

# Chapter 4

## List of Preparers

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Forest Service Experience: 7 years

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Forest Service Experience: 9 years

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Forest Service Experience: 20 Years

Other Professional Experience: 3 Years

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Private Industry Experience: 26 years

State of Alaska Division of Forestry: 4 years

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Forest Service Experience: 23 years

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B.S., Geology, Minor in Anthropology, State University of New York-Cortland, 1978

Forest Service Experience: 21 years

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Education: B.S., Wildland Recreation Management, University of Idaho, 1990

Forest Service Experience: 19 years

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Education: B.S.; Geology, University of Idaho, 1984 Minor in Education, University of Idaho,

1987 M.S. Soils, University of Idaho, 1987

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Environmental Science and Forestry 2005

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Forest Service Experience: 6 years

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Education: B.S., Geoscience, Middle Tennessee State University, 1988; M.S., Environmental  
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Forest Service Experience: 17 years

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Education: Northern Essex Community College, Southern Oregon University

Forest Service Experience: 13 years

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Education: M.S., Western Kentucky University 2007 B.A., Western Michigan University, 2004

Forest Experience: 5 years, Tongass National Forest

Cole Mayn, Soil Scientist

Education: B.S., Environmental Engineering, Montana Tech-University of Montana, 1998 Minor  
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2001

Forest Service Experience: 4 years

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Education: B.S., Forestry - Michigan Technological University – 1976

Forest Service Experience: 30 years

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Education: Completing B.S. in Soil Science and Land Resources with the University of Idaho

Forest Service Experience: 5 years

Robert "Mike" Sheets, Certified Silviculturist,

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BS in Forest Resource Management 1992 Dabney S. Lancaster College, AS in Forestry 1987

Forest Service Experience: 17 years

Jeffrey Tilley, Forester

Education: B.S. Natural Resources, University of Massachusetts, 1997

Forest Service Experience: 11 years

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Environmental Planning, Utah State University, UT 1993

Forest Service Experience: 14 years

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 Forest Service Experience: 18 years

## Public Involvement

A copy of the Logjam Draft EIS was sent to the following agencies, organizations, businesses, public officials, municipalities, and IRA tribes. These parties commented on the project, requested a copy of the EIS during the scoping process or at some other time in the NEPA process, are part of the Forest Service's mandatory mailing list (Forest Service Handbook 1909.15, Sections 23.2 and 63.1) or are recognized municipalities or IRA tribes potentially affected by, or interested in, the Logjam project.

## Agencies

Advisory Council Historic Preservation	U.S. Coast Guard (USCG)
AK DNR, Office of Program Management & Permitting	U.S. Department of Agriculture
Alaska Board of Fisheries	U.S. Department of Energy
Alaska Dept. of Environmental Conservation	U.S. Department of the Interior
Alaska Dept. of Fish & Game, Division of Subsistence	U.S. EPA, Office of Federal Activities
Alaska Dept. of Fish & Game, Division of Wildlife Conservation	U.S. Fish and Wildlife Service
Alaska Dept. of Fish & Game, Sport Fishing Division	U.S. Forest Service, Chugach NF
Alaska Dept. of Natural Resources - Division of Water	U.S. Forest Service, Tongass NF
Alaska Dept. of Natural Resources, Office of Program Management & Permitting	USDA Forest Service, Admiralty National Monument
Alaska Dept. of Transportation	USDA Forest Service, Chugach National Forest
Dept. of Fisheries & Wildlife	USDA Forest Service, Craig Ranger District
Dept. of the Army, Engineer District	USDA Forest Service, Div. of Forest Management
Environmental Protection Agency, EIS Filing Section	USDA Forest Service, Hoonah Ranger District
EPA, Region 10 - NEPA Review Unit	USDA Forest Service, Juneau Ranger District
Federal Aviation Administration	USDA Forest Service, Ketchikan-Misty Ranger District
Federal Highway Administration	USDA Forest Service, Petersburg Ranger District
National Marine Fisheries Service	USDA Forest Service, RMRS
NOAA Office of Policy and Strategic Planning	USDA Forest Service, Sitka Ranger District
Tongass National Forest	USDA Forest Service, STOP Code 1104
U.S. Army Corps of Engineers	USDA Forest Service, Supervisor's Office
	USDA Forest Service, Thorne Bay Ranger District

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USDA Forest Service, Wrangell Ranger District  
USDA Forest Service, Yakutat Ranger District

USDA National Agricultural Library  
USDA Natural Resources Conservation Service

## Organizations and Businesses

Sitka Conservation Society  
Forest Conservation Council  
Point Baker Community Council  
Port Protection Community Association  
Wrangell Cooperative Association  
Sierra Club-Juneau Group  
Cape Fox Corporation  
Tongass Conservation Society  
Alaska Forest Association, Inc.

