Harbor	Washington Bay
Threemile Arm	Kell Bay	Security Bay
Seclusion Harbor	Marble Islet	Saginaw Bay
No Name Bay	Table Bay	Francis Anchorage
Alvin Bay	Port Malmsbury	Farragut Bay
Reid Bay	Orel Anchorage (Tebenkof)	Totem Bay
Port Beauclerc (3)	Shelter Cove (Tebenkof)	Castle Islands
Louise Cove	Ideal Cove	

Wrangell Ranger District

Travel Routes

Alaska Marine Highway and Tour Ship Routes

- Clarence Strait
- Stikine Strait
- Chichagof Pass
- Snow Passage
- Snow Pass to Macnamara Pt. to St. John's Harbor (NW Zarembo)
- Kashevarof Passage
- Sumner Strait between Wrangell and Cape Decision

Small Boat and Mid-Size Tour Boat Routes

- Frederick Sound from LeConte Bay to Chatham Strait
- Blake Channel
- Zimovia Strait
- Eastern Passage
- Ernest Sound
- Bradfield Canal
- Dry Strait
- Canoe Passage
- Mosman Inlet
- Burnett Inlet
- Seward Passage
- Menefee Inlet
- Fools Inlet
- Anita Bay
- Stikine River

Public Use Roads

Wrangell Island Road System

- McCormick Creek to Earl West Cove (#6265)
- Big Hallow (#50060)
- Zimovia Highway: Wrangell to McCormick Creek Bridge (FH#16)
- Nemo-Skip Loop Road (#6267)
- Fools Inlet (#6270)
- Thoms Creek Crossing (#6299)
- Long Lake Access (#6271)
- Salamander Rd. to Salamander Creek (#50050)

State Marine Parks

- Thoms Place

Recommended Wild, Scenic, and Recreational Rivers

- Aaron, Oerns, Berg Creeks
- Harding River
- Santa Anna Creek and Lake
- Anan Creek
- LeConte Glacier
- Virginia Creek and Lake

Saltwater Use Areas

- Anan Bay
- Kashevaroff Island Group
- Steamer Bay
- Santa Anna/Lake Helen
- St John's t Middle Craig Pt.
- Mud Bay
- Sunrise Cove to Elephant Nose
- Sandy Beach - Woronkofski
- LeConte Bay
- Nemo Pt. to Pat's Creek
- Clarence Strait, Harrington Pt. to Lincoln Rock
- Burnett Inlet
- South Brownson Island
- Sunny Bay
- Stone Island Area
- Frosty Bay
- Olive Cove
- Nesbitt Reef to Macnamara Pt.
- Point Highfield
- The Bluffs
- Babler Point
- Anita Bay to King George
- Fools Inlet
- Menefee Inlet
- Whaletail Cove
- Earl West Cove
- Macnamara Pt. to St. John's
- Big Bend
- Canoe Passage
- Mosman Inlet
- McHenry Inlet and Anchorage

Dispersed Recreation Areas

- Marten Creek
- Virginia Lake
- Kunk Lake
- Starfish Cove
- Honeymoon Creek
- Middle Ridge
- The Desert (Stikine River)
- Fools Inlet
- Roosevelt Harbor Portal
- Olive Cove/Snake Creek
- Paradise Cove
- Stikine Flats
- Berg Bay / Aaron's Creek
- Earl West Marsh
- Long Lake
- Harding River
- Shakes Lake
- Eagle Lake
- St. John's Harbor Portal
- King George
- Frosty Portal
- Twin Lakes (Stikine River)
- Tom's Creek
- Little Thoms Lake

Wrangell Ranger District (continued)

Dispersed Recreation Areas (continued)		
Thoms Lake	Thoms Creek	Highbush Lake
Fools Pass Rec. Parking Site	Fools Peak Rec. Parking Site	Eagle Bay
Bradfield Flats	Salamander Ridge Rec. Parking Site	Basin Rec. Parking Site

Communities
Wrangell

Forest Service Cabins		
Anan Bay	Harding River	Virginia Lake
Berg Bay	Koknuk Flats	Twin Lakes
Binkley Slough	Little Dry Island	Steamer Bay
Eagle Lake	Frosty Bay	Shakes Slough #1 and #2
Garnet Ledge	Marten Lake	Sergief Island
Gut Island #1 and #2	Mallard Slough	Mount Rynda
Mount Flemer	Anan Lake	Middle Ridge

Developed Recreation Sites	
Thoms Creek Crossing Rec Site	Kunk Lake Shelter
Earl West Recreation Site	Long Lake Shelter
Upper Salamander Creek Rec Site	Highbush Lake RecSite
Lower Salamander Creek Campsite	Chief Shakes Hot Springs Day Use Site
Rainbow Falls Viewing Platforms	Shoemaker Bay Overlook Shelter
Twin Lakes Recreation Site	Anan Wildlife Observatory
Long Lake Roadside Rec Site	North Wrangell High Country Shelter
Pond Shelter	Nemo Point Host Site
Yunshookuh Loop Site	Three Sisters Viewpoint Rec Site
Anita Bay Overlook Rec Site	Highline Recreation Site
Turn Island Rec Site	

Hiking Trails	
Kunk Lake Trail (#506)	Anan Creek Trail (#408)
Long Lake Trail (#574)	Rainbow Falls Trail (#536)
Mill Creek Trail (#515)	Institute Creek Trail (#537)
Salamander Ridge Trail (#520)	Aaron Creek/Berg Bay Trail (#527)
North Wrangell Trail (#500)	Mallard Slough Trail (#626)
Chief Shakes Hot Springs Trail (#625)	Thoms Lake Trail (#575)
Nemo Saltwater Trail (#424)	

Boat Anchorages		
Anan Bay	Steamer Bay	N. Canoe Passage
Thoms Place	Kashevaroff Island Group	S. Brownson Island
Berg Bay	Johnson Cove	Frosty Bay
Quiet Harbor	Bushy Island	Sunny Bay
Kindergarten Bay	Roosevelt Harbor	S. Deer Island
Stone Harbor	Fools Inlet	St. John's Harbor
Cannery Cove	Anita Bay	McHenry Inlet
St. John's Float	Sunrise Cove	Deep Bay
Burnett Inlet	Point Harrington	Marsh Island
Olive Cove	Harding River	Zimovia Strait
Eagle Bay	Three-Way Pass	Santa Anna
Crittenden Creek	Little Baht Harbor	Mud Bay
Navy	Trapshack	Ogland Float
Abraham Island	East Island	Niblack Islands
Ossipee Channel	McHenry Anchorage	Hamm Island

Juneau Ranger District

Travel Routes

Alaska Marine Highway

Skagway to Juneau via Taiya Inlet, Chilkoot Inlet, Lynn Canal, Favorite Channel, and Auke Bay.
Juneau to Hoonah via Auke Bay, Stephens Passage, Saginaw Channel, Lynn Canal, and Icy Strait.
Juneau south via Auke Bay, Stephens Passage, and Frederick Sound.

Tour Ship Routes

Juneau to Glacier Bay via Lynn Canal and Icy Strait
Juneau via Stephens Passage and Gastineau Channel
Juneau to Skagway/Haines via Lynn Canal
Juneau to Tracy Arm via Stephens Passage, Holkham Bay, and Tracy Arm.

Public Use Roads

Montana Creek Road (#8452)
Mendenhall Glacier Road (FH#37)
Peterson Creek (#8442)
Egan/Glacier Highway (FH#2)
Whitepass/Yukon Railroad
North Douglas Road (FH#31 and #8467)
Fish Creek Road (#8471)
Klondike Highway

State Marine Parks

Chilkat Island
Sullivan Island
St. James Bay
Taku Harbor
Shelter Island
Funter Bay
Oliver Inlet (Adm. NM)

Recommended Wild, Scenic, and Recreational Rivers

Katzehin River
Gilkey River

Saltwater Use Areas

Berners Bay
Fritz Cove from N.Douglas boat ramp to False Outer Point
Shelter Island (Saginaw Channel)
Barlow Island (Saginaw Channel)
Mansfield Peninsula, West Shore between Point Retreat and the Kittens
Couverden Island and surrounding waters from No Use Ledge to Point Howard.
Favorite Channel (Breadline) from Pearl Harbor to Tee Harbor
Lynn Canal from Mount Golub to Tidal Flats south of St. James Point
Homeshore (Icy Strait) 4 miles in length along shoreline near the Couverden Log Transfer Facility
Stephens Passage (Douglas Island) between Dornin Rock and Bishop Point, including Gastineau Channel.

Small Boat and Mid-Size Tour Boat Routes

Stephens Passage:
- Taku Inlet
- Gastineau Channel
- Taku Harbor
- Slocum Inlet
- Hilda Creek (S. Douglas Island)
- Admiralty Cove
- Fritz Cove
- Auke Bay
- Favorite Channel
- Lena Cove
- Saginaw Channel
- Russian Cove (Robert Island)
- Holkham Bay
- Windham Bay
- Twin Point
- Limestone Inlet

Chatham Strait:
- Hawk Inlet
- Funter Bay

Icy Strait:
- North Ansley Island
- Couverden Island

Taku River and Inlet:
- Turner Creek
- Hole in the Wall Glacier
- Twin Glacier Lake
- Yehring Creek
- Wright River

Berners Bay:
- Berners River
- Lace River
- Antler River
- Gilkey River

Juneau Ranger District (continued)

Small Boat and Mid-Size Tour Boat Routes (continued)

Icy Strait:
- Excursion Inlet
- Sawmill Bay

Lynn Canal:
- Barlow Cove
- Saginaw Channel
- North Pass
- Howard Point
- St. James Bay
- Boat Harbor
- William Henry Bay
- Berners Bay
- Tee Harbor
- Rescue Harbor
- Katzehin River
- West Lynn Canal

Tracy Arm:
- Holkham Bay
- Williams Cove
- Endicott Arm

Endicott Arm:
- Fords Terror

Port Snettisham:
- Gilbert Bay
- Whiting Inlet
- Whiting River

Stephens Passage:
- Port Houghton
- Hobart Bay
- Port Snettisham
- Port Houghton Salt Chuck
- Sandborn Canal

Dispersed Recreation Areas

Symonds Point (Saginaw Channel)
Katzehin River
Laughton Glacier
Endicott Arm Native Village Site
Spaulding Meadows Alpine Recreation Area
Barlow Cove (Saginaw Channel)
Funter Bay (Lynn Canal)
Portland Island (Stephens Pass.)
Benjamin Island (Favorite Island)
Echo Cove/Sawmill Cove (Berners Bay)
Speel River
Groundhog Bay Historic Native Village Site
Mansfield Peninsula, East Shore Lone Mountain to Young Bay
Berners Bay Head Water System (Lace, Antler, Gilkey Rivers)
St. James Bay
Wright River
Taku River
Sumdum Mine Site
Chuck River (Windham Bay)
Turner Creek and Lake
Fish Creek Recreation Area
Shelter Island from Halibut Cove to Shelter Cove
Gilbert Creek/Sweetheart Flats
Sullivan Island Fox Farm
Salt Chuck River (2 locations)
Whiting River
Couverden Island and Mainland No Use Ledge to Point Howard

Communities

Taku Harbor	Haines	Douglas
Juneau	Funter Bay	Skagway
Excursion Inlet		

Forest Service Recreation Cabins

Peterson Lake	Dan Moller	Taku Inlet
John Muir	Berners Bay	White Pass Caboose
Eagle Glacier	Laughton Glacier	Turner Lake West
Turner Lake East		

Private or Public Resorts

Eaglecrest Ski Area	Methodist Camp	Eagle Valley Lodge
Taku Lodge	Scout Camp	

Developed Recreation Areas

Mendenhall Recreation Area	Mendenhall Lake Campground	Auk Village Recreation Area
Lena Cove Picnic Area	Eagle Beach State Park	Portland Island Picnic Area
Auk Village Campground	Point Bridget State Park	Earnest Gruening St. Historical Park

Juneau Ranger District (continued)

Hiking Trails		
Bishop Trail (#554)	Photo Point	Lemon Creek (#525)
Salmon Creek	Mount Juneau	Blackerby Ridge
Sheep Creek	Sumdum Glacier	Dan Moller Trail (#518)
Montana Creek (#511)	Lake Dorothy	Peterson Lake (#535)
West Glacier (#513)	Bessie Creek (#565)	Amalga Trail (#447)
East Glacier (#526)	Yankee Basin	Laughton Glacier (#509)
Lake Creek	Mount Roberts	Herbert Glacier (#480)
Spaulding Trail (#547)	Mount Bradley	Windfall Lake (#494)
Nugget Creek (#525)	Hawk Inlet (#491)	Denver Glacier (#465)
Auke Nu (#680)	Moraine Ecology (#543)	

Boat Anchorages		
Entrance Island (Hobart Bay)	Tee Harbor	Hilda Creek (South Douglas Island)
No Name Cove (Tracy Arm)	Gastineau Channel	Amalga Harbor (Favorite Channel)
Sanford Cove (Endicott Arm)	Bridget Cove	Limestone Inlet (Stephens Passage)
Funter Bay (Chatham Strait)	Fritz Cove	Sullivan Mountain Cove (Chilkat Pen.)
St. James Bay (3 locations)	Tracy Arm	Lincoln Anchorage (Favorite Channel)
North Arm (Port Houghton)	Hawk Inlet (2 locations)	Slocum Inlet (Stephens Passage)
Couverden Island (Icy Strait)	Ansley Island (Icy Strait)	Hawk Inlet Cannery (Hawk Inlet)
Lena Cove (Favorite Channel)	East End Endicott Arm	Echo Cove (Favorite Channel)
Gilbert Bay (Port Snettisham)	Hobart Bay	William Henry Bay (Lynn Canal)
Horse Island (Stephens Pass.)	Benjamin Island	West of Sullivan Island (Lynn Canal)
Star Point (Port Snettisham)	North Arm Hobart Bay	Taku Harbor (Stephens Passage)
Mallard Cove (Port Snettisham)	Boat Harbor (Lynn Canal)	Barlow Cove (Saginaw Channel)
Endicott Arm (Native Village)	Holkham Bay (2 locations)	Sandborn Canal (Port Houghton)
Auke Bay (Stephens Passage)	Windham Bay (2 locations)	Russian Cove (Stephens Pass.)
Rescue Harbor (Sullivan Island)		West and East Arm Fords Terror
Slate Creek Bay (Berners Bay)		Young Bay (Stephens Passage)

Sitka Ranger District

Travel Routes

Alaska Marine Highway and Tour Ship Routes

Sitka to Chatham Strait via Olga and Neva Straits, Salisbury Sound, Sergius Narrows, Peril Strait
Sitka south via Chatham Strait to Frederick Sound and the Gulf of Alaska
Gulf of Alaska along the outer coast of Baranof and Chichagof Islands

Public Use Roads

Harbor Mountain Road (#7576)	Corner Creek Road (#7540)
Sawmill Creek Road (FH #11)	Kruzof Island Roads (#7590)

State Marine Parks

Big Bear/Baby Bear Bays	Magoun Islands

Recommended Wild, Scenic, and Recreational Rivers

Kadashan River	Lisianski River
Glacial River	

Small Boat and Mid-Size Tour Boat Routes

Sitka north to Chatham Strait via Olga and Neva Straits, Salisbury Sound, Sergius Narrows, Peril Strait
Chatham Strait to Frederick Sound and the Gulf of Alaska
Gulf of Alaska along the outer coast of Baranof and Chichagof Islands
Sitka south via Cape Burunof, Povorotni Pt., Frosty Reef, Dorothy Narrows, Windy Passage, Walker Ch.

Sitka to Gulf of Alaska	Sitka to Fred's Creek	Camp Coogan
Leeoffskaia Bay	Samsing Cove	Silver Bay
Redoubt Bay	Kanga Bay	Biorka Channel
Big Bay	Sevenfathom Bay	Hot Springs Bay
President Bay	Sitka to Krestof Sd. via Sitka Sd.	Gilmer Bay
Sitka to Shelikof Bay via Vitskari Rocks, St. Lazaria Island, Cape Edgecumbe		
DeGroff Bay	Krestof Sd to Sukoi Inlet (south)	St. John's Bay
Sukoi Inlet (north)	Katlian Bay	Sinitsin Cove
Nakwasina Sound and Nakwasina Passage		Kalinin Bay
Piehle Passage	Khaz Bay	Slocum Arm
Ford Arm	Lake Anna	Sister Lake
Klag Bay	Ogden Passage to Goulding Harbor	
Kimsham Cove	Black Bay	Dry Pass
Fish Bay	Suloia Bay	Deep Bay
Big Bear / Baby Bear Bay	South Arm Hoonah Sound	Ushk Bay
Fick Cove	Patterson Bay	North Arm Hoonah Sound
Rodman Bay	Appleman Cove	Saook Bay
Hanus Bay	Sitkoh Bay	Florence Bay
Portage Arm	Kelp Bay	Cosmos Cove
Kelp Bay – Middle Arm, South Arm, The Basin		Kasnyku Bay
Takatz Bay	Warm Springs Bay	Red Bluff Bay
Gut Bay	Deep Cove	Mist Cove
Big Port Walter	Little Port Walter	Port Armstrong
Port Conclusion	Port Alexander	Puffin Bay
Redfish Bay	Snipe Bay	Still Harbor
Whale Bay – Small Arm and Great Arm to heads		Port Banks
Necker Bay	Dorothy Cove	Secluded Bay
Crawfish Inlet	Cedar Pass	West Crawfish Inlet
Shamrock Bay	Hoggatt bay	

Sitka Ranger District (continued)

Saltwater Use Areas	
Silver Bay	Olga Strait
Sitka Point to Beaver Point	Katlian Bay
Fish Bay	Sitka Sound
Port Walter (Chatham Strait)	Kelp Bay to South Arm and Pond Is.
Redfish Bay (Pacific Ocean)	Florence Bay (Peril Strait)
Big Port Walter (Chatham Strait)	Point Amelia to Beaver Pt.
Nakwasina Sound and Inlet	Peril Strait, from Kakul Narrows to Poison Cove
Rodman Bay (Peril Strait)	Deadman's Reach (Peril Strait)
Krestof Island, South shore from Brady Is. to Eastern Point	Necker Islands to Eastern Channel, including W. coast Baranof Island
Salisbury Sound; Searock to Sinitsin	Rodman Bay (Peril Strait)
Hidden Falls area	Cape Burunof to West Crawfish

Dispersed Recreation Areas		
Redoubt Lake	Kook Lake	Harbor Mountain Recreation Area
Salmon Lake	Iris Meadows	Mount Edgecumbe
Baranof Lake	Kadashan Bay	Lake Eva
Blue Lake	Port Frederick Portage	Sitkoh Creek
Magoun Islands	Long Bay (Tenakee Inlet)	Seal Bay (Tenakee Inlet)
Kruzof Island, southeast shore	Goose Flats (Tenakee Inlet)	Sealion Cove
Magoun Islands	Fish Bay Creek	Florence Bay

Communities		
Port Alexander	Tenakee Springs	Sitka
	Baranof Warm Springs	

Forest Service Recreation Cabins		
Freds Creek	Baranof Lake	Shelikof
Plotnikof Lake	Brents Beach	Lake Eva
Davidof Lake	Salmon Lake	Lake Suloia
Avoss Lake	White Sulphur Hot Springs	Kook Lake
Redoubt Lake	Seven Fathom Bay	Sitkoh Lake (2 cabins)
Samsing Cove	Moser Island	North Beach
Piper Island	Goulding Lake	Kanga Bay
Mud Bay Shelter	North Neva Shelter	Kukul Narrows Shelter
Otstoia Island Shelter	Seal Bay Shelter	Mt. Edgecumbe Shelter
Tom Young Memorial Cabin (Goddard Hot Springs)		