Alaska Rainforest Campaign  
SE Alaska Timber  
Greenpeace  
Alaska Center for the Environment  
Alaska Chapter Sierra Club  
SE Alaska Conservation Council  
WR Jones & Son Lumber Co.  
Earthjustice

## Tribes

Sealaska Corporation  
Angoon Community Association  
Chilkoot Indian Association  
Douglas Indian Association  
Hoonah Indian Association  
Klawock Tribal Government  
Metlakatla Indian Community  
Petersburg Indian Association  
Sitka Tribe of Alaska  
Yakutat Tlingit Tribe  
Cape Fox Corporation  
Shaan-Seet, Inc.  
Central Council of Tlingit and Haida Indian Tribes  
Kake Tribal Corporation

Yak-Tat-Kwann Inc.  
Haida Corp.  
Craig Community Association  
Klawock Cooperative Association  
Hydaburg Cooperative Association  
Klawock Heenya Corp.  
Kavilco Inc.  
The Central Council of Tlingit & Haida Indian Tribes of AK  
Sealaska Heritage Institute  
Ketchikan Indian Corporation  
Organized Village of Kasaan  
Organized Village of Kake  
Organized Village of Saxman

## Public Officials and Cities

Honorable Albert Kookesh  
Senator Lisa Murkowski  
Senator Ted Stevens  
Alaska Land Use Council  
Alaska Office of the Governor  
City of Coffman Cove  
City of Craig  
City of Hydaburg  
City of Kasaan  
City of Klawock

City of Thorne Bay  
City of Sitka  
Community Council of Hollis  
Community of Naukati West  
Community of Whale Pass  
Metlakatla Indian Community

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## Glossary

**Abiotic:** Non-living. Climate is an abiotic component of ecosystems.

**Access:** The opportunities 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).

**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.

**Adfluvial fish:** Species of populations of fish that do not go to sea, but live in lakes and enter streams to spawn.

**Affected environment:** The natural environment that exists at the present time in an area being analyzed.

**Age class:** A distinct aggregation of trees originating from a single natural even or regeneration activity, or a grouping of trees, e.g., 10-year age class, as used in inventory or management.

**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.

**Alaska National Interest Lands Conservation Act (ANILCA):** Passed by Congress in ecosystem 1980, this legislation designated 14 National Forest wilderness areas in Southeast Alaska. The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551. Section 810 requires evaluations of subsistence impacts before changing the use of these lands.

**Alaska Native Claims Settlement Act (ANCSA):** Public Law 92-203, 92nd Congress, 85 Stat. 2371-2551. Approved December 18, 1971, ANCSA provides for the settlement of certain land claims of Alaska natives and for other purposes.

**All-terrain vehicle (ATV):** A gasoline powered, off-road vehicle used for accessing remote areas for recreational and work related activities: note all terrain vehicles generally have high clearance, high traction, high maneuverability and low speed: see off-road vehicle

**Allowable sale quantity (ASQ):** The amount of timber that may be sold within a certain time period from an area of suitable land. The suitability of the land and the time period are specified in 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.

**Amphipods:** Any member of the invertebrate order Amphipoda (class Crustacea) inhabiting all parts of the sea, lakes, rivers, sand beaches, caves, and moist (warm) habitats on many tropical islands.

**Anadromous fish:** Fish which mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and steelhead are examples of anadromous species of fish.

**Anadromous Fisheries 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.

**Aphid:** A small (1 to 6 mm or 0.04 to 0.24 inches), soft-bodied, often pear-shaped insect of the family *Aphididae* (*Homoptera*) that sucks sap from leaves, stems or roots: note aphids excrete the processed sap as honeydew.