Developed Recreation Sites	
Starrigavan Campground	Sawmill Creek Campground

Hiking Trails		
Mount Edgecumbe (#520)	White Sulphur Springs (#560)	Harbor Mountain/Gavan Hill (#499)
Davidof Lake (#463)	Sashin Lake (#668)	Iris Meadows (#521)
Salmon Lake (#566)	Port Banks (#580)	Lake Eva (#472)
Redoubt Lake/Goddard	Sealion Cove #508)	Suloia Lake (#575)
Warm Springs Bay (#559)	Kook Lake	Indian River (#500)
Beaver Lake (#522)	Basket Bay (#451)	Sitkoh Lake (#553)

Sitka Ranger District (continued)

Boat Anchorages		
Katlian Bay head	Cedar Cove	Whitestone Cove
Sukoi Inlet south, head	Sukoi Inlet north, head	Sinitsin Cove
Kalinin Bay	Gilmer Bay	Goleta Cove (Shelikof Bay)
Cuvacan Cove (Shelikof Bay)	St. Lazaria	Fred's Creek
Brent's Beach	Magoun Islands	Mud Bay (Kruzof Island)
DeGroff Bay	Leo Anchorage	Piehle Passage
Deuce Island	Khaz Bay	Tawak Passage (Myriad Islands)
Hidden Cove (Slocum Arm)	Island Cove (Slocum Arm)	Waterfall Cove (Slocum Arm)
Ford Arm (west)	Ford Arm (east)	Double Cove
Klag Bay (Chichagof Mine Site)	Kimsham Cove	Black Bay
Goulding Bay	Dry Pass	Fish Bay head
Schulze Cove	Suloia Bay	Deep Bay
Big Bear / Baby Bear Bay	Poison Cove	Ushk Bay (2 anchorages)
Patterson Bay	Moser Island	False Island
Rodman Bay head	Appleman Cove	Saook Bay
Todd	Lindenburg Harbor	Pt. Moses (Hanus Bay)
Eva Creek (Hanus Bay)	Dead Tree Island (Hanus Bay)	Echo Cove (S. Catherine Is.)
The Basin (Kelp Bay)	Pond Island (Kelp Bay)	Cosmos Cove
Kasnyku Bay	Ell Cove	Takatz Bay
Warm Springs Bay	Red Bluff Bay head	Gut Bay
Deep Cove	Mist Cove	Big Port Walter
Little Port Walter	Port Armstrong	Port Conclusion
Puffin Bay	Tenfathom Anchorage (Redfish)	Redfish Bay head
Snipe Bay	Still Harbor	Port Banks
Whale Bay, Great Arm	Whale Bay, Small Arm head	Yamani Cove
Secluded Bay (Necker Bay)	Dorothy Cove (Necker Bay)	Shamrock Bay (West Crawfish)
President Bay	Sevenfathom Bay	Big Bay
Herring Bay (Elevoi Islands)	Kliuchevoi Bay (Goddard Hot Springs)	Tava Island (Biorka Islands)
Symond Bay (Biorka Island)	Kanga Bay	Kidney Cove
Redoubt Bay (at lake outlet)	Samsing Cove	Camp Coogan
Leesoffskaia Bay	Silver Bay head	

National Wildlife Refuge
St. Lazaria National Wildlife Refuge

Yakutat Ranger District

Travel Routes

Alaska Marine Highway

Gulf of Alaska to Monti Bay

Tour Ship Routes

Gulf of Alaska to Hubbard Glacier

Public Use Roads

Highway 10 (Yakutat to Dangerous R.)
Cannon Beach Road (#9963)
Situk Landing Road (#9969)
Alsek Bay/River Non System Rd.

Small Boat and Mid-Size Tour Boat Routes

Alsek River
East Alsek River
Ahrnklin River
Mouth of Dangerous R. to Harlequin L.
Ankau Saltchucks to Summit Lake
Yakutat Bay to Disenchantment Bay
Mouth of Situk River to Situk Lake
Dangerous River to Ahrnklin River
Shipyard Cove to Sawmill Cove to Redfield Cove
Italio River to Dangerous River
Tawah Creek
Shipyard Cove to: Gilbert Spit to: Eleanor Cove
Akwe River to Alsek River
Situk Lake to Russell Fiord canoe/kayak route
Mouth of Russell Fiord to Nunatak Fiord
Lost River to Situk River
Lost River from bridge to Situk

Saltwater Use Areas

Phipps Peninsula

Dispersed Recreation Areas

Square Lake
Gines Creek
Alsek River Delta
Doame River
Harlequin Lake
Italio Lake Big Game Camp
Ahrnklin River
Dangerous River Guide Camp
Highway 10 Corridor
Gulf of Alaska Coastline
East Alsek River Delta
Pike Lakes
Tanis River Mesa Guide Camp
Alsek Bay Fish Camps & Buying Sta.
Italio River
Lower Dangerous River
Middle Dangerous River
Cannon Beach
Middle Slough River
Upper Dangerous River
Alsek River Big Game & Fish Camps

Communities

Yakutat

Forest Service Recreation Cabins

Square Lake
Tanis Mesa (2 cabins)
Alsek River
Middle Situk (2 cabins)
Situk Lake
Harlequin Lake (2 cabins)
Middle Dangerous River
Lower Dangerous River
Italio River

Private Resorts

Alsek River Rafting Campsite

Hiking Trails

Dangerous River (#654)
Italio River (ATV)
Lower Dangerous River (#653)
Russell Fiord Trail
West Situk (#664)
Lost River Trail (#670)
Harlequin Lake Trail (#655)
SitukRiver ATV Trail (#726)
Situk River Cabin (#649)
Situk Lake (#659)
Mountain Lake (#652)

Boat Anchorages

Eleanor Cove
Ahduck Bay (Square Bay)

Hoonah Ranger District

Travel Routes

Alaska Marine Highway and Tour Ship Routes

Juneau to Sitka via Hoonah, Icy Strait, Cross Sound, Pelican and Gulf of Alaska
Juneau to Tenakee Springs

Public Use Roads

Hoonah to East Point (#8502, #8508, #8510, and #8513)
Hoonah to Whitestone Harbor and Iyoukeen Cove (#8502, #8530, and #8530-4)
Eight Fathom Dock to Neka Hot Springs (#8580)

Small Boat and Mid-Size Tour Boat Routes

Juneau to Sitka via Hoonah, Icy Strait, Cross Sound, Pelican and the Gulf of Alaska
Juneau t Tenakee Springs via Icy Strait and Chatham Strait

Port Frederick	Idaho Inlet	Stag Bay
Neka Bay	South and North Inian Pass	Greentop Harbor
Spasski Bay	Port Althorp	Squid Bay
Whitestone Harbor	Lisianski Inlet	Takanis Bay
Freshwater Bay	Soapstone Harbor	Surge Bay
Mud Bay	Lisianski Strait	

Saltwater Use Areas

Point Adolphus	Inian Islands (Icy Strait)	Idaho Inlet
Pleasant Island (Icy Strait)	Lisianski Inlet (head)	Mud Bay
Lemesurier Island (Icy Strait)	Port Frederick (mouth)	Cross Sound area off Inian Islands

Dispersed Recreation Areas

Port Althorp head	Suntaheen Fish Viewing Area	Pavlof Lake and River
Georges Island	Port Frederick/Tenakee	Lisianski Inlet River
Bear Paw Lake	Fox Creek	Lemesurier Island
Inian Islands	Mud Bay River	Vortex Ridge
Estuary to Trail River	Kennel Creek	Sonyakay Ridge
Neka River flats	Trail River Estuary	Elephant Mountain
Pinta Cove	Chicken Creek	Point Adolphus
False Bay	Redcliff and Cedar Islands	Porpoise Islands
Pleasant Island	Whitestone Harbor	Elfin Cove
Three Hill Island	Iyoukeen Cove	East Point FS Road #8510
Bohemia Basin	Wukuklook Beach	

Communities

Hoonah	Mt. Bether	Elfin Cove
Pelican	Whitestone Logging Camp	Gustavus

Forest Service Recreation Cabins

Green Top	Pinta Cove Shelter
Kennel Creek	8-Fathom
Whitestone Harbor	

Hiking Trails

Pelican/Sunnyside (State)	Spasski Trail (#548)	Spasski Trail (Pvt.)
Lisianski River (#506)	Pavlof Marsh (#705)	Wukuklook (#706)
Greentop (#707)	Stag Bay (#702)	Stag River (#713)
Tekanis (#710)		

Hoonah Ranger District (continued)

Boat Anchorages		
Whitestone Harbor	Kennel Creek	Surge Bay (head, mid-bay, and south entrance)
Spasski Bay	Mud Bay	Takanis Bay (2 anchorages)
Port Althorp head	Flynn Cove (Icy Strait)	Squid Bay
Soapstone Harbor	Mite Cove (Lisianski Inlet)	Green Top Harbor
Bingham Cove (Yakobi Is.)	Neka Bay	Pinta Cove (Icy Strait)
Lisianski Inlet head	Gull Cove (Idaho Inlet)	Cedar Cove (Freshwater Bay)
Deer Harbor	Goose Island (Icy Strait)	Idaho Inlet (head)
Lost Cove (Lisianski Strait)	Salt Chuck Bay (Port Althorp)	Stag Bay (Lisianski Strait)
Bohemia Creek	Earl Cove (Icy Strait)	Inian Cove (Inian Islands)
Freshwater Bay head	Hoktaheen Cove	Shaw Islands (Idaho Inlet)
Granite Cove (George Is.)	Salt Lake Bay Float (Port Frederick)	8-Fathom Float
Port Frederick (tour ship anchorage west of Hoohah)		

Admiralty Island National Monument

Travel Routes

Alaska Marine Highway

Angoon to Juneau via Chatham Strait
Angoon to Petersburg via Chatham Strait and Frederick Sound
Juneau to Petersburg via Stephens Passage and Frederick Sound

Tour Ship Routes

Stephens Passage
Chatham Strait
Frederick Sound

State Marine Parks

Oliver Inlet State Marine Park

Recommended Wild, Scenic, and Recreational Rivers

Hasselborg River and Lakes
King Salmon River

Small Boat and Mid-Size Tour Boat Routes

Stephens Passage including
Oliver Inlet, Green Cove, Doty Cove, Seymour Canal (Windfall Harbor, Swan Cove, Pleasant Cove), Admiralty Cove, Young Bay, Gambier Bay (Middle Good Island Bay, Upper Good Island Bay, Snug Cove, Upper Gambier Bay)

Chatham Strait including
Hawk Inlet, Wilson Cove, Whitewater Bay, Chaik Bay (both arms), Hood Bay (north and south arms),Kilisnoo Harbor, Favorite Bay, Mitchell Bay, Davis Creek, Lighter Creek, Lighter Creek, Kanalku Bay, Stillwater Anchorage, Cube Cove, Square Cove

Frederick Sound including
Pybus Bay (Donkey Bay, Cannery Cove, San Juan Islands) Little Pybus Bay, Woewodski Harbor, Eliza Harbor, Chapin Bay, Murder Cove, Surprise Harbor, Twin Point Cove)

Cross Admiralty Canoe Route including
Lake Alexander, Beaver Lake, Hasselborg Lake, McKinney Lake, Lake Guerin, Hasselborg Creek, Thayer Lake, Distin Lake, Davidson Lake

Saltwater Use Areas

False Point Arden (from Green Cove to Arden Pt)
Pybus Bay West Channel (from Cannery Cove to Little Pybus Bay)
Chatham Strait (from Angoon to Thayer Creek)
Cove Point (from Arden Point to Doty Cove)
Pybus Bay (from Midway Islands to Pybus Bay Cabin

Dispersed Recreation Areas

Admiralty Creek (from Admiralty Cove to and including Young Lake)
Admiralty Lakes (Mole Harbor, Lake Alexander, Beaver Lake, Hasselborg Lake, McKinney Lake, Lake Guerin, Davidson Lake, Distin Lake, Salt Lake, Freshwater Lake, Little Lake, Thayer Lake and surrounding lands)
West Brother Island
Mitchell Bay
Admiralty Cove
Windfall Harbor
Oliver Inlet

Developed Recreation Areas

Pack Creek

Communities

Angoon

Admiralty Island National Monument (continued)

Forest Service Cabins		
Admiralty Cove	Big Shaheen	Little Shaheen
Church Bight	Distin Lake	Florence Lake
Hasselborg Creek	Jim's Lake	North Young Lake
South Young Lake	Lake Alexander	Lake Kathleen
Pybus Bab	Sportsman	Lake Alexander shelter
Mole Harbor shelter	Hasselborg Lake shelter	Lake Guerin shelter
Davidson Lake shelter	Thayer Lake North shelter	Thayer Lake South shelter
Mitchell Bay shelter	Windfall Harbor shelter	

Private Resorts
Thayer Lake Lodge

Hiking Trails	
Admiralty Cove to Young Lake	Distin Lake to Davidson Lake Trail
Distin Lake to Thayer Lake Trail	Hasselborg Lake to Lake Guerin Trail
Hasselborg River Trail	Beaver Lake to Hasselborg Lake Trail
Lake Guerin to Distin Lake Trail	Hasselborg Lake to McKinney Lake Trail
Mole Harbor to Lake Alexander Trail	Pack Creek
Kanalku Lake	Lake Florence to Chatham Strait Trail
Salt Lake to Mitchell Bay	Dividson Lake to Salt Lake
Nort Young Lake Cabin to South Young Lake Cabin	

Boat Anchorages	
Young Bay (Stephens Passage)	Admiralty Cove (Stephens Passage)
Oliver Inlet (Stephens Passage)	Green Cove (Stephens Passage)
Doty Cove (Stephens Passage)	Midway Point Cove (Stephens Passage)
Snug Cove (Gambier Bay)	Good Island (Gambier Bay)
Upper Good Island (Gambier Bay)	Middle Gambier Bay (Gambier Bay)
Upper Gambier Bay (Gambier Bay)	West Brothers Island (Stephens Passage)
Twin Point Cove (Stephens Passage)	Upper Windfall Harbor (Seymour Canal)
Tiedman Island (Seymour Canal)	Bug Island (Seymour Canal)
Swan Island (Seymour Canal)	Glass Peninsula (Seymour Canal)
Liesnoe Island Cove (Frederick Sound)	Sharp Point Cove (Frederick Sound)
Saw Point Cove (Frederick Sound)	Chapin Bay (Frederick Sound)
Murder Cove (Frederick Sound)	Pybus Bay (Frederick Sound)
Donkey Bay (Pybus Bay)	Cannery Cove (Pybus Bay)
San Juan Islands (Pybus Bay)	Wilson Cove (Chatham Strait)
Whitewater Bay (Chatham Strait)	Chaik Bay (end of both arms) (Chatham Strait)
Hood Bay Cabin Point Harbor (Chatham Strait)	Hood Bay Cabins (Chatham Strait)
Killisnoo Harbor (Chatham Strait)	South America Island (Mitchell Bay)
Favorite Bay (Mitchell Bay)	Kanalku Bay (Mitchell Bay)
Square Cove (Chatham Strait)	Unnamed Cove (between Piledriver and Game Covers (Chatham Strait)

Thorne Bay Ranger District

Travel Routes

Alaska Marine Highway

Clarence Strait from Ketchikan to Stikine Strait

Inter-island Ferry: Coffman Cove to Wrangell and Petersburg

Tour Ship Route

Sumner Strait from Snow Passage to Cape Decision

Public Use Roads

Thorne Bay to Sandy Beach Rd. (#30)
Klawock to Control Lake Junction (FH#9)
Sandy Beach to Coffman Cove
FH#20 to Naukati
Control Lake to Thorne Bay (FH#9)
Control Lake to El Capitan
FH#20 to Coffman Cove

State Marine Parks

Salmon Bay
Grindall Island

Recommended Wild, Scenic, and Recreational Rivers

Salmon Bay Lake and Stream
Thorne River/Hatchery Creek/Barnes Lake
Sarkar Lakes

Small Boat and Mid-Size Tour Boat Routes

Tuxekan Pass - Edna Bay
Tenass and Brockman Passages
El Cap to Coronation
Grindall Island to Hollis
Coffman Cove to Whale Pass
Sea Otter Sound to Cape Pole
Karheen Pass to New Tokeen
Clarence Strait
El Cap Passage

Saltwater Use Areas

Port Protection
Coronation
Lake Bay
Marble Pass
Naukati Bay
Salmon Bay
Thorne Bay to Snug Anchorage
Maurelle Islands
Red Bay
Tuxekan Passage
El Capitan to Shakan Bay

Dispersed Recreation Areas

Salmon Bay Lake
Sarkar Lake
Staney Creek
Hatchery Creek Area
Dry Pass
Beach Area around Sandy Beach
Honker Canoe Route-Gold and Galligan Lagoon to Thorne Bay
Red Bay Lake
Barnes Lake
Karta Lake
Sweetwater Lake
Red Bay
Snakey Lakes
Eagle Creek
Neck Lake
Ratz Harbor
Red Bay Lake
Mouth of Staney Creek and cove to the south
Honker Lake
Kasaan Bay
Winter Harbor
Thorne River @ Goose Ck. to Thorne Bay
Gold and Galligan Lagoon
Karta Bay and River
Caulder Mountain
Salt Chuck
Salmon Lake
Beach Areas on north coast of Prince of Wales Island
Salmon Lake
Shipley Lake
Control Lake

Communities

Edna Bay
Whale Pass
Point Baker
Thorne Bay
Port Protection
Naukati
Coffman Cove
Cape Pole

Thorne Bay Ranger District (continued)

Forest Service Recreation Cabins		
Red Bay Lake	Staney Creek	Control Lake
Salmon Bay Lake	Barnes Lake	Honker Lake
Sarkar	Shipley Bay	Sweetwater Lake
Salmon Lake	Karta Lake	Karta River

Developed Recreation Areas		
Gravelly Creek Picnic Area	Sandy Beach Picnic Area	Staney Bridge Dispersed Use Site
Eagles Nest Campground (Balls Lake)	Neck Lake Boat Launch	Memorial Beach Dispersed Use Area
El Cap Cave Interpretive Site	Big Lake Fish Viewing Site	Sarkar Lake Access
Beaver Falls Trailhead	Horseshoe Hole Dispersed Use Site	Ratz Harbor Boat Launch
Lake Ellen Number 3 Dispersed Use Site	Balls Lake Picnic Area	

Private Resorts	
Whale Pass Resort	El Capitan Lodge
Bear Valley Lodge	Boardwalk Wilderness Lodge (Thorne Bay)

Hiking Trails		
Red Bay Lake Trail (#947720)	Sarkar Canoe Trail	Shipley Lake Trail(#947710)
El Capitan Cave Trail	Staney Creek Trail	Deweyville Trail (#947490)
Honker Divide Canoe Trail	Balls Lake Trail	Salmon Bay Lake Trail (#947730)
Karta Bay Trail	Gravelly Creek Trail	Karta River Trail
Karta Falls Trail	Sweetwater Cabin Trail	Hatchery Trail
Anderson CreekTrail	Cavern Lake Trail	Eagles Nest Trail
Beaver Falls Interpretive Trail	Salt Chuck Trail	

Boat Anchorages		
Pole Anchorage	Windfall Harbor	Warm Chuck Inlet
Karta Bay	Salmon Bay	Nossuk Bay
Cyrus Cove	Salt Lake Bay	Hole-In-The-Wall (Prince of Wales)
Big Ratz Harbor	Little Ratz Harbor	