**Aquatic ecosystem:** A stream, channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.

**Aquatic Habitat Management Unit class:** See stream classes

**Aquifer:** A saturated, permeable geologic unit of sediment or rock that can transmit significant quantities of water under ordinary hydraulic gradients.

**Aspect:** The direction a slope faces. A hillside facing east has an eastern aspect.

**ASQ:** See allowable sale quantity.

**Background:** The distant part of a landscape. The seen or viewed area located from 3 or 5 miles to infinity from the viewer (see also “Foreground” and “Middleground”).

**Bankfull width:** The width of the wetted channel when the water surface is at the same elevation as the active floodplain.

**Basal area:** The area of the cross section of a tree trunk near its base, usually 4 and 1/2 feet above the ground. Basal area is a way to measure how much of a site is occupied by trees. The term basal area is often used to describe the collective basal area of trees per acre.

**Beach fringe:** The area inland from salt water shorelines that is typically forested.

**Bedload:** Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water.

**Benthic:** Pertaining to the sea bottom or to organisms that live on the sea bottom.

**Best Management practice (BMP):** Land Management methods, measures or practices selected by an agency to meet its non-point source control needs. BMP's include, but are not limited to structural and non-structural controls and operation and maintenance procedures. BMP's can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters. BMP's are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility. BMP's are found in Forest Service Handbook (FSH 2509).

**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.

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**Biological Assessment:** A biological evaluation conducted for major Federal construction projects requiring an environmental impact statement, in accordance with legal requirements under Section 7 of the Endangered Species Act (16 U.S.C. 1536). The purpose of the assessment and resulting document is to determine whether the proposed action is likely to affect a species that has been listed or proposed as an endangered or threatened species.

**Biological diversity:** The number and abundance of species found within a common environment. This includes the variety of genes, species, ecosystems, and the ecological processes that connect everything in a common environment.

**Biological Evaluation:** A documented USDA Forest Service review of programs and activities that contains sufficient detail to determine how an action or proposed action may affect any species that has been listed or proposed as threatened, endangered, or sensitive.

**Biomass:** The total weight of all living organisms in a biological community.

**Biotic:** living. Green plants and soil microorganisms are biotic components of ecosystems.

**Blowdown:** See windthrow

**BMP:** See best Management practices

**Board foot:** A measurement term for lumber or timber. It is the amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

**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. FP 7-5

**Browse:** Twigs, leaves, and young shoots of trees and shrubs that animals eat. Browse is often used to refer to the shrubs eaten by big game, such as elk and deer.

**Buffer:** A vegetative strip or Management zone of varying size, shape, and character maintained along a stream, lake, road, recreation site, or different vegetative zone to mitigate the impacts of action as on adjacent lands.

**Cable logging:** Logging that involves the transport of logs from stump to collection points by means of suspended steel cables.

**Canopy:** The part of any stand of trees represented by the tree crowns. It usually refers to the uppermost layer of foliage, but it can be used to describe lower layers in a multi-storied forest.

**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.

**Carrying capacity** -The estimated maximum number of animals that can be sustained over the long-term in an area.

**Cavity:** A hole in a tree often used by wildlife species, usually birds, for nesting, roosting, and reproduction.

**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 which serve to confine the water.



**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.

**Clearcut:** Harvesting method in which essentially all trees are cleared in one cut. It prepares the area for a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning.

**Climax:** The culminating stage in plant succession for a given site. Climax vegetation is stable, self-maintaining, and self-reproducing.

**Coarse Canopy Old-growth Forest:** Old-growth forest that has lower crown density (number of trees) and non-uniform crown sizes and heights including large crowns and many canopy gaps.

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

**Commercial forest:** Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

**Composition:** What an ecosystem is composed of. Composition could include water, minerals, trees, snags, wildlife, soil, microorganisms, and plant species,

**Conifer:** A tree that produces cones, such as a pine, spruce, or fir tree.

**Connectivity (of habitats):** A measure of the extent that forest areas between or outside reserves provide habitat for breeding, feeding, dispersal, and movement

**Corridor:** Elements of the landscape that connect similar areas. Streamside vegetation may create a corridor of willows and hardwoods between meadows where wildlife feed.