National Wildlife Refuge
Hazy Islands National Wildlife Refuge

Craig Ranger District

Travel Routes

Alaska Marine Highway

Inter-island Ferry: Guard Island to Hollis via Kasaan Bay to Clark Bay

Public Use Roads

Craig to Klawock (FH #9)
Klawock to Hydaburg Jct. (FH#6)
Hydaburg Rd. (FH#13)
Hydaburg Jct. to Hollis (FH#6)
Klawock to Control Lake Junction

Small Boat and Mid-Size Tour Boat Routes

West Coast Waterway: San Cristoval Channel to Ulloa Channel
Hollis to Twelvemile, Polk and McKenzie Arms
Cholmondeley Arm
Graign to Trocadero Bay
Hetta Inlet
Sukkwan Island
Hollis to Karta
West Coast Waterway: Ulloa Channel to Hydaburg
Craig to Addington Loop
Outer Baker Island
Dall Island
Klackas Inlet
Moira Sound
Port Real Marina

Saltwater Use Areas

Port Refugio
Port Santa Cruz
Moira Sound Dickman Bay, South Arm, Fredericks Bay and Johnson Bay
Hydaburg Harbor Area
Kendrick Bay
Addington Area
Veta Bay
Arena Cove
Portillo Channel
Trocadero Bay
Cholmondeley: North Arm Estuary, South Arm Estuary, Sunny Bay, waters surrounding Hump Island
Twelvemile Arm Estuary
Hollis Harbor Area
Craig and Klawock Harbor Areas
Waters around San Juan Bautista
Waters around San Fernando

Dispersed Recreation Areas

Arena Cove - Cape Felix
Veta Bay
Port Santa Cruz
Port Santa Lucia
Kegan Cove
Black Bear Lake and Valley
Canoe Point Picnic Area
Pt. Amargura (incl. ½ mi. radius around cabin)
Josephine Lake
Roller Bay
Twelvemile Estuary
Trocadero Bay Estuary
Kegan Lake
Maybeso River Area
Harris River Area
Essowah Lake
Trollers Cove

Communities

Craig
Klawock
Hydaburg
Hollis
Saltery Cove

Forest Service Recreation Cabins

Black Bear Lake
Kegan Lake
Pt. Amargura
Josephine Lake
Kegan Cove
Twelvemile Cabin
Trollers Cove
Essowah Lake

Developed Recreation Sites

One Duck Lake Shelter
Pass Lake Picnic Area
Harris River Campground and Day Use Area
Trocadero Picnic Area
Dog Salmon Fish Pass
Cable Creek Fish Pass

Craig Ranger District (continued)

Private Resorts	
Waterfall Resort site and Ulloa Channel north and south of the resort	Clover Bay Resort
Saltery Cove	

Hiking Trails	
One Duck Lake Trail (#9173600)	Soda Bay Trail
Trocadero Bay Trail	Harris River Trail
Cable Creek Trail	Twentymile Spur Trail
Kegan Creek Trail	Pass Lake Trail
Twelvemile Trail	Kegan Lake Trail
Canoe Point Trail	

Recommended Wild, Scenic, and Recreational River	
Essowah Lakes and Streams	Kegan Lake and Streams
Niblack Lakes and Streams	

Boat Anchorages		
Steamboat Bay	Security Cove	Pt. Garcia
Kelly Cove	Datzkoo Harbor	Port Asumcion
Port San Antonio	Kaigani Harbor	Port Refugio
Port Santa Cruz	Nichols Bay	Head of McLean Arm
Port Dolores	Rose Inlet	Kendrick Bay
Bobs Bay	Clover Bay	Dickman Bay
Hole-in-the-Wall (Dall Is.)	Mabel Bay	South Arm Moira Sound (mouth)
Waterfall Bay	Veta Bay	West Arm Moira Sound (mouth)
Gold Harbor	Goose Bay	Kassa Inlet - area inside islands
Port Bazan	Pt. Eugenia	Twelvemile

National Wildlife Refuge
Forester Islands National Wildlife Refuge

Ketchikan-Misty Fiords Ranger District

Travel Routes

Alaska Marine Highway	*Tour Ship Route*
Clarence Strait to Stikine Strait	Revillagigedo Channel and Clarence Strait
Alternative Route (Clarence Strait and Ernest Sound)	
Main Passage, Tongass Passage and Portland Canal to Hyder	
Revillagigedo Channel from Main Passage to Clarence Strait	

Public Use Roads

Tongass Highway (State Highway #7)	Salmon River Hwy.-Hyder (#88)
Ward Lake-Hariett Hunt Lake Road (FH #39)	Fog Pond Road
Connell Lake Road	

State Marine Parks

Grant Island	Dall Bay	Black Sands Beach

Recommended Wild, Scenic, and Recreational River

Naha River	Orchard Creek and Lake
Wolverine Creek, McDonald Lake	Gokachin, Mirror, Fish, and Low Creeks

Small Boat and Mid-Size Tour Boat Routes

Bell Island	Naha to Traidor's Cove
Ketchikan to Naha	Ketchikan to Helm

Saltwater Use Areas

Tongass Narrows	Bailey Bay	George Inlet
Blind Pass	Short Bay	Shrimp Bay
Yes Bay	Union Bay	Klu Bay
Clover Pass	Helm Bay	Neets Bay
Naha Bay	George Inlet	Traitors Cove
Vallenar Bay - Vallenar Point	West Behm Canal	Carroll Inlet
Revilla Channel to Thorne Arm	Moser Bay	Port Stewart
Behm Narrows	Thorne Arm	Moth Bay
Anchor Pass	Vixen Inlet	Bond Bay
Blank Inlet	Bostwick Inlet	Dall Bay
Bond Bay	Smugglers Cove	Spacious Bay
NE corner of Thorne Arm (Fish Creek to Gokachin Creek)	About 1/2 mi. off shore Cleveland Peninsula from Caamano Point to Niblack Point	

Dispersed Recreation Areas

Port Stewart	Lower Carroll Creek
Helm Bay	Spacious Bay
Margaret Lake area	Dall Bay
Blank Inlet	Bostwick Bay
Mountain Ranges and Alpine Area between Ketchikan, Ward Lake-Hariett Hunt Lake Road, and George Inlet.	Traitors Salt Chuck

Ketchikan-Misty Fiords Ranger District (continued)

Communities		
Ketchikan	Meyers Chuck	Hyder
Metlakatla	Loring	Saxman

Forest Service Recreation Cabins		
Deer Mountain	Orchard Lake - incl. lake	Patching Lake - incl. lake
Jordan Lake - incl. lake	Plenty Cutthroat - incl. lake	Portage Cabin - incl. lake
Heckman Lake - incl. lake	Helm Bay - incl. bay	Fisheries Cabin - incl. lake
Blind Pass - incl. pass	Phocena Cove - incl. cove	Long Lake Shelter - incl. lake
Anchor Pass - incl. pass	Fish Creek - incl. around buoy	Wolf Lake Shelter - incl. lake
Reflection Lake and Shelter - incl. lake	Smugglers Cove Shelter - incl. lake	Shelokum Lake Shelter - area and lake
McDonald Lake and Shelter - incl. lake	Helm Lake - incl. stream and lake	

Private Resorts		
Yes Bay Lodge	Silver King Lodge	Salmon Falls Resort
Clover Pass Resort		

Developed Recreation Areas	
Ward Lake Recreation Area	Settlers Cove (State Campground)

Hiking Trails		
Deer Mountain Trail (#927060)	Long Lake Trail (#927190)	Gokachin Lake Trail (#927110)
Reflection Lake Trail (#927310)	Connell Lake Trail	Titan Trail (Hyder) (#957550)
Bell Island Trail (#927030)	Fish Creek-Low Lake Trail	Orchard Lake Trail (#927320)
Naha River Trail (#(929250)	Meyers Chuck Trail (#927830)	Lunch Creek Trail
Silvis Lake Trail	Ward Creek Trail	McDonald Lake Trail (#927450)
Ward Lake Nature Trail	Black Mountain Lakes Trail	Perseverance Lake Trail (#927260)
Second Waterfall Creek Trail	Smugglers Lake Trail	
Bailey Bay-Shelokum Lake (#927010)	Dude Mtn / Brown Mtn Alpine Trail	

Boat Anchorages	
Vixen Harbor	Ice House Cove
Thorne Arm	Port Steward
Vallener Bay	Naha
Bailey Bay	Moser Bay
Short Pass	Union Bay
Yes Bay	Klu Bay
Spacious Bay	

Routes not constructed nor NEPA cleared: Planned or Opportunities	
Potential Trail corridor between Hariet Hunt Lake and Leask Lake	
Saddle Lakes Recreation Area	Shelter Cove Boat Ramp
Slide Ridge Winter Sports Area	Harriet Hunt - Shelter Cove Connection Road

Misty Fiords National Monument Wilderness

Travel Routes

Tour Ship Routes

Portland Canal
Revilla Island
Rudyerd Bay
Smeaton Bay
Walker Bay

Saltwater Use Areas

Burroughs Bay
Saks Cove
Alva Bay
Princess Bay
Chickaman
Walker Cove
Bakewell Arm
Checats Cove
Rudyerd Bay
Manzanita Bay
Seargent Bay
Ella Bay
Shoalwater Pass
Smeaton Bay
Wilson Arm
Vixen Bay/Mink Bay

Dispersed Recreation Areas

Princess Bay
Chickaman River
Walker Cove
Manzanita Bay
Wilson Arm
Saks Cove
Unuk River
Rudyerd Bay
Ella Bay

Forest Service Recreation Cabins

Blind Pass
Wilson Narrows
Winstnley Bay
Big Goat Shelter
Ella Narrows
Humpback Lake
Klahini Bay
Short Bay
Alva Bay
Wilson View
Winstanley Lake
Beaver
Fish Creek
Manzanita Lake
Princess Bay
Winstanley Creek
Red Alders
Mink Bay
Punchbowl Lake Shelter
Checats Lake
Hugh Smith
Ella Bay
Punchbowl Cove

Private Resorts

Humpback Lake Chalet
Mink Bay Lodge
Mirror Lake Club Cabin

Developed Recreation Areas

Fish Creek Wildlife Viewing Site

Hiking Trails

Bakewell Lake Trail
Ella Lake Trail
Humpback Trail
Nooya Trail
Winstanley Lake Trail
Checats Lake Trail
Hugh Smith Lake Trail
Manzanita Trail
Punchbowl Lake Trail

Anchorages

Vixen Bay
Wasp Cove
Foggy Bay
Fitzgibbon Cove
Checats Cove
Manzanita Bay
Saks Cove

APPENDIX G
LOG TRANSFER FACILITY GUIDELINES

Appendix G

Log Transfer Facility Guidelines[1]

Introduction

Log transfer facilities (LTFs) undergo a complex and rigorous permitting process involving four state and four federal resource management and regulatory agencies as well as comments from other interested parties. Through the permitting process, the regulatory agencies may approve or disapprove permits with stipulations that govern the construction and operation of LTFs.

In seeking clarification of permit stipulations expected to be included in LTF permits, the timber industry recommended—through Governor Sheffield's Timber Task Force report (12/13/84)—that:

> "...the principal agency heads and industry representatives meet to agree upon a process which will result in a common set of log transfer facility guidelines..."

As a result of this request, a committee consisting of the principal agency and industry representatives met on April 15, 1985, to consider the Task Force recommendation. This committee created a technical subcommittee of industry, public, and resource agency personnel involved in permitting LTFs to develop LTF guidelines per the Timber Task Force recommendation that:

> "...it would be beneficial for all parties involved in the permitting, construction, and operation of log transfer facilities to have a common set of criteria (guidelines) from which to work when designing facilities and reviewing permit applications for these facilities."

The LTF guidelines are in three sections, including:

- Siting
- Construction and Operation
- Monitoring and Reporting

The Use of Guidelines

The guidelines for planning and permitting of LTFs delineate the physical requirements necessary to construct a log transfer and associated facilities and, in context with requirements of applicable law and regulations, methods to avoid or control potential impacts from these facilities on water quality, aquatic, and other resources. The guidelines emphasize facility siting as the best means of limiting most environmental impacts from LTFs, log raft, storage areas, and adjoining collateral facilities. Additional means of limiting environmental impacts occur through application of construction and operating guidelines. Monitoring and reporting guidelines are necessary to determine if a facility is meeting the permit stipulations.

These guidelines can be used in the existing permitting process that emphasizes best professional judgment of the agencies in close cooperation with the applicants

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[1] The Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines (1985) were developed by the Alaska Timber Task Force LTF Guidelines Technical Subcommittee. These guidelines are to be used when considering alternatives for the location and management of log transfer and associated facilities. The guidelines will also be used by the regulatory agencies for evaluating permit applications to ensure consistency with the Clean Water Act. See the log transfer facilities direction in the Transportation Forest-wide Standards and Guidelines (Chapter 4) for direction on the use of these guidelines.

when selecting sites and imposing permit stipulations. The process is preferred because it accommodates site-specific conditions and enables all participants to collectively evaluate the practicable alternatives and determine the best way to minimize impacts.

The guidelines are comprehensive and may apply to any site being evaluated for LTF permits. Because each site is different, in unusual circumstances, there may be need to develop more specific stipulations or limitations during the permit review process for a specific site.

Periodic updating of the guidelines will be necessary because changes may occur in the timber industry and new information may become available on the effects of LTF on water quality and biotic communities.

The guidelines apply to log transfer, log raft storage, and collateral facilities, such as log raft make-up areas, airplane and boat docks, and contiguous upland log storage and sort yards immediately adjacent to the LTF.

The guidelines do not identify which permitting agency or agencies have regulatory and permitting jurisdiction for any guideline. The objective is to provide a comprehensive listing of guidelines applicable to LTFs through state and federal resource management and regulatory programs.

The siting and construction and operation guidelines identify the physical features the timber industry needs to safely and efficiently transport logs as well as the minimum requirements needed to mitigate for changes in water quality and adverse impacts on aquatic biota. When evaluating proposals for these log transfer and associated facilities, all guidelines must be considered. The objective is to consider all guidelines and develop a "best mix" that allows the activities to proceed while meeting all applicable statutory and regulatory requirements.

The following are the Alaska Timber Task Force Guidelines.

Siting Guidelines

Proper siting of log transfer and log raft storage facilities is the single most important means of controlling adverse water quality and biotic impacts from the construction and operation of these facilities. The least biologically productive and sensitive area available that meets industry's physical and economic requirements is the preferred site. The need for regulatory agencies to impose additional permit stipulations above the minimum requirements to mitigate against environmental impacts is reduced to a level commensurate with the site-specific characteristics.

S1. **Proximity to Rearing and Spawning Areas:** Siting of log transfer and log raft storage facilities within 300 feet of the mouth of anadromous fish streams, or in areas known to be important for fish spawning or rearing is normally prohibited.

Discussion: This LTF siting guideline is derived from the Alaska Forest and Resources Practices Regulations (11 AAC 95.150 (c)). The estuarine areas adjacent to the mouths of anadromous fish streams serve as important feeding areas for salmon fry and smolts while they acclimate to saltwater. Impacts to these areas can force outmigrants into deeper waters where there is greater risk for predation. Placement of LTFs in known spawning areas results in loss of spawning habitat.

The outmigrant salmon fry are especially vulnerable and have particularly high value to the fishing industry. The concerns include the possibility of leachates entering fresh water or the possibility of sediments entering waters and affecting fish. Because of the high value of the fisheries resources, the Forest Practices Regulations of the state exclude LTF siting in these most valuable and highest risk locations.

S2. **Protected Locations:** Log transfer and log storage facilities should be sited in weather-protected waters with bottoms suitable for anchoring and with at least 20 acres for temporary log storage and log booming.

Discussion: Areas protected from adverse weather, tidal, and wave conditions are needed for the safety of the workers responsible for moving log bundles, building rafts, and similar water-oriented work activities. Log rafts and bag booms must be protected from adverse weather, tidal, and wave conditions that can damage the rafts and the bag booms.

Protected conditions are needed for control of the log bundles being placed in the water and the requirement to retain them in the bag booms and rafts so as to avoid hazards to navigation.

At least 20 acres of available space is needed to place log bundles into the water, sort bundles into log booms, construct log rafts, and hold log rafts until moved by tug to the next destination. Additional space is needed for docks and floats, and movement of boats, floatplanes, and other transportation. Most of the space involved is used for the movement of vessels and log rafts.

Log bundle storage with maneuvering space for vessels and rafts requires 3.6 + or - acres per million board feet (MMBF) gross timber volume. Approximately 8 acres is required for storage of a typical tow of four log rafts. An additional 8 acres is needed for booming of bundles, including maneuvering space.

Consolidation and concurrent use of log transfer and storage sites will increase the amount of space required. Each owner of logs will need separate log booms and storage areas to provide for log accountability. Where National Forest and privately owned logs are stored or transferred from a consolidated site, this separation is required by regulation.

While the guidelines suggest 20 acres for normal situations, it is possible to operate in less space under some situations. For small timber harvest operations, with timber volumes of less than one MMBF, the need for space will be reduced dramatically. There is, however, a practical minimum space needed for even the smaller operations. This minimum is approximately 5 acres.

S3. **Upland Facility Requirements:** LTFs should generally be sited in proximity to at least 5 acres of relatively flat uplands. There should also be a body of water sufficient to provide a minimum of a 60-lineal-foot facility face.

Discussion: This guideline has two operative portions: 1) space needed for upland operations near the transfer point; and 2) the length of available space needed at the operating face.

Relatively flat land is required to avoid extensive excavation. The space needed for upland operations adjacent to the LTF is directly related to the type of facility (see Use Descriptions in the Glossary), volume of timber that may be handled annually, and the life of the operation. The amount of space needed may include truck unloading (0.9 acre), log scaling (1.5 acres), log storage (1.6 acres per MMBF), sorting (0.5 to 2.0 acres), and additional space for incidental related operations. Equipment yard and repair areas are commonly in this vicinity (1.5 to 2.5 acres). The 5-acre minimum would service intermittent use and some occasional use sites, with up to 35 to 40 acres needed for continuous use sites.

Unobstructed width required for the transfer of logs to the water needs to be adequate for the products being moved. The constructed length of the

working face can be as little as 40 feet, under special circumstances, but the operating clearance must exceed 60 feet to accommodate the longest log lengths. Most desirable is 110 feet available face.

S4. **Safe Access to a Facility from the Uplands:** To provide safe access to the LTF and adjoining log sort yard, the facility should be sited where access roads to the facility can maintain a grade of 10 percent or less and 4 percent for specialized equipment.

Discussion: Vehicle access must be provided to the point where log bundles are transferred either to the log sort yard facility or to the receiving waters. The operating layout must provide for operations within safe limits for the equipment, operators, and other personnel in the area. The maximum safe grade for log stackers is 4 percent. The maximum safe grade can be increased to 6 percent with special modifications to the log stacker. Prudent consideration of safety suggests a desirable grade less than the maximum be used.

Road grades entering the unloading facility in excess of the 10 percent will not allow the truck driver to safely stop the vehicle in emergencies.

S5. **Bark Dispersal:** LTF should be sited along or adjacent to straits and channels or deep bays where currents may be strong enough to disperse sunken or floating wood debris. Siting LTF in embayments with sills or other natural restrictions to tidal exchange should be avoided.

Discussion: The Environmental Protection Agency and the Alaska Department of Environmental Conservation consider bark to be a pollutant. Problems with bark occur when it accumulates. The accumulated bark both physically smothers organisms and may create anoxic conditions or toxic gases.

In bays that have sills or natural restrictions to tidal exchange, there is a concern that bark may accumulate due to inadequate current velocities. The concern is that sufficient bark accumulation and lack of water exchange in the layer below the sill will cause anoxic conditions.

S6. **Site Productivity:** Sites for in-water storage and/or transfer of logs should be located in areas having the least productive intertidal and subtidal zones.