**Cover:** Any feature that conceals wildlife or fish. Cover may be dead or live vegetation, boulders, or undercut stream banks. Animals use cover to escape from predators, rest, or feed.

**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 (of a tree)-** The tree canopy; the upper part of a tree or woody plant that carries the main branch system and foliage.

**Cumulative effects:** Effects on the environment that result from separate, individual actions that, collectively, becomes significant over time.

**Decommissioning:** To remove those elements of a road or buildings that reroute hills lope drainage and present slope stability hazards.

**DBH:** See diameter at breast height.

**Deer winter range (Habitat):** An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.

**Developed recreation:** That 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.

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**Diameter at breast height (DBH):** The diameter of the stem of a tree measured at breast height 4.5 feet from the ground. Note: on sloping ground the measure is taken from the uphill side.

**Direct employment:** The jobs that are immediately associated with a given activity.

**Dispersed recreation:** That 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 dayuse oriented and include hunting, fishing, boating, off-road vehicle use, hiking and among others.

**Distance zones:** 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.

**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)

**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.

**Early forest succession:** The biotic (or life) community that develops immediately following the removal or destruction of vegetation in an area. For instance, grasses may be the first plants to grow in an area that was burned.

**Ecological subsections:** Eighty-five terrestrial ecosystems mapped and described for Southeast Alaska and adjoining areas of Canada (Nowacki et al. 2001). These mid-sized terrestrial ecosystems body similar ecological characteristics including landforms, streams, vegetation, soils, and wetlands. They provide a practical basis for ecosystem Management, planning, and research.

**Ecology:** The interrelationships of living things to one another and the environment, or the study of these interrelationships.

**Edge:** The more or less well defined boundary between two or more elements of the environment, e.g., a field adjacent to a woodland or the boundary of different silvicultural treatments

**Effects** – Effects, impacts, and consequences as used in this Environmental Impact Statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, or social, and may be direct, indirect, or cumulative.

Direct effects: Results of an action occurring when and where the action takes place.

Indirect effects: 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 effects: Results of collective past, resent and reasonably foreseeable future actions.

**Element (of ecosystems):** An identifiable component, process, or condition of an ecosystem.

**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:** Restricted to a particular locality. For example, a particular species or subspecies may occur on only one or a very few islands.

**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 which cannot be avoided by the action, (3) the alternative courses of actions, (4) the relationships between local short-term productivity, and (5) a description of the irreversible and irretrievable commitment of resources which would occur if the action were accomplished

**Erosion:** The wearing away of the land surface by running water, wind, ice, gravity or other geological activities.

**Escape cover:** Vegetation of sufficient size and density to hide an animal, or an area used by animals to escape predators.

**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.

**Even-aged Management:** The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees in forming the main canopy level of a stand usually does not exceed 20 percent of that age of the stand at harvest rotation age. Clearcut, shelter wood, or seed tree cutting methods produce even-aged stands.

**Executive Order:** An order or regulation issued by the President or some administrative authority under his or her direction.

**Existing Scenic Integrity (ESI):** Describes the visual appearance of the landscape at the time the project area scenery assessment is conducted. ESI is measured by the following condition types, as described in the Forest Plan:

**Type I:** Landscapes where only ecological change has occurred, except for trails needed for access. Landscapes appear to be untouched by human activities.

**Type II:** Landscapes where change is not noticed by the average forest visitor unless pointed out. These landscapes have been altered but changes are not perceptible.

**Type III:** Landscapes where changes are noticeable by the average forest visitor, but they do not attract attention. Changes appear to be minor disturbances.

**Type IV:** Landscapes where changes are easily noticed by the average forest visitor and may attract attention. Changes appear as disturbances but resemble natural patterns in the landscape.

**Type V:** Landscapes where changes are very noticeable and would be obvious to the average forest visitor. Changes tend to stand out, dominating the view of the landscape, but are shaped to resemble natural patterns.

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**Type VI:** Landscapes where changes are in glaring contrast to the landscape's natural appearance. Changes appear as dramatic, large scale disturbances that strongly affect the average forest visitor.