Discussion: One of the siting methods used to limit the impacts that log transfer and log storage facilities may have on the environment has been to site the facilities in the least productive habitats. These habitats are often found along steep shorelines, where there is little substrate for plant or animal growth. Bark, because of the steep topography, seldom accumulates in such areas. Areas with a minimum bottom substrate in the euphotic zone are to be preferred.

S7. **Sensitive Habitats:** LTF and log raft storage areas should not be sited on or adjacent to extensive tideflats, salt marshes, kelp or eelgrass beds, seaweed harvest areas, or shellfish concentration areas.

Discussion: Tideflats, salt marshes, and aquatic vegetation beds support numerous biological communities, i.e., nursery and rearing areas for commercial species of crab and fish. The areas are usually shallow and high producers of planktonic organisms that support the aquatic food chain.

Woody debris from log transfer and water storage can be carried by currents and deposited on these plant and animal communities. Debris may cover the area and physically smother plants and animals. There is a concern that debris accumulation may reduce dissolved oxygen

concentration in the water below the minimum level required by fish and other aquatic life. Bark debris is expected to reduce dissolved oxygen concentration in the bark interstices. High oxygen demand can lead to an anaerobic zone within the bark pile where toxic sulfide compounds are generated, particularly in brackish and marine waters. Reduced oxygen levels, anaerobic conditions, and the presence of toxic sulfide compounds can result in reduced localized habitat value for groundfish species and their forage base (National Marine Fisheries Service 2005). One study found that the dissolved oxygen, pH, oxidation reduction potential, and concentration of toxic products of decomposition in the water column at 30 centimeters (12 inches) above the bark were not significantly different than at the control sites. Reductions in dissolved oxygen below Water Quality Standards have not been documented.

S8. **Safe Marine Access to Facilities:** Log rafting and storage facilities should be safely accessible to tugboats with log rafts at most tides and on most winter days.

Discussion: Tugboats gather log rafts for transshipment to mills and other loading facilities. The lack of safe access to log rafting areas will result in the tug operator refusing to accept or deliver log rafts.

S9. **Storage and Rafting:** Logs, log bundles, or log rafts should be stored in areas where they will not ground at low tide. A minimum depth of 40 feet or deeper measured at Mean Lower Low Water (MLLW) for log raft storage is preferred.

Discussion: Grounding of logs or log rafts compacts the substrate and decreases biota living in and on the substrate. The siting and design of LTFs should provide sufficient water depth to avoid grounding of log bundles at the transfer facility and log raft make-up areas.

Log rafting in depths greater than 40 feet (MLLW) is preferred because rooted aquatic macrophytes and algaes generally begin to decrease in density in Southeast Alaska below this depth. Rafting 40+ feet MLLW or more will protect these organisms and habitat (less than 40 feet MLLW) from bark accumulation and shading by log rafts. Log raft storage may occur at depths less than 40 feet (MLLW) depending on biological productivity, sensitivity to shading, and potential risk of bark accumulations.

The logging industry retains the need to maintain existing sites that allow log rafts to ground or be stored in areas with low salinity, typically at the head of the bay, and in water less than 40 feet deep. The purpose is to protect logs from shipworm infestation, which can occur immediately after the logs are placed in the water.

Shipworms are an endemic problem because they cause economic loss to timber values, both from the holes they produce in sawtimber, and from the calcium deposits they leave in logs used for pulp purposes. The industry has observed that reductions in shipworms occurs in waters with low salinities and when logs are allowed to ground in cold weather. For this reason, the industry continues to seek the opportunity to have sites where logs will be allowed to ground in order to reduce shipworm damage.

The objective of regulatory agencies is to discontinue the practice of allowing logs to ground or be stored in areas less than 40 feet deep when they are biologically productive or are sensitive habitats.

There is a need for additional research into shipworms and possible ways to reduce infestation in log rafts. Research needs identified by Sedal & Duvall, if accomplished, could reduce the conflicts.

S10. **Bald Eagle Nest Trees:** Site LTFs to avoid bald eagle nests. No project construction or operation should be closer than 330 feet to any bald eagle nest tree unless permitted by U.S. Fish and Wildlife Service. (See the Eagle Memorandum of Understanding for details.)

Discussion: The Bald Eagle Protection Act (16 U.S.C.) protects bald and golden eagles. To provide guidance for the management and protection of bald eagles on National Forest lands in Alaska, a Memorandum of Understanding was signed by the USDA Forest Service (Region 10) and the U.S. Fish and Wildlife Service (Region 7). The Memorandum of Understanding states that a management zone of five chains (330 feet) around each eagle nest tree will be established and all land use activity within the zone will be excluded. The Memorandum of Understanding includes provisions for variances from the requirement.

Construction and Operation Guidelines

The following guidelines apply to the construction and operation of the LTFs and collateral upland facilities, such as sort yards and upland log storage areas. Construction and operation guidelines have not been developed for log raft storage facilities because the only practical means of regulating raft storage is through proper siting. The degree of application of these guidelines to individual LTFs is based on the siting of the facility.

C1. **LTF Design:** LTF design should be the least environmentally damaging, practicable alternative. Factors to be considered in selection of design alternatives include: 1) economic practicability; 2) facility requirements; 3) physical site constraints; 4) timber volumes to be transferred (site usage and duration); 5) total potential effects on biota and water quality, (including biological productivity and sensitivity); and 6) other potential uses of the site and facility.

Discussion: The preferred LTF design(s) should be those that represent the best practicable alternative and the least impact from placement of fill and associated impacts, such as bark accumulations. For example, emphasis on facility designs that minimize bark loss may result in a greater total coverage of the intertidal and subtidal areas by fill (due to design requirements) than would occur under another alternative that allows greater bark loss, but less fill.

C2. **Fill Structures:** Fill structures shall be designed and constructed to prevent erosion, pollution, and structural displacement.

Discussion: The intent is to avoid introducing fine sediments and organic matter into the water. The guideline requires design and construction practices that minimize fine sediment plumes and prevent change in the substrate's composition near the structure as a result of lost fill material.

This guideline is performance-based by allowing the use of a range of materials within fills, provided proper design, construction, and containment procedures are followed. The use of woody debris in fill structures is acceptable with containment.

It is assumed in the guideline that timbers and logs used in construction are not classified as fine organic matter.

C3. **Timing of In-water Construction:** In-water construction, blasting, and/or filling associated with LTF sites should be timed to limit adverse impacts to marine and estuarine fishery resources, and avoid conflicts with other user groups.

Discussion: Juvenile salmonids use shallow, near shore areas for feeding during the first few weeks after they leave freshwater.

Construction activities during this outmigration period may cause direct mortality from blasting if the over pressure in the marine waters exceeds 2 pounds per square inch. Increased water column turbidity related to construction or filling may decrease availability of prey organisms and cause physiological damage to fry during this critical period. Spawning herring are also susceptible to turbidity and effects of blasting.

Generally the period from mid-March to mid-June is the period when in-water turbidity and over pressure restrictions will be needed in order to protect juvenile salmon and spawning herring. The actual times will vary depending on the site and the presence or absence of juvenile salmon or spawning herring.

Timing restrictions to avoid conflicts with existing user groups vary and would be evaluated on a site-by-site basis. Facility siting to avoid juvenile salmon nursery areas, herring spawning areas, and areas utilized by other user groups will reduce the need for timing restrictions.

C4. **Bark Accumulation Management:** The siting, design, and operation of the LTF and contiguous collateral upland facilities shall utilize the best practicable procedures and methodologies to control intertidal and submarine accumulations of bark.

Discussion: Intertidal and submarine accumulations of bark impact infauna and epifauna primarily through smothering, but also through alteration of natural habitat and water quality. The extent of the impact is limited to the actual area of complete bark coverage. Through proper implementation of best practicable procedures and methodologies, such as siting, design selection, operation, and solid waste management, the level and impact of intertidal and submarine accumulations can be minimized. Selection of best practicable procedures and methodologies to limit intertidal and tidal bark accumulations for a specific site should be used.

C5. **Solid Waste Management:** Solid wastes, including wood and other solid waste generated from the LTF, contiguous sort yards, and other collateral facilities shall be routinely removed from the LTFs and adjacent facilities and disposed of at an approved upland solid waste disposal site.

Discussion: Disposal of solid wastes, cable, machine parts, and equipment, as well as wastes from logs in the sort yard, truck unloading, and log transfer operations should occur in accordance with 18 AAC 60, which requires that solid wastes be properly disposed of at an approved disposal site. In order to prevent accidental introduction of materials into receiving waters, bull rails, or similar constraints to retain bark and wood waste on the upland improvements adjacent to the LTF, should be utilized. Bark and other solid waste should be periodically removed from uplands and intertidal areas around the log transfer system, depending on the site conditions.

C6. **Bark Accumulation:** The regulatory agency(ies) will impose an interim intertidal and submarine threshold bark accumulation level. When accumulations exceed the threshold level, cleanup, if any, will occur at the discretion of the permitting agency(ies). The interim threshold bark accumulation level is described as 100 percent coverage exceeding both 1 acre in size and a thickness greater than 10 centimeters (3.9 inches) at any point.

Discussion: This guideline is necessary because intertidal and submarine accumulations of bark impact infauna and epifauna primarily

through smothering, but also through alteration of natural habitat and water quality. The problem with bark occurs when it accumulates. Through siting, transfer system selection, and solid waste management, the amount of bark lost and accumulating in intertidal and submarine areas is prevented to significantly diminished. Bark accumulation is still expected to occur in some areas promoting the need for this guideline. This is an interim guideline developed by the Log Transfer Facility Guideline Committee. The committee developed this procedural guideline in order to be responsive to ongoing research and, at the same time, raise site-specific problems to the respective decisionmakers for appropriate action.

An interim guideline for threshold bark accumulation levels and cleanup when exceeding those levels is being used due to a lack of information. Technical data are needed to evaluate technical feasibility of various options for managing accumulations, such as removal or other control procedures. Water quality and biological information is needed to evaluate effects on water quality and biota from removal and disposal of bark accumulations and effects of other corrective options that may be used to manage bark accumulations.

C7. **Bundle Speed:** The speed of the log bundles entering receiving waters should be the slowest practicable speed available. Decisions on the allowable transfer system that can be used will occur on a site-specific basis during the permitting process.

Discussion: This guideline is necessary because the amount of bark lost during transfer of log bundles into receiving waters is directly correlated with the speed of log bundles entering receiving waters. These conclusions have been confirmed by an in-progress U.S. Fish and Wildlife Service study. The loss of bark into receiving and submarine areas can adversely affect aquatic biota through smothering and alteration of habitat.

The release of bark into receiving waters initiates a regulatory response that bark is a pollutant when discharged into receiving waters. To the extent practicable, its discharge should be eliminated.

This guideline was developed by the Log Transfer Facility Guidelines Committee. The Committee concluded that rather than pursue a uniform speed requirement for all LTFs, the guideline should emphasize the need to meet the slowest speed achievable after taking into consideration costs, existing technology, and logistics, in light of the overall project purposes.

There is insufficient information to agree upon a guideline that defines a practicable speed for various types and sizes of transfer operations. However, based on current information about existing transfer technology, a 3 feet per second entry velocity is an achievable entry speed and will serve as a reference point for discussion.

C8. **Surface Drainage Management:** The design, construction and operation of LTFs, contiguous sort yards, and/or log storage yards shall utilize practicable procedures for control of surface water runoff from facilities.

Discussion: The surface water runoff from LTFs and adjacent contiguous sorting/storage areas has been observed to carry sediments, woody debris, and hydrocarbons. These pollutants can directly enter receiving waters. Surface runoff control can be accomplished with a variety of techniques. These include such practices as keeping overland flow from entering the LTF or adjacent facilities, collecting runoff from the facility in settling basins, or retaining vegetative buffer strips. The design,

construction, and operation of LTFs, in conjunction with adjacent and contiguous sorting storage areas, will utilize practicable procedures for meeting Water Quality Standards for the State of Alaska and the Clean Water Act.

The Alaska Department of Environmental Conservation may require information on sort and/or storage yards contiguous to the LTF that is not routinely provided on permit applications in order to assist permittees in managing surface runoff so as to comply with Water Quality Standards.

C9. **Control of Hydrocarbons:** The log transfer system and adjacent sort yard handling equipment shall be operated and maintained to minimize petroleum and lubricating products from entering waters.

Discussion: The operation of certain log transfer systems and equipment used in any adjoining log unloading facility or log and sort yard storage facility are a potential source of hydrocarbons and hydraulic fluids that can spill on the upland facilities and enter receiving waters. This equipment should be maintained and facilities managed to ensure lubricants and hydraulic fluids do not enter receiving waters. Continuous-chain log transfer systems require periodic lubrication and result in unavoidable introduction of hydrocarbons into receiving waters. Lubrication of these systems should use the manufacturer's specified lubricants, and lubrication should not exceed manufacturer's specifications.

C10. **Onshore Log Storage:** Where feasible, preference must be given to onshore storage and barging of logs.

Discussion: 11 AAC 95.150 of the Alaska State Forest Resources and Practices Regulations specifies preference to onshore storage and barging of logs, where feasible.

C11. **Facility Maintenance and Reclamation:** The permittee shall maintain the structure or work authorized in good condition, and in reasonable accordance with the approved plans and drawings. If and when the permittee desires to abandon the authorized activity herein, unless such abandonment is part of the transfer procedure by which the permittee is transferring its interests to a third party, the permittee must restore the area to a satisfactory condition.

Discussion: The authorizations from the U.S. Army Corps of Engineers under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act include the general conditions (h) requirements to maintain authorized work and (g) upon abandonment restoration of the area to a satisfactory condition. This guideline repeats those general conditions.

Monitoring and Reporting Guidelines

LTFs are monitored to ensure permit compliance. Monitoring results are used to assess activities associated with the construction, operation, and maintenance of the facilities, and to ensure that corrective action occurs, if appropriate. The level and type of monitoring are dependent on the type of facility.

M1. **Monitoring by Permittee:** Monitoring for bark accumulations, oil sheen, and surface runoff associated with the construction, operation, and maintenance of facilities, and to ensure that corrective action occurs, if appropriate. The level and type of monitoring is dependent on the type of facility (see use definitions in the Glossary).

Discussion: The regulatory agencies, when issuing permits, can include conditions to a permit that require monitoring by the permittee. The agencies can assume some or all monitoring responsibilities.

M2. **Monitoring Requirements:** Monitoring should be undertaken at all continuous and intermittent use LTF sites, and at those occasional and incidental use LTFs at which total volume of logs transferred is similar to that of intermittent use sites. The level of monitoring and parameters to be monitored should be determined on a site-specific basis. Monitoring at occasional and incidental use facilities may be required on a site-specific basis. The need for monitoring of occasional or incidental use sites will be limited. Permittees will be required to submit a monitoring program to the permitting agencies prior to operation of a new continuous or intermittent use LTF. Agency approval of monitoring plans is required. Requirements for monitoring should be responsive to data obtained during prior monitoring activities.

Discussion: Monitoring is required to determine the occurrence and the extent of possible environmental impacts. The nature of monitoring activities shall be site-specific and determined by such factors as volume, site characteristics, life of project, and type of operation, because these factors may determine the extent of environmental impacts. Depending upon monitoring results, permitting agencies have sufficient flexibility to modify monitoring requirements for any LTF at any time during its operation, or after the first 3 years of operation of a continuous LTF. For example, monitoring requirements for a continuous LTF could be dropped if monitoring data indicate that significant deposits of bark debris are not accumulating. Permitting agencies approval is needed to determine if a monitoring plan will satisfy permit conditions.

M3. **Annual Monitoring for Bark Accumulation:** At continuous and intermittent use LTFs, monitoring of bark debris accumulation should occur prior to the operating season as a minimum requirement. Monitoring at intermittent LTFs would occur only during periods when the LTF is active.

Discussion: In order to determine if the bark accumulation conditions and stipulations of the permit are being met, it is necessary to measure bark and debris accumulations.

M4. **Elements of Bark Accumulation Monitoring Program:** Elements that should be included in a monitoring program for continuous and intermittent use LTFs are site-specific and may include, but not be limited to, the following:

a. Permanent transects;

b. Measurement of areal extent, thickness, and percent coverage of bark debris; and

c. Measurements required by M4; a and b are from MHW (Mean High Water) to depths of 60 feet MLLW (Mean Lower Low Water).

Discussion: In order to determine changes in site characteristics over time, installation of permanent transects is required. Thickness, area, and extent of bark coverage affects benthos. Sixty feet below MLLW was selected because it is a depth at which repeated dives can safely be conducted.

Permanent transects are necessary to enable collection of repetitive data. If little or no change is observed, the permit holder may be relieved of the requirement for collecting information along the transects.

The requirement for dive transects, the number of transects, and the method of establishing permanence of the transects will be related to the period of usage, the amount of use intended, the resource values involved, and the expectations of effects as a result of the siting process.

M5. **Monitoring for Oil Sheen:** Waters in the vicinity of an LTF shall be monitored during operations for the presence of a visible sheen and recorded when observed.

Discussion: The monitoring is necessary to determine if an LTF is being operated to comply with Water Quality Standards for petroleum hydrocarbons, oils, and grease. Authority for this guideline is provided by state Water Quality Standards (18 AAC 70), Oil Pollution Regulations (18 AAC 75), and Federal Regulations (40 CFR 110).

M6. **Monitoring Upland Discharges:** On a case-by-case basis, discharges of rainfall from log sorting and storage yard, and discharges from any settling pond used to treat water, may require monitoring to ensure compliance with state Water Quality Standards and the Clean Water Act.

Discussion: This monitoring is necessary to determine if measures or structures designed to concentrate and treat runoff are operating effectively.

M7. **Reporting Guidelines:** Routine annual reports include the following descriptive information:

a. Location of the LTF (404/402 permits require latitude and longitude). The Forest Service traditionally uses legal descriptions;

b. Description of the LTF, including transfer devices and sorting and storage areas;

c. Permit holder and/or operator of LTF;

d. Starting and ending dates of operating season (from first to last bundle), and number of operating days per season;

e. Gross volume in board feet (Scribner Scale), or number of bundles transferred during the operating season; and

f. Monitoring data as described in Monitoring Guidelines.

Glossary

Biological Productivity—Highly diverse biological communities with many individuals.

Clean fill—Clean fill is defined as inorganic material, sized as sand and larger, free of organics. Current practice is to allow 0 to 15 percent material finer than sand and no organic materials in reinforced earth structures used for log transfer. Field observations indicate that the percentage of material is finer than sand from rock pits used for fill and considerably lower than the maximum percentage of fine material.

Log raft make-up area—A facility constructed in waters of the United States near or adjacent to log transfer facilities. The log raft make-up area is utilized for constructing log rafts that are on completion, moved to either a log storage area or loaded on to a vessel.

Log raft storage facility—A facility constructed in the waters of the United States utilized for the purpose of temporary or long-term storage of commercially harvested logs awaiting transfer to a vessel, manufacturing facility, or storage at the manufacturing facility.

Log transfer facility—A facility constructed, in whole or part, in waters of the United States that is utilized for the purpose of transferring commercially harvested logs to or from a vessel or log raft.

Practicable—Means available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes (40 CFR 230.3 (q)).

Use Descriptions—There are four classifications to describe the range of use for log transfer operations. The intensity and duration of site use will vary over time and the descriptions for each use provide a benchmark description to relate to operating levels and characteristics. There is a trend away from long-term continuous sites with increased incidence of intermittent and occasional use sites.

Continuous use sites: Sites where use is expected to be continuous on a regular basis for 20 years or longer. These sites were described and analyzed by Sedlak (3-16) in his analysis of alternative log transportation systems. Volume of expected timber is approximately 20 to 50 MMBF per year. Industry practice is to try to operate at a minimum of 35 MMBF activity level if a year-round camp is to be maintained. Log sorting and scaling commonly occurs at these sites. Export shipping is expected for privately owned timber. This operation is described as having "two sides" (two full yarding and support systems) with year-round land-based camp operations normal. Sites originally developed and operated as continuous use will frequently change to intermittent use or occasional use sites subsequent to the initial harvest activities.

Incidental use sites: Sites where use for log transfer is expected to occur only once or twice over a 70- to 100-year period. Typically the focus is on salvage of logs as the result of blowdown, disease, or harvest of isolated stands of timber. The lands involved are generally not accessible by alternative means. Timber volumes at a site will normally not exceed 5 to 10 MMBF. Log sorting areas are normally not constructed and native log structures are expected. Floating camp operations are expected.

Intermittent use sites: Sites where use is expected to vary from zero to approximately 11 to 17 MMBF per year. This operation can be described as having a "single side" (one full yarding operation and supporting system). These sites were described and analyzed by Sedlak (3-17) in his analysis of alternative log transportation systems. Typically these sites will vary in use in a pattern of 4 MMBF for the first year, 11 to 17 MMBF for 3 years, 4 MMBF for 1 year, and 6 to 15 years with no log transfer (3-17). Timber volumes from intermittent use would be at the average annual rate of 3 to 5 MMBF per year over 20 to 50 years. Timber salvage operations may occur in the periods between major operations. Sort yards are not normally constructed if water storage sites are available.

Year-round camp operation is generally not expected. Land-based camps have been common in the past, but increased use of floating camps has been observed at these sites.

Occasional use sites: Sites where intensive log transfer is expected to occur for only 4 to 6 years out of a 20- to 30-year period. These sites have not been analyzed in the literature. The use pattern is expected to be cyclical through the life of the site. Timber volumes from major timber activities would be at the average annual rate of about 1/2 MMBF/year over 20 to 50 years. Small timber operations will occur during the periods when major sale activities do not occur. Sorting yards are constructed only if no other options are available. Direct shipping of export logs is not expected.

Floating camp operations are the expected normal situation, unless commuting of workers from an established camp is feasible.

APPENDIX H
KARST AND CAVE RESOURCES

Appendix H

Karst and Cave Resources

Karst Resources: Karst

I. Strategy

A. Maintain, to the extent practical, the natural karst processes and the productivity of the karst landscape while providing for other land uses, where appropriate. This strategy is designed to assess a karst resources vulnerability or sensitivity to a proposed land use, and recognize the differences in degree of karst development and glacial history across the karst landscape.

B. The key elements of the karst strategy focus on the openness of karst and its ability to transport surface water, nutrients, soil and debris, and pollutants into underlying hydrologic systems. Strive to maintain the productivity of the soils of the karst landscape after harvest, maintain the quality and quantity of the waters issuing from karst hydrologic systems, and protect the many resources values within underlying significant cave systems as per the requirements of the Federal Cave Resources Protection Act of 1988 (FCRPA).

II. Management

A. Maintain a karst resource management program that will identify, evaluate, and provide appropriate protection and mitigation for karst resources. Evaluate karst resources as to their vulnerability to land uses affecting karst systems, as described in the Karst and Cave Resource Significance Assessment, Ketchikan Area, Tongass National Forest, Alaska (Aley et al. 1993), Karst Landscapes and Associated Resources: A Resource Assessment (USDA Forest Service Gen. Tech. Rep. PNW-383) (Baichtal and Swanston 1996), Karst Management Standards and Implementation Review, Final Report of the Karst Review Panel (Griffiths et al. 2002), and the information provided herein.

B. Seek participation from interested individuals and organizations, such as caving groups, scientists, recreationists, and development interests in managing the karst resources.

C. Integrate and coordinate karst management with the management of other resources. Consider the function and biological significance of the entire karst landscape; recognize the importance of protection of karst systems, not solely specific karst features.

D. Public education and interpretative programs should be developed to ensure an increased understanding of the components and function of the karst landscape. Use research results to foster and promote conservation and further public education of karst resources.

E. Work with universities and other appropriate research facilities to foster partnerships to study and characterize the function and biological significance of karst landscapes. In order to maintain existing aesthetic and future scientific values, use non-consumptive research techniques as much as possible.

F. Manage the karstlands with an “adaptive management approach.” Guidelines should allow karst managers to exercise their professional judgment in developing karst management strategies and prescriptions. As knowledge is gained from implementation, monitoring, research, and studies, recommended practices should be modified to reflect the needed changes.

III. Karst Landscape Assessment

A. Karst lands impose land management challenges not encountered in non-karst areas because this three-dimensional landform functions differently than other landforms. Karst resources must be evaluated according to their vulnerability to land uses affecting karst systems. Vulnerability mapping recognizes that some parts of the karst landscape are more sensitive than others to surface activities and groundwater contamination. These differences in vulnerability may be a function of the extent of karst development, the openness of the karst systems, and the sensitivity of other resources that benefit from karst groundwater systems. Assess karst resource vulnerability for both large geographic areas and site-specific projects. Complete vulnerability assessments of large geographic areas for any karst area where land-disturbing activities are planned. Conduct site-specific vulnerability mapping on a project-by-project basis,

or as field verification of the larger scale karst vulnerability assessment. Karst lands will be classified as low, moderate, or high vulnerability. This four-step process is discussed below.

1. **Identify Potential Karst Lands.** Identify those lands underlain by carbonate rocks. As a practical matter, all lands underlain by carbonate rocks within the Forest should be considered a karst landscape. These include outcrops of limestone, marble, and dolomite. Karst has also developed within gypsum deposits on the Forest, and caves or tubes can be found within some lava flows.
2. **Inventory Karst Resources.** At the beginning of any land-disturbing project planning effort, determine the project's proximity to or position on a karst landscape. If it is determined that karst occurs in the project area, require an inventory adequate to characterize the resources. Assess the degree and location of karst development. If karst is present, at a minimum, record the information listed below.
   a. The degree to, which karst has developed, including the degree of epikarst development; the presence of caves, the presence of insurgences or sinking or losing water courses and resurgences or springs, sinkholes, collapse channels, and other karst features. If through initial inventory it is determined that the level of karst development and the density of karst features is so high that the landscape should be classified as high vulnerability, a complete inventory of all features is not necessary. It is important to document the level of karst development in the Karst Resource Report and the justification for the vulnerability classification. Document specific karst features on the “Karst Feature” form. Document characteristics of the karst in the area of concern on the “Karst Classification Summary” form.
   b. When caves are identified that may be affected by the proposed land management activity, they will be surveyed and inventoried in accordance with cave management guidelines. To maintain continuity of inventory reports and cave maps, specifications will be addressed prior to commencement of inventory work. During inventory work, caving ethics and protection of cave resources will be stressed.
   c. The relative position of karst features both within and adjacent to the planned activity.
   d. The slope of the land and the depth and nature of soil atop the karst.
   e. The presence of any Class I or Class II streams being significantly contributed to from the karst hydrologic systems. It is only intended that streams that have had sufficient residence time or contact with the carbonate bedrock and which show appreciable geochemical change be considered. Temperatures less than 8.5 degrees Celsius, pH ranging from 7.5 to 9.0, and specific conductance greater than 120 would be an indication of the highest value karst waters. It should be recognized that some normally dry drainage channels in a karst landscape would periodically carry large flows when the capacity of underlying conduits is exceeded during high flow events.
   f. Sensitive habitats and features that might be adversely affected by land use changes in the area being investigated. These habitats and features must specifically include, among other things, streams important to fisheries and streams or springs used as domestic water supplies, habitats that support cave adapted organisms, and critical bat winter habitat and/or roosts. When considering karst streams and springs, the inventory work must recognize that many sensitive habitats and features are likely to be located appreciable distances away from points where waters enter the karst groundwater system. The sensitive habitats may also include unique or unusual plant communities associated with surface karst features or carbonate outcrops.
   g. The results of the survey shall be documented and digitized onto the Forest’s GIS Database. The area's geology, location of karst features and caves, and the vulnerability of specific karst areas shall be recorded.
3. **Delineate Karst Hydrologic System and Catchment Area.** Define, to the extent feasible, the karst hydrologic system and the recharge area watershed or catchment area for each karst system. The character of the catchment area (i.e., the area, slope gradient, vegetation, water quality, soils, etc.) controls the nature of the receiving karst system and defines the volume of runoff available for infiltration into the system. Recharge area delineation is a crucial component of vulnerability mapping; it is important to know where the water comes

from and resurges to credibly assess and characterize possible impacts. At a minimum, record the information listed below.

a. During the inventory phase, record the location of all insurgences, sinking or losing streams, sinkholes, or other features appropriate for injection of tracing dyes. Estimate water volume entering or discharging from the groundwater system at the time of the visit. Record the position and characteristics of as many resurgences or springs as practical believed to be associated with the particular karst system of interest. Describe prevailing weather conditions at the time of the visit and the precipitation trends over the previous 24 hours.
b. Within each project area, the need to conduct tracer dye studies will be determined by a karst management specialist or other resource specialist such as a hydrologist with karst-specific experience or training. If tracer dye studies are determined to be necessary, the dye study needs to be carefully designed. Because subsurface flow paths are not predictable, an initial attempt to locate and sample all springs issuing from the karst area is necessary. Dye introduction sites should be selected to answer the particular resource concerns or threats. As an understanding of the systems complexity is established through initial successful traces, the sampling site strategy can be modified. Dye traces may need to be conducted at both low and high flows to determine the full extent of the karst groundwater system.
c. Record the results of the dye traces, indicating the relative position of the dye injection point and the position of the resurgence or spring where the dye was recovered. Record the tracer dye's travel time and concentration, if known. Record resurgences and streams that were sampled, but where no dye was recovered. Document and digitize results onto the Forest GIS Database.

4. **Assess Vulnerability of Karst Terrain to Management Activity.** The final step is to delineate the land under investigation into various vulnerability categories. An area's vulnerability rating must be sensitive to potential surface management practices based on the extent to which epikarst has developed and the openness of the karst system. Where recharge is diffused through deep soils, the underlying karst is less vulnerable to increased sediment inputs and other pollutants than in areas where recharge is discrete and soils are thin or nearly absent. Where soils are thin or nearly absent, surface disturbances will almost always result in exposure of the epikarst, providing an easy pathway for sediment and other pollutants to enter the subsurface drainage network. Discrete recharge areas are especially vulnerable to ground-disturbing activities because the flowing surface water can carry sediment and other pollutants directly to the subsurface drainage network. Karst vulnerability mapping recognizes the variability in karst terrain and uses the vulnerability concepts described here to assign a high, medium, or low vulnerability rating to an area of karst terrain. The proposed ground disturbing activity is considered when determining mitigation or applying karst management guidelines. The vulnerability categories and their criteria are discussed below.

   a. **Low Vulnerability Karst Lands**
      i. **Classification Criteria.** Low vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are not likely to be appreciably greater than those posed by similar activities on non-carbonate substrate. A generalized characterization of these lands include areas underlain by carbonate bedrock that are moderately well to well drained, most commonly internally drained, but surface streams may be present. Generally, these areas have been greatly modified by glaciation, and a deep (greater than 40 inches deep) covering of glacial till or mineral soil, and little or no epikarst showing at the surface. The epikarst may be buried and/or ground off, depending on the intensity of glaciation. These lands pose little or no threat to organic, sediment, debris, or pollutant introduction into the karst hydrologic systems beneath through diffuse recharge. Often these are areas of little or no slope (less than 20 percent). These tend to be at lower elevations (i.e., less than 500 feet); however, the elevation of low vulnerability karst will vary across the Forest.

ii. **Low Vulnerability Karst Management Objectives and Appropriate Land Uses.** These are areas where no special provision for the protection of karst values is considered necessary. Timber harvest and related activities could be conducted in such areas in a similar manner to those normally employed on lands underlain by insoluble bedrock. Partial suspension yarding may be required. No quarry shall be developed atop karst without adequate site survey and design. Quarries should be properly closed after abandonment. Recreational development would be appropriate with consideration of karst resource values. It is possible that karst areas with high vulnerability will be found within and adjacent to areas found to be of low vulnerability. Along such boundaries or margins, guidelines for protecting these high vulnerability areas outlined under "Moderate Vulnerability Karst Lands" (3.D. b. ii. (a)-(c)) shall apply.

b. **Moderate Vulnerability Karst Lands**

i. **Classification Criteria.** The moderate vulnerability karst lands are those areas where resource damage threats associated with land management activities in the areas are appreciably greater than those posed by similar activities on low vulnerability karst lands. A generalized characterization of these lands include areas underlain by carbonate bedrock that are well drained internally. Surface streams are rare. The soils of moderate vulnerability areas are a mosaic of shallow organic (20 to 40 percent, McGilvery Soils) and mineral (80 to 60 percent, Sarkar [less than 20-inch depth] and Ulloa [greater than 20-inch depth] Soils) with minor amounts of glacial till. The epikarst is moderate- to well-developed and is visible at the surface. These areas tend to be at higher elevations (i.e., greater than 500 feet, and on knobs, ridges, and on the dip-slope of carbonate bedding planes when near the surface.) The surface of these areas tends to be irregular and undulating, following the epikarst development, which is the result of solution of the bedrock surface rather than solution and/or collapse features such as sinkholes. In other words, moderate vulnerability features are often the result of slow, diffuse processes rather than collapse or major subsidence processes, which typify high vulnerability features. Moderate vulnerability karst lands pose low risk to organics, sediment, and debris introduction into the karst hydrologic systems beneath. It is probable, but not always the case, that these areas contain or are adjacent to areas of high vulnerability.

Much difficulty lies in differentiating between the high end of the moderate vulnerability karst and the low end of the high vulnerability karst. In using a classification system, there is rarely an exact fit to the environment or specific area being investigated. As stated above, classification is dependent upon extent of karst development and openness of the system. This can be difficult when surrounded by an environment with no surface water streams and limited exposure to the development of the underground system, as is often the case in these 'gray areas' between moderate and high vulnerability karst. Aside from the level of development and the openness of the system, the density of both karst features and exposed epikarst can be used when classifying the vulnerability of an area. A high density of features and/or very well developed epikarst in a “gray area” would result in a high vulnerability classification, whereas a few minor features and moderate epikarst development with soil retained might be classified as a moderate vulnerability area. It is crucial to evaluate the immediate area as well as the surrounding environment and any contributing characteristics when using this vulnerability system.

ii. **Moderate Vulnerability Karst Management Objectives and Appropriate Land Uses.** Management objectives on these lands is to provide for other land uses while taking into account function and biological significance of the karst and cave resources within the landscape. Timber harvest and related activities could be conducted in such areas under more restrictive guidelines than normally employed on lands underlain by insoluble bedrock. To protect the fragile soils found here, at a minimum, the yarding system selected may be required to achieve partial suspension. Longer timber harvest rotational periods may be appropriate. Reduced timber harvest

unit size and a greater dispersal of harvest units may be required. Recreational development would be appropriate with consideration of the karst resource values listed above, particularly with respect to reducing disturbance of sensitive soils and use of construction methods that avoid erosion and diversion of natural and road drainage waters into karst features.

(1) Road Construction. Existing roads will be utilized in preference to the construction of new ones. Roads should avoid sinkholes and other collapse features as well as sinking or losing streams. Roads should not divert water to or from karst features. Measures shall be taken to reduce erosion and sediment transport from the road surface and cut slopes. Assess the need for ditches and culverts. Sediment traps, cut and fill slope revegetation, and road closure and revegetation may be appropriate. Because subsurface drainage networks may be more open to the surface in moderate vulnerability areas, additional design criteria may be required. Such criteria may relate to road construction methods, blasting, culvert placement and density, and sediment retention and erosion prevention. Road construction restrictions described below under “high-vulnerability prescriptions” may be required for these areas.

(2) Quarries. Existing quarries will be utilized in preference to the construction of new ones. No quarry shall be developed atop karst without adequate site survey and design. Quarries should be properly closed after abandonment.

(3) Karst Feature Buffers. It is probable that individual features or areas with high vulnerability will be found within and adjacent to areas found to be of moderate vulnerability. Along such boundaries or margins, the following guidelines shall apply:

   (a) No surface-disturbing activity such as timber harvest, road construction, and/or quarry development shall occur within a minimum of 100 feet of the edge of a cave, sinkhole, collapse channel, doline field, or other collapse karst feature. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness (RAW) of that zone (pay special attention to the area within two site-potential tree heights of the no-harvest zone). The intent of the buffers surrounding karst features is to minimize the amount of woody debris and sediment entering a given karst system and to maintain, to the extent practical, the natural processes and environment surrounding those features. It is not intended that this level of protection would be applied for relatively minor, isolated features (i.e., where explicit or special management measures would not normally be required). Appropriate protection measures for minor features should be designed on a case-by-case basis as field assessed by a karst management specialist. When designing buffers to protect karst systems and their features, the buffer should be designed to be wind-firm. There is no credible standard buffer distance that will provide the assurance required to protect the systems from blow down of the forest within a given buffer. Each buffer must be carefully designed considering wind direction, blow down history, previous adjacent harvest, topography, and stand windfirmness. Delineated lands surrounding such features and systems must be of sufficient size to ensure protection even if blow down occurs. It is suggested that the specific design of the buffers be an Interdisciplinary Team (IDT) recommendation working with the karst management specialist during the planning process for any given project. Not all features will require the RAW buffer considering the specific characteristics of each.

   (b) No surface-disturbing activity such as timber harvest, road construction, and/or quarry development will occur on lands that overlie a known "significant" cave. "Overlie" is defined here as the area between lines projected from the outside walls of the cave passage at a 45-degree angle to the surface. In practice, lands that overlie a significant cave should be classed as high vulnerability even if other characteristics would suggest a lower rating.

As suggested above, the specific design of the buffers should be an IDT recommendation working with the karst management specialist during the planning process for any given project.

(c) As cave discoveries are made and those caves are mapped and inventoried, it is quite probable that very significant cave systems will be discovered. These might contain significant paleontological, cultural, or biologic resources, or the system is of a particular size to warrant an extra level of protection. Cave systems such as El Capitan Cave on Prince of Wales Island, Arabica and associated caves on Heceta Island, Solstice Cave on Chichagof Island, and the Calamity Creek Caves on Revillagigedo Island are examples. It is suggested that on a case-by-case basis for such caves, a Geologic Special Area be defined and managed as such to protect these systems.

(d) Require protection of all sinking or losing streams and their tributaries irrespective of whether the channels carry perennial, ephemeral, or intermittent flows. A non-harvest buffer is required at a minimum of 100 feet from the edge of a sinking or losing stream within no less than 0.25 mile (1,320 feet) upstream of their swallow hole or loss point. Additional protection beyond this point many be needed and should take into consideration parameters such as gradient, channel type, soil characteristics, and susceptibility to mass wasting and erosion along the stream's or tributary's course, or within the watershed. The karst management specialist should work in conjunction with hydrologists and soil scientists to design additional stream protection if needed. Manage an appropriate distance beyond the no-harvest zone to provide for a reasonable assurance of windfirmness of that zone (pay special attention to the area within two site-potential tree height of the no-harvest zone). In the event that the stream is less than 0.25 mile long, the stream will be buffered to the stream's source.