**Felling:** The cutting down of trees.

**Final Environmental Impact Statement (FEIS):** The final version of the statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act. It is a revision of the Draft Environmental Impact Statement (DEIS) to include public and agency responses to the draft. The decision maker chooses which alternative to select from the FEIS, and subsequently issues a Record of Decision (ROD).

**Fiscal year (FY):** October 1 through September 30 The Fiscal Year is referred to by the calendar year which begins on January 1. For example, October 1, 1996, through September 30, 1997 is referred to as Fiscal Year 1997.

**Fisheries habitat:** Streams, lakes, and reservoirs that support fish, or have the potential to support fish.

**Fish passage barrier:** A point in a stream which presents a barrier to some life stage of a fish species, also called "Red Pipes" in some Agency documents; e.g. barriers may be the lip of a culvert placed too high for juvenile fish, or a series of natural falls that do not allow any fish passage.

**Floodplain:** That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages in response to a 100 year storm event.

**Fluvial:** Of, or pertaining to streams and rivers.

**Forage:** All browse and non-woody plants that are eaten by wildlife and livestock.

**Forb:** A grouping/category of herbaceous plants which are not included in the grass, shrub or tree groupings/categories; generally smaller flowering plants.

**Foreground:** A term used in visual Management to describe the stand of trees immediately adjacent to a scenic area, recreation facility or forest highway. The area is located less than 1/4 mile from the viewer. (See Background and Middleground.)

**Forest health:** An expression of the relationship among biotic and abiotic influences on the forest (i.e., insects, diseases, atmospheric deposition, silvicultural treatments, harvesting objectives for a given forest unit now or in the future and sustain long-term site productivity.

**Forest Road or Trail** – A road or trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. (36 CFR 212.1)

**Forested land:** Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use.

**Forest Plan:** Source of Management direction for an individual Forest specifying activity and output levels for a period of 10-15 years. Management direction in the 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 that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 CFR 212.1).

**Forest Supervisor:** The official responsible for administering National Forest lands on an administrative unit, usually one or more National Forests. The Forest Supervisor reports to the Regional Forester.

**Forest Transportation Atlas:** A display of the System of roads, trails, and airfields of an administrative unit.

**Forest Transportation Facility:** A forest road or trail or an 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 roads, National Forest System trails, and airfields on National Forest System lands (36 CFR 212.1).

**Forest-wide Standards and Guidelines (S&Gs):** 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:** An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of Management on these natural conditions. Also the process of reducing the size and connectivity of stands within a forest.

**FSH:** Forest Service Handbook

**FSM:** Forest Service Manual

**Fuels:** Plants and woody vegetation, both living and dead, that is capable of burning.

**Fuelwood:** Wood cut into short lengths for burning.

**Function:** All the processes within an ecosystem through which the elements interact, such as succession, the food chain, fire, weather, and the hydrologic cycle.

**Game species:** Any species of wildlife or fish that is harvested according to prescribed limits and seasons.

**Geographic Information System (GIS):** Information processing technology to input, store, manipulate, analyze, and display spatial and attribute data to support the decision making process. It is a System of computer maps with corresponding site-specific information that can be electronically combined to provide reports and maps

**Geomorphology:** The study of the forms of the land surface and the processes producing these surfaces. Also the study of the underlying rocks or parent materials and the landforms present that were formed in geological time.

**GIS:** See Geographic Information System

**Ground water:** 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.

**Guideline:** A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

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**Habitat:** The sum total of environmental conditions of a specific place occupied by 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.

**Habitat diversity:** The number of different types of wildlife habitat within a given area.

**Habitat Suitability Index (HSI):** A measure of the capability of the habitat to support deer, based on a variety of environmental factors, for example, slope, elevation, aspect, and forest type.

**Habitat type:** A way to classify land area. A habitat type can support certain climax vegetation, both tree and undergrowth species. Habitat typing can indicate the biological potential of a site.

**Historic Properties:** 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 properties are non-renewable aspects of our national heritage.

**HSI:** See Habitat Suitability Index.

**Hydric soil:** A soil that is wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants.

**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.

**Hydrologic recovery:** A return to natural conditions of water collection, storage, and discharge.

**Hydrology:** The science dealing with the study of water on the land, in the soil and underlying rocks, and in the atmosphere.