(e) The area surrounding resurgences should be protected to maintain the environment surrounding the springs and the quality of the waters flowing from them. Resurgences can, however, be classified as moderate or high vulnerability dependent upon their size, the habitat they provide, and the level of atmospheric connectivity between the resurgence and the underground karst system. Minor resurgences that seep out of the ground between gravels with almost no connectivity between the open atmosphere and the underground system will be classified moderate vulnerability. Appropriate protection measures for moderate vulnerability resurgences and springs should be designed on a case-by-case basis by a karst management specialist. All other resurgences will be classified as high vulnerability and protected as described above in Karst Feature Buffers. Special consideration should be given to the area immediately surrounding the springs to protect the flora and fauna often associated with the spring when considering the vulnerability.

c. **High Vulnerability Karst Lands**

i. **Classification Criteria.** The high vulnerability karst lands are those areas where resource damage threats associated with land management activities are appreciably greater than those posed by similar activities on low or moderate vulnerability karst lands. These are the areas contributing to or overlying significant caves and areas containing a high density of karst features. A generalized characterization of these lands is described below.

These are areas underlain by carbonate bedrock that are well drained internally. Surface streams are rare. Karst systems and epikarst are extremely well-developed and collapse karst features may be numerous. These include all collapse karst features, caves, sinking or losing streams, insurgences, open resurgences, and open grikelands (i.e., those without soil or moss infilling and with open connections to the subsurface). The highest vulnerability features are those that could produce and transport the greatest amount of sediment, debris, and/or organics if disturbed. These

include till-lined sinkholes and cave entrances accepting a sinking stream, whether intermittent or not. Also considered high vulnerability are karst lands in which the epikarst is well- or extremely well-developed and the soils are predominately (greater than 50 percent) very shallow organic (less than 10 inches deep, McGilvery) and (less than 50 percent) mineral (less than 20 inches deep, Sarkar). The subsurface drainage network is highly vulnerable to sediment, organic matter, logging debris, and other pollutants generated as the result of surface activities.

ii. **Karst Management Objectives and Appropriate Land Uses.** These areas shall be managed to ensure conservation of karst values through the implementation of a high level of protection. Timber management and related activities should be excluded from these lands. Limited recreational development may be appropriate. Recreational facilities and trails would have to consider karst resource values and objectives discussed above, particularly with respect to reducing disturbance of significant epikarst features and sensitive soils and use of construction methods that avoid erosion and diversion of natural drainage waters into karst features. Roads are considered inappropriate with the following exception if no other route or option is available and karst resource values would not be compromised. Small expanses of these areas may be crossed by roads to access areas where harvest is appropriate (i.e., low or moderate vulnerability karst lands and non-carbonate areas). If roads must be built across areas of high vulnerability, karst lands found to be of high vulnerability shall be identified and removed from the commercial forest lands suitable land base. If roads must be built across areas of high vulnerability, the following design and construction may be appropriate:

(1) Minimize clearing limits and grubbing. Flush cut stumps to the ground. Do not deck logs pioneered from the road clearing limits outside the clearing limits.
(2) Use a fill-type construction rather than a balanced cut and fill design. This most likely will be possible because the slope gradient of these areas are generally greater than 15 percent.
(3) Utilize log stringer bridges or similar structures to span across collapse features, if necessary. Geotextile should be used to keep aggregate overlay from falling into the collapse feature.
(4) Sediment traps and erosion control measures will be needed in most cases.
(5) Same-season re-vegetation of the cut and fill slopes should be required to minimize sediment production potential.
(6) A "plan-in-hand" review by the karst management specialist of the proposed road construction prior to actual construction is required.
(7) The karst management specialist needs to work closely with engineering to carefully design these roads and coordinate efforts with the planning team.
(8) No quarry development would be allowed on these lands.

IV. Catchment Area Management

A. The catchment areas for karst systems, comprised of carbonate or non-carbonate substrate, are an integral portion of those systems. Many karst watersheds receive part of their drainage from runoff originating on higher elevation non-carbonate rocks. This recharge originating from non-carbonate outcrops is called "allogenic recharge," and it usually sinks or recharges the carbonate aquifer at specific points. This water quickly enters and is transmitted through the conduit part of the aquifer and classified as concentrated "discrete" or "direct" recharge. Precipitation falling directly on the carbonate outcrop area is called "autogenic" recharge. It may rapidly enter the subsurface through sinkholes at discrete points or may percolate down through a soil or cover layer and enter the aquifer or cave systems as diffuse recharge. Catchment area management measures can be most effectively developed if both catchment types are delineated and their sensitivity to cumulative land use activities is evaluated. Difficulties arise because relative proportions of the two catchment types can be diverse and their sensitivities different; hence, different catchment assessment strategies need to be formulated for both types, each with its own set of guidelines.

The Forest currently does not have a catchment area management strategy for autogenic recharge areas (ARAs). As an interim measure, use the karst vulnerability assessment procedures to approximate the sensitivity of specific autogenic recharge areas. The Forest should pursue research opportunities that help to define and describe the parameters of both allogenic and autogenic recharge associated with karst catchments and recharge. Each karst system will have a unique set of recharge characteristics, which, in turn, will determine the level of catchment area management required. It is recommended that catchment area management strategies employ guidelines that can be adjusted and refined over time as more information is acquired.

V. Young-Growth Management on Karst

A. On lands underlain by carbonate, where either pre-commercial or commercial thinning is proposed, a karst resource inventory shall be conducted as described above. The openness of the underlying karst system, that systems vulnerability to surface disturbance, and the likelihood of additional sediment production or runoff by thinning the young-growth timber shall be determined. Pre-commercial thinning is appropriate on all karst lands when the karst management objectives can be met. Pre-commercial thinning to near the edge of karst features or the bank of sinking or losing streams is allowed; however, no slash or debris may fall or be placed in these features. It is probable that a zone equal to one tree height be left untreated to ensure that no slash or debris will be placed in these features. If any introduced slash or debris finds its way into karst features or losing streams, it must be removed by hand. Commercial thinning is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no thinning shall be permitted on lands determined to be of high vulnerability such as within 100 feet of a cave entrance, a karst feature accepting surface flow, or of the edge of a sinking or losing stream within 0.25 mile upstream of their swallow hole or loss point. On a case-by-case basis, other karst features will be assessed as to their susceptibility to surface disturbing activities, the proposed harvest method, and the thinning prescription. The area surrounding these features is still considered high vulnerability and should be mapped as such; however, thinning of this sensitive area might be considered permissible. All features not fully protected would be buffered from their center to just outside the lip of the sink allowing for thinning within the area that would normally be a non-harvest buffer. It is probable that a zone equal to one tree height be left untreated to ensure that no material will be placed in these features. All thinned timber will be directionally felled from the untreated area surrounding the karst feature and split yarded from the area. Any material landing on the slope break of the feature or within the feature will be hand removed. No yarding across or through the untreated area surrounding the feature will be allowed. Directional falling and split yarding away from the karst depressions and features should provide adequate protection for water quality and karst features. It is believed that the benefit of hydrologic recovery of the areas adjacent to these features outweighs the risk of harvest. Again this should be assessed on a case-by-case basis.

VI. Salvage of Windthrown Timber on Karst

A. On lands underlain by carbonate, where salvage of windthrown timber is proposed, a karst resource inventory shall be conducted as described above. The openness of the underlying karst system, that system's vulnerability to surface disturbance, and the likelihood of additional sediment production or surface runoff by harvesting the windthrown timber shall be determined. The appropriateness of salvage of windthrown timber on karstlands will be determined on a case-by-case basis in the field by a karst management specialist. Salvage is appropriate on low to moderate vulnerability karst lands when the karst management objectives can be met. Generally, no salvage shall be permitted on lands determined to be of high vulnerability, within 100 feet of a losing stream, a karst feature, or on lands that overlie a "significant cave." For relative minor, isolated features surrounded by low to moderate vulnerability karst, if the logging system to salvage the windthrown timber can be designed to not disturb the timber spanning or blown into the feature, salvage shall be permitted within 100 feet of the lip or edge of the feature. This salvage must be carefully designed. Before harvest, the sale administrator, purchaser representative, and karst management specialist should walk through the harvest unit to review the layout and resource management concerns.

VII. Mineral Development

A. The chemically pure carbonates of Southeast Alaska have long been considered for their commodity values. Values are not determined solely on chemical purity but on brightness as

well. The more pure the carbonate bedrock, the more conducive the bedrock is to karst development. It is not the intent of these standards and guidelines to restrict any lands from mineral development, though that may be appropriate if a specific project or area is allocated to the Special Interest Area Land Use Designation. The impacts of any proposed mineral development within the karst landscape can be analyzed through the environmental analysis that is triggered once a Plan of Operations is received.

Cave Resources: Cave

I. Management

A. Manage lands in a manner that, to the extent feasible, protects and maintains significant caves and cave resources. See direction in 36 CFR 290.3 and "definitions" for guidance determining cave significance.

B. Locate, map, and describe caves, and evaluate and document the resource values discovered, when appropriate. The significant cave designation process is an inventory process for identifying caves that will require some form of management. Carry out data storage and collection in a manner that is consistent, at a minimum, with the processes outlined in 36 CFR 290.3 and FSM 2881.42 for nomination, evaluation, and designation of significant caves.

C. Develop a comprehensive Cave Resource Management Strategy on known cave resources. At a minimum, the strategy should include components that outline processes for cave inventory, record keeping, cave naming, handling of confidential cave information, partnership opportunities, recreational use monitoring, cave access and entry permits, and cave resource evaluations.

1. **Cave Inventories and Designation.** The inventory of caves is an ongoing process. The Forest will continue to aggressively pursue collection of inventory data.
2. **Records.** On each management unit with caves, a file of permanent data will be maintained for each cave. A complete set of this information will be held on the Forest. This file will remain locked, with access provided on a need-to-know basis only.
3. **Naming of Caves.** A cave should never be named after a living person, nor should it be named after a geographic feature that discloses the location of the cave.
4. **Cave Locations.** Specific information concerning significant caves on the Forest will not be made available to the public in accordance with provisions of FCRPA and 36 CFR 290.4.
5. **Protection of Cave Entrances.** Cave entrances are both sensitive and critical to cave ecosystems. Disruption of this ecosystem by development or heavy recreational use should be avoided. Management of cave entrances should consider recreational use including camping when it is consistent with provisions of the FCRPA, providing narrow pathways to minimize disturbance, and prohibiting fires.
6. **Digging in Caves.** All digging, moving of rocks, or enlargement of passages to allow exploration requires a permit. Issue permits only when it has been determined that no damage to cave resources will take place. Digging should generally be minimal, and waste products disposed of, or graded in a manner specified in the digging permit. Excavations made as a part of scientific investigations will be backfilled and graded to natural contours. If formerly closed passages are opened, take measures to maintain former atmospheric conditions through use of airlocks or gates.
7. **Permanent Anchors.** In vertical caves, use natural anchors for rigging ropes when possible. Chocks, cams, and slings are acceptable low impact anchoring devices. The use of permanent anchors, such as expansion bolts, will be set only when approved in advance by the Forest Service and generally not in Wilderness. Acceptable reasons to set bolts would be lack of safe natural anchors, to direct ropes to avoid loose rocks, to reduce rope abrasion, or to protect fragile cave resources.
8. **Climbing.** Climbing in caves may be allowed when needed to overcome vertical obstacles during exploration. Sport climbing may be allowed in the vicinity of cave entrances when no risk of damage to cave resources is present. Climbing must not mar, deface, for leave visible signs of activity having taken place. The use of chalk to dry climber's hands, and which leave marks on handholds, is considered defacement and will not be permitted.
9. **Closed Caves/Cave Entry Permits.** All sensitive caves will be closed by order of the Forest Supervisor and, entry will be allowed by permit only. A sign at the entrance of each sensitive

cave will designate it as closed to visitation without a permit, and indicate the address and phone number where permit information may be obtained.

10. **Cave Evaluation.** All caves on the Tongass National Forest will be evaluated using the rating system described below. The system assigns values to various cave resources. The assigned values will be used in determining cave classification and making determinations of cave significance as provided by the implementation regulations for the Federal Cave Resources Protection Act of 1988 (FCRPA). If a cave has a value of "1" or greater, in one or more categories, the cave will be considered for designation as significant using the criteria in 36 CFR 290.3(c) and (d) (FCRPA Implementation Regulations 1994).
11. **Cave Classification.** Place caves into one of the classes described below based on management objectives consistent with identified cave resource values. As new caves are discovered, temporarily manage them as Class 1 until an analysis of resource values is completed.
    a. **Class 1. Sensitive Caves**. Caves considered unsuitable for exploration by the general public either because of their pristine condition, unique resources, or extreme safety hazards. They may contain resources that would be impacted by low levels of visitation. These caves are not shown on maps or discussed in publications (such as guides, brochures, or magazines) intended for general public use. Develop specific management guidelines for each sensitive cave for the purpose of protecting and maintaining their resources. Close these caves by order of the Forest Supervisor, and allow entry by permit only.
    b. **Class 2. Directed Access Caves**. Caves with directed public access and developed for public use. These caves are shown on maps or have signs directing visitor access. These caves also frequently have guided tours and artificial lighting. Regardless of the level of development, encourage public visitation. The caves may have sensitive resources that are protected.
    c. **Class 3. Undeveloped Caves**. Caves that are undeveloped but are suitable for exploration by persons who are properly prepared. In general, these caves contain resources that resist degradation by moderate levels of recreational use. Public attention will not be directed toward these caves. They will neither be shown on maps nor discussed in brochures or publications intended for general public distribution.
12. **Prohibitions.** The following acts will be prohibited by order of the Forest Supervisor pursuant to 36 CFR Section 261, 262, Subpart B:

    a. In bat caves, or caves with sensitive species (261.53), it is prohibited to go into or be upon any area that is closed for the protection of threatened, endangered, rare, unique, or vanishing species of plants, animals, birds, or fish.
    b. Applicable to all caves, except for purposes of research and exploration, it is prohibited to:
        i. [261.52(a)] Build, maintain, attend, or use a campfire or stove fire; fires may be allowed in regard to traditional Native ceremonies in compliance with the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act, their amendments and implementing regulations;
        ii. [261.52(c)] Smoke;
        iii. [261.58(e)] Camp;
        iv. [262.52(f)] Possess, discharge, or use any kind of fireworks or other pyrotechnic device;
        v. [261.58(m)] Discharge a firearm, air rifle, or gas gun; or
        vi. [261.58(s)] Possess a dog or cat.
13. **Collection or Removal of Cave Resources.** FCRPA authorizes the Secretary of Agriculture to issue permits for the collection and removal of cave resources under such terms and conditions as the Secretary may impose, including the posting of bonds to ensure compliance with the provisions of any permit. Specific guidelines are found for the issuance of such permits in FCRPA.

APPENDIX I
ROS CLASS
STANDARDS AND GUIDELINES

Appendix I

ROS Class Standards and Guidelines

The Recreation Opportunity Spectrum (ROS) can help identify, quantify, and describe the types of recreation settings that the Tongass provides. The ROS system portrays the combination of activities, settings, and experience expectations along a continuum that ranges from highly modified to primitive environments. Seven classifications are identified along this continuum: Urban (U), Rural (R), Roaded Natural (RN), Roaded Modified (RM), Semi-Primitive Motorized (SPM), Semi-Primitive Non-Motorized (SPNM), and Primitive (P). The ROS inventory may be used to assess the potential effects of the alternatives on recreation settings. The setting indicators and applicable standards and guidelines for the seven ROS classes are discussed below.

Primitive

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the High Scenic Integrity Objective. An Existing Scenic Integrity level of Very High is fully compatible and encouraged.
Access	Non-motorized cross-country travel and travel on non-motorized trails and on waterways is typical. Use of airplanes, helicopters, motorboats, off-highway vehicles, and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities may occur but is rare.
Remoteness	No or infrequent sights and sounds of human activity are present. Setting is located more than 1.5 hours walking or paddling distance, or 3 miles, from any human developments other than infrequently traveled marine travelways. Areas are generally greater than 5,000 acres, but may be smaller if contiguous with a Semi-Primitive class.
Visitor Management	On-site regimentation and controls are very rare. Signing is limited to directional information and safety. There are no on-site interpretive facilities. There is great opportunity for discovery on the part of the users.
On-site Recreation Development	Structures do not exceed Development Scale I, except for public recreation cabins, and are maintained for appropriate levels of use.
Social Encounters	User meets less than three parties per day during trip. No other parties are within sight or sound of dispersed campsites or cabins. Authorize a party size of no more than 12 persons for any one site or activity group for commercial recreation use. Exceptions to the commercial group's size should be rare. A group size of 12 persons or less is recommended for general public use. Refer to REC122 in Chapter 3 for exceptions.
Visitor Impacts	Visitor-caused impacts to resources are slight and usually not noticeable the following year. Site hardening is limited to boardwalk trails and necessary boat moorings or bear-proof food caches and rustic public recreation cabins.

Semi-Primitive Non-Motorized

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the High Scenic Integrity Objective. An Existing Scenic Integrity level of Very High is fully compatible and encouraged.
Access	Non-motorized cross-country travel and travel on non-motorized trails is typical. Use of airplanes, helicopters, motorboats, and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities may occur unless specifically restricted for safety and/or resource protection purposes. Use of off-highway vehicles may occur on designated routes in accordance with 36 CFR 212, 251, and 261 – Travel Management; Designated Routes and Areas for Motor Vehicle Use.
Remoteness	Nearby sights or sounds of human activity are rare, but distant sights or sounds may occur. Setting is located more than 0.5 hour walk or paddle, or approximately 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) from 1) infrequently traveled waterways; 2) roads and trails open to motorized recreation use; and 3) clearcut harvest areas. Aircraft access is only occasional. Areas are generally greater than 2,500 acres, but may be smaller if contiguous with Primitive or Semi-Primitive Motorized classes.
Visitor Management	On-site regimentation and controls are rare. Visitor information facilities may be used to interpret cultural and natural resource features, but are not elaborate and harmonize with the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site. Forest Service recreation cabins are fully compatible.
Social Encounters	User meets less than 10 parties per day (6 parties per day in Wilderness) on trails and waterways during 80 percent of the primary use season. No other parties are within sight or sound of dispersed campsites during 80 percent of the primary use season. Maximum party size for commercial use within Wilderness is 12. Exceptions for larger party sizes within Wilderness should be rare. Refer to REC122 in Chapter 3 for exceptions. A party size of up to 20 people can be considered in Semi-Primitive settings outside of Wilderness. Outside of Wilderness, party sizes larger than 20 people may occur during less than 15 percent of the primary use season in limited locations as appropriate by LUD.
Visitor Impacts	Visitor-caused impacts to resources are rare and usually not long-lasting. Site hardening is limited to boardwalk trails, boat tramways, moorings and docks, bear-proof food cache facilities, and rustic public recreation cabins.

Semi-Primitive Motorized

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the Moderate Scenic Integrity Objective. Existing Scenic Integrity levels ranging from Very High through High are fully compatible and encouraged.
Access	Travel on motorized and non-motorized trails and Traffic Service Level D roads, although some Traffic Service Level C roads provide access to and through the area. Use by high-clearance vehicles and motorized water travel is common. Road density is less than 1 mile per square mile. Off-road snowmachine travel on snow may occur.
Remoteness	Nearby sights or sounds of human activity are rare, but distant sights or sounds may occur. Setting is located within 0.5 hour walk or paddle or within 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) of infrequently traveled waterways or small aircraft access points and/or roads that are open and maintained for passage by high-clearance and four-wheel drive vehicles (Maintenance Level 2), and provide access to recreation opportunities and facilities. Areas are generally greater than 2,500 acres, but may be smaller if contiguous with Primitive or Semi-Primitive Non-Motorized classes.
Visitor Management	On-site regimentation and controls are few. Control facilities consist primarily of informational signs and site-specific road closures. Visitor information facilities may be used to interpret cultural and natural resource features, but are not elaborate and harmonize with the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site and area. Forest Service recreation cabins are fully compatible.
Social Encounters	User meets less than 10 parties per day (6 parties per day in Wilderness) on trails, roads, and shorelines during 80 percent of the primary use season. During 80 percent of the primary use season, no other parties are visible from campsites. Maximum party size for commercial uses in Wilderness is 12 people. Exceptions should be rare. Refer to REC122 in Chapter 3 for exceptions. A party size of up to 20 people can be considered in Semi-Primitive settings outside of Wilderness. Outside of Wilderness, party sizes larger than 20 people may occur during less than 15 percent of the primary use season in limited locations.
Visitor Impacts	Visitor-caused impacts may be noticeable, but not degrading to basic resource elements. Site hardening is very infrequent, but, when it occurs, is in harmony with, and appropriate for, the natural-appearing backcountry setting.

Roaded Natural

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the Low Scenic Integrity Objective and typically is Moderate. Existing Scenic Integrity levels ranging from Very High through High are fully compatible and encouraged.
Access	All forms of access and travel modes may occur. Access to and through the area is typically by passenger vehicle, although motorized use may be restricted to provide for resource protection, user safety, or to provide a diversity of recreation opportunity.
Remoteness	Remoteness is of little importance, but low to moderate concentrations of human sights and sounds are preferred. Setting is located within 0.5 mile (greater or less depending on terrain and vegetation, but no less than 0.25 mile) of moderate- to heavily-traveled waterways and/or roads that are maintained to Levels 3, 4, and 5, and open for use by the public or those areas that receive heavy small aircraft travel.
Visitor Management	On-site regimentation and controls are obvious. Control facilities such as parking areas, barriers, and signs harmonize with the natural environment. Visitor information facilities are not elaborate or complex.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale III and are maintained to accommodate the types and levels of use anticipated for the site and area. Typical facilities include outdoor interpretive displays and rustic campgrounds and picnic areas.
Social Encounters	User meets less than 20 other parties per day on trails and in dispersed areas, during at least 80 percent of the primary use season. User may meet numerous other parties on roads and developed recreation sites. Developed sites often are at full capacity, but do not exceed 80 percent of the design capacity over the season of operation.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements, nor do they exceed established Scenic Integrity Objectives. Site hardening may be dominant, but is in harmony with natural-appearing landscape and appropriate for the site and setting.

Roaded Modified

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the Very Low Scenic Integrity Objective. Apply scenery management techniques to soften effects of very low conditions in the foreground of sensitive travel routes and recreation sites.
Access	All forms of access and travel modes may occur, although roads are generally not well suited to highway-type vehicles. Off-highway vehicle use on designated routes or areas is encouraged. Use by high clearance vehicles is common.
Remoteness	Remoteness from urban conditions and high concentrations of other people is important. Low concentrations of human sights and sounds in a backcountry roaded setting are preferred. These areas are accessed by Forest roads that are maintained to Levels 2, 3, and 4 and are available for public use. They generally involve areas with timber management activities.
Visitor Management	On-site regimentation and controls are few. Control facilities are appropriate for the predominating backcountry roaded setting. Visitor information facilities may be used to interpret management activities, but are not elaborate and are appropriate for the setting.
On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site and area.
Social Encounters	User meets less than 20 other parties per day on trails and in dispersed areas during at least 80 percent of the primary use season. Numerous other parties may be encountered on roads. Few, if any, other parties are visible at dispersed campsites.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements. Site hardening may dominate at campsites and parking areas, but is in harmony with, and appropriate for, backcountry roaded setting.

Rural

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed Low Scenic Integrity Objective in the Foreground and Very Low in middleground.
Access	All forms of access and travel modes may occur, although access to and through the area is primarily by passenger vehicle. Road and trail surfaces are often hardened.
Remoteness	Remoteness is of little importance, and moderate to high concentrations of people and sights and sounds of human activity are acceptable when not continuous. Setting is located within 0.5 mile of heavily traveled roads and state highways or areas that receive heavy aircraft travel.
Visitor Management	On-site regimentation and controls are obvious. Control facilities such as parking areas, medians, and barriers harmonize with natural/exotic landscaping. Information and interpretive facilities may be complex and dominant on developed sites.
On-site Recreation Development	All Development Scales (I-V) are appropriate and maintained at intended standards necessary to accommodate the types and levels of use anticipated for the site and area. Facilities typically include visitor centers, major campgrounds, and other facilities for concentrated use.
Social Encounters	User may meet many (more than 20) other parties per day on trails, in dispersed areas, on roads, and in developed facilities. Developed sites often are at full capacity, but do not exceed 80 percent of the design capacity over the operating season.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements nor do they exceed established Scenic Integrity Objectives. Site hardening may be dominant, but is in harmony with natural/exotic landscape and appropriate for the site and setting.

Urban

Setting Indicators	Standards and Guidelines
Scenic Quality	Not to exceed the Low Scenic Integrity Objective in the foreground and Very Low in middle ground.
Access	Access and travel facilities are highly intense, motorized and often with mass transit supplements.
Remoteness	Remoteness is not important. High concentrations of people and sights and sounds of human activity are acceptable.
Visitor Management	Intensive on-site controls are numerous and obvious. Information and interpretive facilities may be complex and dominant.
On-site Recreation Development	All Development Scales (I-V) are appropriate and maintained at intended standards necessary to accommodate the types and levels of use anticipated for the site and area. Synthetic materials are commonly used. Facility design may be highly complex and refined, but in harmony or complimentary to the site. Facilities typically include visitor centers, major campgrounds, and other facilities for concentrated use.
Social Encounters	Interaction between large numbers of users is high. Sites often are at full capacity, but do not exceed 80 percent of the design capacity over the operating season.
Visitor Impacts	Visitor-caused impacts are noticeable, but not degrading to basic resource elements or exceed established Scenic Integrity Objectives. Site hardening may be dominant, but is in harmony with natural/exotic landscape and appropriate for the site and setting.

Major and Minor Recreation-Related Developments

Four strategies (not allowed, discouraged, case-by-case, compatible) are identified for guidance in identified what level of development is permitted in each LUD. One of these strategies is assigned to each LUD to address major and minor proposals (see next page). The definitions and strategies applied to major and minor developments are discussed in the Recreation section of Chapter 4, Forest-wide Standards and Guidelines.

	Major	Minor
Not Allowed	Wilderness Wilderness National Monument Research Natural Area Wild River	Wilderness Wilderness National Monument Research Natural Area
Discouraged	Nonwilderness National Monument Remote Recreation Municipal Watershed LUD II Experimental Forest	Municipal Watershed Experimental Forest
Case-by-Case	Special Interest Area Old-growth Habitat Scenic River Modified Landscape Timber production Minerals Transportation and Utility Systems	Nonwilderness National Monument Remote Recreation Special Interest Area Old-growth Habitat Wild River Modified Landscape Timber production Minerals Transportation and Utility System LUD II
Compatible	Semi-Remote Recreation Recreational River Scenic Viewshed	Semi-Remote Recreation Recreational River Scenic Viewshed

Definitions

Not Allowed — Recreation special use developments are not allowed by law or regulation, or are not consistent with agency policy and regulations.

Discouraged — Recreation special use developments are generally not consistent with the objectives of the LUD. Development proposals require scrutiny of magnitude and scope for LUD conformance.

Case-by-Case — Recreation special use developments may be compatible with the LUD objectives depending upon the scope, purpose, and magnitude of the proposal. Proposals will be evaluated on a case-by-case basis.

Compatible — Recreation special use developments are generally compatible with this LUD, and applicants are encouraged to examine these areas first where there is a public need and no private lands are available or suitable for development.

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APPENDIX J
TONGASS ANNUAL PROGRAM OF WORK

Appendix J

Tongass Annual Program of Work

Introduction

Direction in the Forest Plan is implemented through the development of an annual program of work that communicates forest priorities, targets, and specific goals for a given year. National, regional, and forest level strategies and initiatives also influence the Program of Work development and is outlined briefly in this appendix.

The Tongass National Forest Leadership Team, within the context of statute, regulations, policies, agency strategies, and the Forest Plan, developed the *Tongass National Forest Strategy for Management and Priority Setting FY2007 thru 2011* to provide broad program focus and guidance for the next 5 years. The Team's intent with this *Strategy* is to describe their values and vision and provide strategic goals and priorities to help employees with their work plan development and enhance understanding of the decision-making rationale as the Forest Plan is implemented. A complete copy of the Strategic Plan can be found at the Forest Plan website: http://www.fs.fed.us/r10/tongass/.

The *Strategy* outlines general direction for each or the Forest's program areas and establishes four strategic priority areas and associated actions. This direction provides the best picture of how the Forest Plan is likely to be implemented in the future. While specific direction may vary from year to year due to budgets, emerging issues, new information, adjustments in the *Strategy,* and other factors, the four areas listed below represent the priority areas for Forest Plan implementation:

- An Integrated Approach to Restoration and Enhancement
- Maintaining the Forest Plan into the Future
- Recreation and Wilderness Resource Management
- Timber Management

An Integrated Approach to Restoration and Enhancement

The Tongass National Forest consists predominantly of healthy functioning ecosystems; however, management activities in recent decades, and nature itself, have created opportunities for resource enhancement and/or restoration. In the past, some commercial timber harvest was allowed in areas where harvest is no longer allowed, including riparian zones, beaches, and areas currently allocated to the Old-Growth Habitat Land Use Designation. Similarly, road construction is no longer permitted in some areas where roads were formerly constructed. Over the course of time, our harvest practices and our road construction and maintenance standards have significantly improved. Some facilities, such as recreation cabins, are aging and in need of heavy maintenance or restoration. Collectively, there are numerous opportunities for enhancement or restoration for a variety of resource values.

Ecosystem health, declining budgets, increasing public scrutiny, fragile community economics, and the need to diversify funding sources compel us to focus on an integrated approach to resource enhancement and restoration. In addition, such an approach will ultimately result in more ecologically integrated projects and decisions. Integrated resource projects would be developed in watersheds or on large landscapes, preferably in those where hydrologic assessments or landscape assessments have been completed. Access and travel management data, fish passage data, and road condition survey data, in addition to the associated 10-Year Resource Plan and all other identified resource and infrastructure restoration needs on the landscape would be combined into one sequentially scheduled restoration

project. Concentrating the work in one area over a longer period of time (1 to 3 years) would provide additional economic stability for local contractors.

A typical contract could include stream stabilization, habitat thinning, commercial thinning, fish passage improvements, road storage, road decommissioning, conversion of roads to interim trails, road maintenance, and any other habitat, maintenance, or restoration needs identified on the landscape. This work could be done under a service contract, a goods-for-services contract, or as a stewardship opportunity, any of which could be secured under several contracting options (i.e., IFB, RFP, 8-A).

Processes and procedures have been established to guide the Integrated Resource Program through project proposal development, evaluation, and ranking. These processes and procedures are described in the 2006 Integrated Resource Project Agreements document located in the appendices of the Strategic Plan.

Typical work might include:

- Instream structures
- Barrier modification
- Cooperative fish stocking
- Lake fertilization
- Debris removal
- Weir/stock assessment
- Riparian rehabilitation
- Conduct Land Management Plan Monitoring
- Conduct Project-Level Monitoring
- High clearance roads maintenance and operation
- Road improvement
- Bridge and culvert maintenance and improvements
- Passenger car road maintenance and operation
- Coordination of Forest highways
- Forest plan monitoring
- Project-level monitoring
- Decommissioning and/or storage of authorized and unauthorized roads
- Trail construction and reconstruction
- Maintenance of transportation system-trails
- Wildlife habitat restoration
- Inventories
- Pre-commercial and commercial thinning
- Shrub plantings
- Slash management
- Seeding
- Signing
- Nesting platforms
- Nest boxes
- Control of invasive pests

Maintaining the Forest Plan into the Future

The Forest Plan guides all natural resource activities on the Forest by providing information, procedures, and tools that guide project planning and define outputs. The Forest Plan is based on sound science and incorporates a robust monitoring and evaluation program which embraces adaptive management principles. The Forest Plan provides for ample habitat for biodiversity and permits resource activities while ensuring clean air, water, and pristine environments for future generations.

It has been decided that we will continue to improve availability of the Forest Plan documents, rationale, background, analyses, etc by developing a highly interactive web-based planning system. The system objectives include quick and easy access for internal and external users to facilitate their ability to participate in the Forest planning process.

Typical work might include the following:

- Conducting strategic resource inventories
- Conducting ecosystem assessments
- Maintaining Forest Plans
- Monitoring
- Conducting Forest Plan monitoring
- Conducting project-level monitoring

Recreation and Wilderness Resource Management

Inland water passages connect the communities of the Tongass, and the communities provide a place for interpretive education as well as serve as portals to the Forest. Changes to the existing transportation system, including faster and more frequent ferries in the short term and new road construction in the next 10 years, will provide opportunities for us to partner with other agencies and communities to guide the development of day-use and remote backcountry opportunities. Flight-seeing and fly-in opportunities are available throughout the Tongass.

The predominant recreational activities on the Tongass are viewing scenery and wildlife, hiking, walking, boating, driving, kayaking, fishing, hunting and gathering. Public-use cabins are available and are important for providing remote recreation opportunities. Nineteen Wildernesses and multiple roadless lands add to the remoteness of the Forest. Additionally, the Forest has more than 3,560 miles of classified road and approximately 464 miles of developed trails that provide access to forest resources and are important to the livelihood and well-being of the people of the Tongass and visitors.

The Tongass Recreation Program will emphasize four strategic items over the next 5 years, including:

- Maintaining and Enhancing Primitive Wilderness/Backcountry Opportunities—We are committed to meeting the Chief's Wilderness Challenge in 7 years by emphasizing the priority needs to accomplish the goals of the program and ensuring the recreating public continues to have opportunities to experience the outstanding primitive backcountry areas the Tongass currently offers.
- Enhancing the Outfitter/Guide Program—Balance economic benefits to industry and communities with the desires of non-outfitted forest users and ensure forest resources are protected or enhanced. Permits are administered in a professional manner, and permit administrators are highly qualified and properly trained.
- Implementing the Recreation Facilities Master Plan and the RSFMP Action Plan to align our recreation facilities with the needs and demands of the public using available funding and pursuing alternative resource opportunities.

- Providing enhanced opportunities for World-Class Day-Use (3 to 6 hours) experiences through collaboration with communities, tourism industry representatives, and outfitter/guides.

Typical work might include the following:

- Conduct Land Management Plan high clearance roads maintenance and operation
- Transportation enhancements
- Passenger car road maintenance and operation
- Decommissioning of authorized and unauthorized trails
- Trail construction and reconstruction
- Maintenance of transportation system trails
- Wildlife habitat restoration
- Decommissioning low-use cabins
- Inventories
- Signing
- Strategic resource inventories
- Ecosystem assessments
- Monitoring
- Forest Plan monitoring
- Project-level monitoring

Timber Management

Timber harvest and the creation of other forest products are environmentally responsible activities on the Tongass. Timber harvest activity occurs on a small percentage of available land in an ecologically sustainable manner while conserving and enhancing the Forest. Managed timber harvest using Forest Plan guidelines will continue to provide raw materials to the forest product industry in support of local communities. From a silviculture standpoint, we are looking to our future in young-growth management. The majority of these stands are 30 to 40 years from being available for traditional commercial harvest. However, these stands can be presently managed to produce quality forest products and promote amenity values and ecosystem services such as wildlife habitat, recreation opportunities, scenery, and clean air and water. Additional research will be completed to increase our understanding of the complex relationship between the management of young-growth forest and other forest values.

Special forest products (e.g., berries, mushrooms, etc.) are administered in a small on going program because current demand is low. Increases in demand will lead to more emphasis in this program.

Typical work might include the following:

- Conduct Forest Plan implementation training sessions with timber management staff and interagency partners
- Plan and prepare timber sales
- Administer timber sales
- Manage special forest products non-convertible
- Improve forest vegetation
- Manage noxious weeds and invasive plants
- Prevent/treat noxious weeds

- Riparian rehabilitation
- Road improvement
- Bridge and culvert maintenance and improvements
- Forest Plan monitoring
- Project-level monitoring
- Decommissioning of authorized and unauthorized roads
- Trail construction and reconstruction
- Wildlife habitat restoration
- Inventories
- Pre-commercial thinning
- Shrub plantings
- Seeding
- Signing
- Control of invasive pests

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APPENDIX K
OLD-GROWTH HABITAT RESERVE MODIFICATION PROCEDURES

Appendix K

Old-growth Habitat Reserve Modification Procedures

Introduction

This appendix describes criteria for changing the boundaries of old-growth reserves (OGRs) at the project level as described in the Old-growth Habitat Land Use Designation (LUD) Standards and Guidelines (Wildlife section). For a complete review of the Conservation Strategy, including assumptions for the design of the OGR system, refer to Appendix D of the 2008 Final EIS.

Significant modifications to OGRs (e.g., in the case of a land exchange) require consideration of other factors outside the scope of this appendix. Factors include connectivity, size, and shape of the reserve, as well as basic assumptions behind the location of the reserves. Some activities (i.e., major land conveyance or substantial timber harvest in non-development LUDs) could significantly affect the integrity of the Conservation Strategy. In this case, an overall review of the effects on the Conservation Strategy would be necessary. These activities are anticipated to be infrequent events.

Review of OGRs

During the 2008 Amendment process, the USDA Forest Service, U.S. Fish and Wildlife Service (USFWS), and Alaska Department of Fish and Game (ADF&G) reviewed all of the small OGRs and a few of the medium and large OGRs. These were reviewed primarily because under the 1997 Forest Plan, small OGRs were not adequately mapped, so it was necessary to review and designate them at the project level. Medium and large OGR locations were finalized in the 1997 Forest Plan and brought forward. This decision finalizes the location of the majority of the small OGRs; therefore, project-level reviews are not necessary, except as outlined below.

Minor modifications to any OGR boundary as a result of imprecise mapping are considered a “correction of map errata.” The changes will not be considered changes in the Forest Plan and may be completed without project level or other review provided that changes meet OGR goals and objectives. Changes should only be completed to follow physical and other recognizable on-the-ground features or defined boundaries (e.g., roads, streams, LUD, watersheds).

Under limited circumstances, a line officer may decide to modify the size and location of an OGR. Modifications of OGRs, other than minor as described above, will require the completion of a project level review. This review may be necessary if:

A. The project occurs in VCUs 1930, 2010, 5371, 5620, 6100, 6140, 6150, 6160, 6170, 6320, 6710, 6750, and 6760. A project-level review is required because critical site-specific information for these small and medium OGRs was not available for this decision**.** This review requires an assessment of landscape connectivity (refer to Appendix D of the 2008 Final EIS). Once a review and approval through the NEPA process is complete, no further review for these OGRs is necessary.

B. Site-specific information for a small OGR indicates that the OGR habitat criteria are not met in the mapped location.

C. Actions are proposed within the OGR that will reduce the integrity of the old-growth habitat in the OGR.

D. The OGR will be affected by a land conveyance, power line, mine, or other project that was not considered in the Forest Plan. An overall review of the Conservation Strategy is not necessary for a modification to an individual small OGR, but it could be necessary for modifications to medium and large OGRs, or if a proposal affects multiple OGRs. If an overall review is deemed unnecessary by the line officer for modification to medium and large OGRs, documentation of the rationale will be done through the NEPA process.

Project-Level Review

Project-level reviews will ensure that OGRs meet Forest Plan OGR criteria while addressing forest-wide multiple use goals and objectives. There are two levels of review included in the project-level review: 1) the interagency review, and 2) the decision process.

Step 1, Interagency Review Process—The purpose of an interagency review is to identify the biologically preferred location for the OGR. An interagency team of USDA Forest Service, USFWS, and ADF&G biologists will jointly evaluate the location and habitat composition of the OGR by reviewing all the large productive old growth blocks within a Value Comparison Unit (VCU). The interagency review team will develop a proposal for the OGR that meets the criteria of this appendix and document why other proposals were not recommended.