**Individual tree selection:** See regeneration method.

**Interception:** The process where precipitation is caught and held by foliage and lost by evaporation before it reaches the ground.

**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.

**Intermediate cut:** The removal of trees from a stand sometime between the beginning or formation of the stand and the regeneration cut. Types of intermediate cuts include thinning, release, and improvement cuttings.

**Intermittent stream:** A stream that flows only at certain times of the year when it receives water from streams or from some surface source, such as melting snow.

**Inventoried Roadless Area (IRA):** An undeveloped area typically exceeding 5,000 acres that meets the minimum criteria for Wilderness consideration under the Wilderness Act and that was inventoried during the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or forest planning.

**Irretrievable commitment:** Applies to losses of production or use of renewable natural resources for a period of time. For example, timber production from an area is irretrievably lost during the time an area is allocated to a no-harvest prescription. If the allocation is changed to allow timber harvest, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

**Irreversible commitments:** Decisions causing changes which cannot be reversed. For example, if a roadless area is allocated to allow timber harvest and timber is actually harvested, that area generally cannot, at a later date, be allocated to Wilderness. Once harvested, the ability of that area to meet Wilderness criteria has been irreversibly lost. Often applies to nonrenewable resources such as minerals and cultural resources.

**Issue:** A point, matter, or section of public discussion or interest to be addressed or decided.

**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.

**Land and Resource Management Plan:** Also called the Forest Plan or just the Plan, this document guides the Management of a particular National Forest and establishes Management standards and guidelines for all lands of that National Forest.

**Land Use Designation (LUD)** – A defined area of land specific to which management direction is applied.

**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 large land area composed of interacting ecosystems that are repeated due to factors such as geology, soils, climate, and human impacts. Landscapes are often used for coarse grain analysis.

**Large Woody Debris (LWD):** Any large piece of relatively stable woody material having a diameter of at least 4 inches and a length greater than 3 feet that intrudes into the stream channel.

**Litter (forest litter):** The freshly fallen or only slightly decomposed plant material on the forest floor. This layer includes foliage, bark fragments, twigs, flowers, and fruit.

**Log transfer facility (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 Systems:** The equipment configuration employed for yarding logs; that is, moving the logs from the stump to the “landing,” the point on a road at which they are loaded on trucks for transportation from the unit. Logging Systems fall into the following main categories, in order of increasing cost:

Ground-based Systems:

Shovel logging: These mobile machines that travel throughout the unit to skid or swing logs to the landing. Common in Southeast Alaska is shovel logging, in which a log loader or “shovel” moves logs from the stump to the landing by repeatedly swinging the logs closer to the landing.

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**Cable Systems:** These consist of a stationary “yarder” at the landing; that is, a set of winches powering wire rope cables that travel through the top of an integrally mounted steel tower. The cables move logs to the landing, lifting the partly or completely clear of the ground through the lift provided by the tower. Because the equipment is stationary at the landing, and does not travel on the unit, site impacts are limited to soil and stream disturbance caused by dragging the logs.

**LUD:** See Land Use Designation.

**MAF-** Marine Access Facility

**MBF:** Thousand board feet (see board feet)

**Management action:** Any activity undertaken as part of the administration of the National Forest.

**Management direction:** A statement of multiple-use and other goals and objectives, the associated land use prescriptions, and standards and guidelines for attaining the desired condition of the Forest Plan.

**Management indicator species (MIS):** 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 which they may represent.

**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.

**Mass movement or mass wasting:** The down-slope movement of large masses of earth material by the force of gravity. Also called a landslide.

**Mass movement index (MMI):** Rating used to group soil map units that have similar properties with respect to the stability of natural slopes.

**Matrix:** The least fragmented, most continuous pattern element of a landscape; the vegetation type that is most continuous over a landscape.

**Mature timber:** Trees that have attained full development, especially height, and are in full seed production.

**Memorandum of Understanding (MOU):** An agreement between the Forest Service and others 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 climate of a small site. It may differ from the climate at large of the area due to aspect, tree cover (or the absence of tree cover), or exposure to winds.

**Middleground:** The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the landscape; area located from 1/4 mile to 3-5 miles from the viewer. (See “Foreground” and “Background.”)