The review will include the following steps:

A. Review the purpose and rationale for current location of the Forest Plan OGR as documented in the current Tongass Old Growth database.

B. Assess whether the purpose and rationale for the location of the OGR has changed.

C. Use the design criteria to define the biologically preferred location for the OGR.

D. Document this proposal as the interagency proposed OGR in the Tongass Old Growth database and in an Interagency OGR Review report.

Step 2, Decision Process—Line officers will incorporate the interagency review team OGR recommendation in the NEPA process, considering the best biological location for the OGR while balancing other considerations. The interagency team will work with the decision maker to develop alternate proposals, if necessary to meet other Forest Plan objectives. The implemented OGR must meet the minimum criteria as described below.

The Decision process will include the following steps:

A. Attempt to develop a viable project that avoids conflicts with the biologically preferred OGR. At a minimum, the biologically preferred OGR will be considered in an alternative in the NEPA document.

B. Where modifications to the biologically preferred OGR are required to meet Forest-wide multiple use goals and objectives:

   1. Follow the management prescriptions as defined for the Old-growth Habitat LUD; and

   2. Document the rationale for modifications to the biologically preferred OGR.

C. Changes to the OGR LUD require a NEPA analysis and are generally a non-significant Forest Plan amendment.

D. Analyze the amount of suitable Forest land impacted by the change in OGR.

E. Add the updated information (including the rationale for the final location) to the Tongass Old Growth database.

Criteria for Small OGRs

A. Review Appendix D of the Final EIS, which includes the assumptions for the design of the old-growth reserve system.

B. Small reserves are a contiguous landscape of at least 16 percent of the National Forest System land area of each VCU and at least 50 percent of the small reserve, should be productive old growth. The size and location of small OGRs will consider the following:

1. OGRs shall contain a minimum of 400 acres of productive old-growth forest. Do not map isolated reserves with less than 400 acres of productive old growth.
2. The preferred biological objective is for each reserve to contain at least 800 acres of productive old-growth forest.
3. In VCUs that are partially allocated to a Non-development LUD, compare the computed acreage required to the acres of productive old growth in the Non-development LUD. If the Non-development LUD acres are less than the area necessary for a small reserve, first use the productive old growth acres in the existing Non-development LUD to establish a small reserve, and then add additional acres of productive old growth to achieve the required small reserve size and composition.
4. In VCUs that are separated by saltwater channels, reserves may be separated, but attempt to retain 800 acres of productive old growth in each.
5. In very large VCUs, generally larger than 10,000 acres, the allocated old growth may be mapped in separate reserves as long as each reserve has a minimum of 800 acres of productive old growth. However, larger contiguous reserves are preferred to multiple smaller reserves.
6. In very large VCUs that contain relatively little productive old growth and the computational rule requires an amount of productive old growth that exceeds 50 percent of the existing productive old growth in the VCU, map a reserve of at least 400 acres of productive old growth.
7. Where VCU boundaries do not match watershed or ecological boundaries, up to 30 percent of the allocated old growth acres in a VCU may be mapped in an adjacent VCU if the resulting reserve achieves old-growth reserve objectives. The resulting small reserve in both VCUs must be contiguous. Total acreage is attributed to the VCU with 70 percent of the OGR.
8. OGR boundaries should follow recognizable features that are identifiable on the ground. Features should be permanent and easily identifiable. Features may include but are not limited to streams, roads, distinctive ridges and ridge-tops, watershed boundaries, and v-notches.

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APPENDIX L
SPECIAL INTEREST
AREAS AND EXPERIMENTAL FORESTS

Appendix L

Special Interest Areas and Experimental Forests

This appendix provides a list of the existing Special Interest Areas and a description of each of the new and expanded Special Interest Areas, as well as the recommended Experimental Forest. The location of each area is shown on the Record of Decision Map.

Existing Special Interest Areas and Experimental Forest

The following areas will continue under a Special Interest Area classification:

- Admiralty Lakes Recreation Area
- Bailey Bay Hot Springs Recreation Area
- Blind Slough Scenic and Zoological Area
- Blue River Lava Flow Geological Area
- Clear River Zoological Area
- Duke Island Zoological Area
- Falls Creek Windthrow Botanical Area
- Fish Creek Hot Springs Recreation Area
- Hubbard Glacier Geological Area
- Karst Areas Geological Area (see expansions below)
- Keku Islets Geological and Scenic Area
- Mendenhall Glacier Recreation Area
- Mount Edgecumbe Geological Area
- Naha Recreation Area
- New Eddystone Rock Geological Area
- North Hamilton River Redcedar Cultural and Botanical Area
- Park Creek Zoological Area
- Patterson Glacier Geological and Botanical Area
- Pike Lakes Recreation Area
- Soda Springs Geological Area
- Suemez Island Geological Area (see expansion below)
- Tracy Arm-Fords Terror Scenic Area
- Walker Cove-Rudyerd Bay Scenic Area
- Ward Lake Recreation Area (including expansion)

New Special Interest Areas and Recommended Experimental Forest

Most of the new geologic areas contain karst features. Karst is a type of topography that is formed on bedrock prone to dissolution. These areas are characterized by sinkholes, caves, collapsed channels, and well-developed, sub-surface drainage. Karsts have developed wherever limestone, marble, or other soluble, highly-fractured, carbonate rocks are found throughout the Tongass.

The karst topography of the Tongass is unique. Such extensive karst, at such extreme northern latitudes, is not common. Karsts form within the uppermost portion of the groundwater zone. It is here that carbonic acid, in contact with the soluble bedrock (mainly limestone and marble), dissolves the passages through time. The karst and cave systems across the Tongass predate the last glacial advance. Glaciation modified a preexisting karst landscape, eroding some features, collapsing some passages and systems, gouging into others, and filling some with sediments. Peatlands have developed on compacted glacial sediments and glacial silts within the karst landscapes and on poorly drained lithologies adjacent to the karst landscapes. Many of these glacial deposits appear to have been left on collapsed karst features. Surface waters originating from these poorly drained areas seldom flow more than a few yards onto carbonate substrate before diving below the ground, down vertical shafts or into cave entrances

The areas identified as new Special Areas have such a concentration of karst features within them that inventory of the feature and research into their formation and ecology may go on for years. Scientific studies including meteorology, hydrology, evolutionary biology, ecology, mycology, sedimentology, and long-term climatology may be carried out. Paleontological studies of the numerous bones in the caves may shed light on past inhabitants. Organisms living in the cave may be highly specialized resulting in species that live nowhere else.

Big Creek

Approximate size: 2,000 acres
Classification: Geologic Area

Big Creek Geologic Area lies just south of the West Arm of Cholmondeley Sound on southern Prince of Wales Island. This geologic area includes intense alpine karst, vertical pits and deep epikarst west and southwest of Big Creek. The karst system here is bounded by a fault to the west forming in the Wales Group marble. The land to the north and east are private property.

Blake Channel

Approximate size: 700 acres
Classification: Geologic Area

Blake Channel Geological Area is southeast of Wrangell on the mainland, just west of the mouth of Aaron Creek and north of Blake Channel. This area contains a number of extensive caves and numerous karst features in a vertical dipping marble band. The proposed geologic area contains all the lands expected to contribute water to the cave system. This cave system is the only system of its kind on mainland and the system has not been affected by road construction or timber harvest.

Calamity Creek Caves

Approximate size: 200 acres
Classification: Geologic Area

Calamity Creek Caves Geological Area, on Revillagigedo Island, includes the Calamity Creek Caves and associated karst features. This area contains a number of extensive caves and numerous karst features in a vertical dipping marble band. The proposed geologic area contains all the lands expected to contribute water to the cave system. This cave system is the only system of its kind on Revillagigedo Island and the system has not been affected by road construction or timber harvest.

Dall Island

Approximate size: 13,600 acres
Classification: Geologic Area

The Dall Island Geologic Areas currently consists of eight units: Bear, Thunder, Squaw, Devil, Windy, Waterfall, Twin, and Rose. It includes the alpine and sub-alpine areas where karst topography is best developed. These areas contain virtually hundreds of solution features per square mile. Fracture patterns, faults, bedding characteristics, and dike interfaces control cave formation. The designation

modifies the existing geologic area as the result of additional survey and inventory. Existing units are expanded and a new area is added between Diver Bay and Foul Bay as a result of inventory, mapping, and testing within the caves found there.

Eastern Chichagol

Approximate size: 23,900 acres
Classification: Geologic Area

Eastern Chichagof Geologic Area is primarily on northeastern Chichagof Island but includes three units south of Tenakee Inlet. There are16 units that protect alpine karst areas and one that includes the Kook Lake cave system. Many of these karst areas have not been inventoried. They include alpine and sub-alpine areas where karst topography is best developed. These areas contain virtually hundreds of solution features per square mile. Fracture patterns, faults, bedding characteristics, and dike interfaces control cave formation. The Kook Lake Cave system includes the river cave system that provides the outflow for Kook Lake and includes and the historic river cave passages and entrances.

Heceta

Approximate size: 4,100 acres
Classification: Geological Area

Heceta Island Geological Area is located on southwestern Heceta Island. The geologic area contains a number of karst-related features, including the many caves on Bald Mountain. There are virtually hundreds of solution features per square mile. Some of the most extensive cave systems on the Tongass National Forest lie within this special area. This area also contains the deepest cave system mapped to date on the Tongass. It is possible that this area formed along the margin of the ice lobe that formed Sea Otter Sound. Pollen studies in the area suggest that Bald Mountain was deglaciated as early as 12,000 years ago.

Kosciusko

Approximate size: 9,400 acres
Classification: Geological Area

Kosciusko Island Geological Area includes two units with intense karst development. Nearly the entire northwest unit is currently in an Old Growth LUD. The modified area encompasses the intense karst of Mount Francis and the streams and rivers that flow from it. This area includes alpine and sub-alpine areas where karst topography is best developed. Fracture patterns, faults, bedding characteristics, and dike interfaces control cave formation. The unglaciated spires of Mount Francis are contained within the area.

The second unit is northwest of Van Sant Cove. This is an area of intense karst development both within the forest and along the muskeg margins. The shear size of the collapse features found here is evidence that the last glacial advance effected the karst development only minimally. There are hundreds of karst features per square mile in a forested setting.

Northern Prince of Wales

Approximate size: 2,800 acres
Classification: Geological Area

Northern Prince of Wales Geological Area includes three new areas and one expanded area, primarily to protect several cave systems in karst areas. They encompass areas of intense karst development associated with several cave systems such as Red, White, and Roaring Canyon Caves, Rivers End and Cataract Caves, and Yukon Pit, Bears Plunge, Devils Canopy, and others. One unit contains Beaver Falls Karst Interpretative Trail and Cave, which is referred to as “The Great Depression”.

The Canyon Block contains various karst and cave systems in an unharvested and unroaded watershed. Opportunities exist for karst, geologic, and hydrologic research to establish baseline data for karst system response. The Rivers End Karst area encompasses an area of intense karst development both within the forest and along the muskeg margins. Rivers End Cave system drains much of the

surrounding area supplying waters to the anadramous stream near the coast. Most of this system is in an unharvested setting. The Beaver Falls karst system and the "Great Depression" include the numerous features of the karst plateau southwest of Twin Island Lake. Much of this area has been harvested in the past. Several large collapse basins are fond throughout the area, one nearly one mile in length and one-half mile in width. Several muskeg systems have formed on compacted glacial sediments deposited within pre-existing karst features. This area allows for opportunity to study the effects of the last glacial advance on the karst systems and how the establishment of the muskeg systems has modified the karst development since deglaciation.

North-Central Prince of Wales

Approximate size: 700 acres
Classification: Geological Area

North-central Prince of Wales Geological Area includes two new areas of intense karst and cave development. The western most area encompasses what is believed to be the watershed of the Zina Cave system and the many features found there. This extensive cave system is paleontologically important, containing many artifacts spanning nearly the last 11,000 years. The cave is an important hibernaculm for wintering bats and cave-adapted organisms have been found deep within the passages.

The eastern area encompasses the watershed of the Windgate karst system. This area includes an intense area of karst development unaffected by timber harvest or road development. Deposits within the cave found there give a clue to the glacial history of Central Prince of Wales Island. The area is an important hibernaculm for wintering bats.

Both areas contain caves cut into highly fossiliferous limestone, water has carved high, narrow passages into the underlying fine-grained mudstones that underlie the limestone.

Suemez Island Volcanics

Approximate size: 7,100 acres
Classification: Geological Area

The Suemez Geologic Area on southwestern Suemez Island encompasses the area of volcanic vents and flows between Cape Felix, Arena Cove and Port Santa Cruz. The designation will protect the many different volcanic features found on Suemez Island, including a number of different surface flow types, obsidian sources, volcanic vents, and unique geomorphic features such as the formations found on the beach west of Cape Felix and the waterfall and grotto near the western margin of the volcanic area.

Cowee-Davies

Approximate size: 22,300 acres
Classification: Experimental Forest

The Cowee-Davies Experimental Forest would replace the Youngs Bay Experimental Forest. Cowee-Davies is located on the east side of Lynn Canal, approximately 40 to 50 miles north of Juneau. It comprises VCUs 230 and 240. The southwestern side of the recommended experimental forest follows the Lynn Canal shoreline but is set back a few miles, and the northern edge abuts the Berners Bay LUD II designation. The current LUD for the proposed Cowee-Davies Experimental Forest is Scenic Viewshed which, like the Experimental Forest designation, is a moderate development LUD.

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Photograph taken looking northeast with Lindenberg Peninsula on Kupreanof Island and the mouth of Petersburg Creek (front cover) in the foreground, Petersburg Mountain (front cover) in the middleground, and Frederick Sound and the mainland in the background.

Tongass National Forest Land and Resource Management Plan

Land Use Designations

January 2008

Land Use Designations

WILDERNESS AND NATIONAL MONUMENT

- Wilderness and Wilderness National Monument- Preserve essentially unmodified areas to provide opportunities for solitude and primitive recreation. Limit motorized access.
- Non-Wilderness National Monument - Facilitate the development of mineral resources in a manner compatible with the National Monument purposes.

MOSTLY NATURAL SETTING

- LUD II - Maintain the wildland characteristics of these congressionally-designated unroaded areas. Permit fish and wildlife improvements and primitive recreation facilities.
- Old-Growth Habitat - Maintain old-growth forests in a natural or near-natural condition for wildlife and fish habitat.
- Research Natural Area - Manage areas for research and education and/or to maintain natural diversity on National Forest System Lands.
- Semi-Remote Recreation - Provide for recreation and tourism in natural-appearing settings where opportunities for solitude and self-reliance are moderate to high.
- Remote Recreation - Provide for recreation in remote natural settings outside Wilderness, where opportunities for solitude and self-reliance are high.
- Municipal Watershed - Manage municipal watersheds to meet State water quality standards for domestic water supply.
- Special Interest Area - Preserve areas with unique archaeological, historical, scenic, geological, botanical, or zoological values.
- Wild, Scenic, or Recreational River - Maintain and enhance the outstandingly remarkable values of river segments which qualify the river to be classified as a Wild, Scenic, or Recreational River.

MODERATE DEVELOPMENT

- Scenic Viewshed - Maintain scenic quality in areas viewed from popular land and marine travel routes and recreation areas, while permitting timber harvest.
- Modified Landscape - Provide for natural-appearing landscapes while allowing timber harvest.
- Experimental Forest - Provide opportunities for forest practices research and demonstration.
  - Experimental Forest - Proposed to be converted to Semi-Remote Recreation.
  - Experimental Forest - Scenic Viewshed Proposed to be converted to Experimental Forest.

INTENSIVE DEVELOPMENT

- Timber Production - Manage the area for industrial wood production. Promote conditions favorable for the timber resource and for maximum long-term timber production.

OVERLAY LUDs

- Minerals - Encourage mineral exploration and development of areas with high mineral potential.

Transportation and Utility System LUD

- Existing State Road Corridor
- Proposed State Road Corridor (Proposed Ferry Routes Not Shown)
- Existing Power Transmission Corridor
- Potential Power Transmission Corridor

- Hydroelectric Project Reserve
- Alaska Marine Highway and Inter-Island Ferry Authority
- Water
- Non-Federal Land
- Glacier Bay National Park
- Haines State Forest
- Klondike Gold Rush National Historic Park
- BLM-managed Land

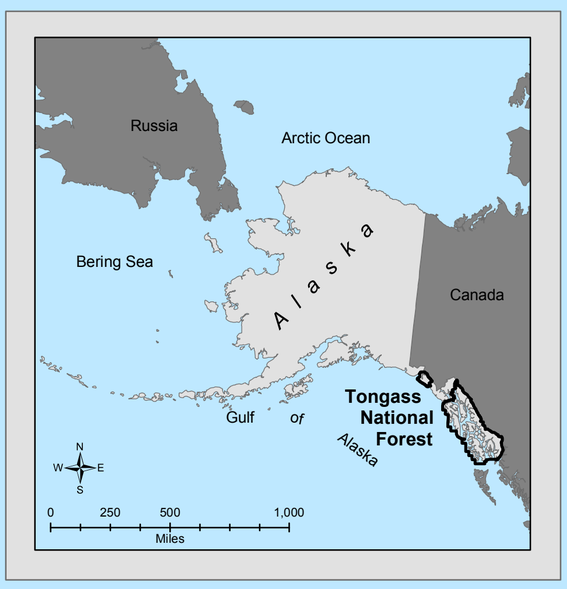
Yukon Territory
British Columbia

Glacier Bay National Park (Wilderness)

RUSSELL FIORD
YAKUTAT BAY
YAKUTAT
YAKUTAT FORELANDS
CANADA
UNITED STATES

KLUKWAN
SKAGWAY
HAINES
ENDICOTT RIVER
LYNN CANAL
GUSTAVUS
PLEASANT, LEMESURIER, AND INIAN ISLANDS
ELFIN COVE
PT. ADOLPHUS/ MUD BAY
PELICAN
HOONAH
JUNEAU
DOUGLAS
WEST CHICHAGOF-YAKOBI
ADMIRALTY ISLAND NATIONAL MONUMENT
TENAKEE SPRINGS
KADASHAN
CHATHAM STRAIT
STEPHENS PASSAGE
KOOTZNOOWOO WILDERNESS
TRACY ARM-FORDS TERROR
ANGOON
CHUCK RIVER
SITKA
SOUTH BARANOF
FREDERICK SOUND
KAKE
PETERSBURG CREEK/ DUNCAN SALT CHUCK
KUPREANOF
PETERSBURG
STIKINE
LECONTE
TEBENKOF BAY
PORT ALEXANDER
KUIU
SUMNER STRAIT
WRANGELL
CORONATION ISLAND
WARREN ISLAND
EDNA BAY
WHALE PASS
COFFMAN COVE
THOMS PLACE
NAUKATI
SOUTH ETOLIN
ANAN CREEK
MAUREILLE ISLANDS
CLARENCE STRAIT
KLAWOCK
KARTA RIVER
THORNE BAY
MEYERS CHUCK
CRAIG
OUTSIDE ISLANDS
HOLLIS
KASAAN
MISTY FIORDS NATIONAL MONUMENT WILDERNESS
HYDER
NAHA
HYDABURG
KETCHIKAN
SAXMAN
NUTKWA
MISTY FIORDS NATIONAL MONUMENT
METLAKATLA
SOUTH PRINCE OF WALES

DIXON ENTRANCE



0 5 10 20 30 40 50
Miles

Topographic Relief of the Tongass National Forest

United States Department of Agriculture
Forest Service

Alaska Region

Tongass National Forest
Ketchikan, Alaska

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