**Mineral soil:** Soil that consists mainly of inorganic material, such as weathered rock, rather than organic matter.

**MIS:** See Management indicator species

**Mitigation:** Actions taken to avoid, minimize, or rectify the impact of a land Management activities.



**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).

**Monitoring and evaluation:** The periodic evaluation of forest Management activities to determine how well objectives were met and how Management practices should be adjusted. See “adaptive Management.”

**Mortality:** Trees dying from natural causes, usually by size class in relation to sequential inventories or subsequent to incidents such as storms or insect and disease epidemics. The term mortality can also refer to the rate of death of a species in a given population or community.

**Mosaic:** Areas with a variety of plant communities over a landscape, such as areas with trees and areas without trees occurring over a landscape.

**Motor Vehicle Use Map:** A map that reflects designated roads, trails, and areas on an administrative unit or a Ranger District of the National Forest System.

**MOU:** See memorandum of understanding

**Multiple-use Management:** The Management of all the various renewable surface resources of National Forest lands for a variety of purposes such as recreation, range, timber, wildlife and fish habitat, and watershed.

**Muskeg:** Muskeg is a wetland type (also called “peatland”) in Southeast Alaska that has developed over thousands of years in depressions, or flat areas on gentle to steep slopes.

These bogs have poorly drained; acidic, organic soils materials that support vegetation that can be either sphagnum moss or herbaceous plants. These vegetation types may have a lesser abundance of shrubs and stunted trees.

**National Environmental Policy Act (NEPA):** Congress passed NEPA in 1969 to encourage productive and enjoyable harmony between people and their environment. One of the major tenets of NEPA is its emphasis on public disclosure of possible environmental effects of any major action on public lands. Section 102 of NEPA requires a statement of possible environmental effects to be released to the public and other agencies for review and comment.

**National Forest Management Act (NFMA):** A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Forest Plans.

**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 other local public road authority.

**National Forest System Trail:** A forest trail other than a trail that has been authorized by a legally documented right-of-way held by a state, county or other local public road authority.

**National Register of Historic Places:** A register of cultural resources of national, state, or local significance, maintained by the 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. May be classified and administered under one or more of the following categories: Wild, Scenic, and Recreational.

**Natural resource:** A feature of the natural environment that is of value in serving human needs.

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**Net sawlog volume:** Trees suitable in size and quality for producing logs that can be processed into lumber. In Southeast Alaska, depending on the market, the volume may be processed as pulp or lumber.

**No action alternative:** The most likely condition expected to exist in the future if current proposed action or alternatives were not selected for the Logjam Timber sale.

**Non-game:** Wildlife species that are not hunted for sport, or subsistence.

**Notice of Intent (NOI):** A notice in the federal register of intent to prepare an environmental impact statement on a proposed action.

**Off-highway vehicle:** Any vehicle which is restricted by law from operating on public roads for general motor vehicle traffic; includes: motorbikes, mini-bikes, trail bikes, snowmobiles, dune buggies, all-terrain vehicles, and four-wheel drive, high clearance vehicles (FSM 2355.01).

**Old growth:** Old forests often containing several canopy layers, variety in tree sizes and species, decadent old trees, and standing and dead woody material.

**Old-growth reserve (OGR):** A contiguous unit of old-growth 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.

**Organic soil:** Soil at least partly derived from living matter, such as decayed plant material.

**Overstory:** The upper canopy layer; the plants below comprise the understory.

**Parent material:** The mineral or organic matter from which the upper layers of soil are formed.

**Partial cut:** Any cutting in which only part of the stand is harvested. This may include thinning, selection, shelterwood, or an overstory removal.

**Partial retention:** A visual quality objective which, in general, means man's activities may be evident but must rain subordinate to the characteristic landscape.

**Patch:** An area of homogeneous vegetation, in structure and composition.

**Personal use:** The use of a forest product, such as firewood, for home use and not for commercial use.

**Planning area:** The area of National Forest System controlled by a decision document.

**Plant communities:** An assemblage of plants that, in general, occur together on similar site conditions.

**Population viability:** Probability that a population will persist for a specified period of time across its range. 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:** Removing some of the trees from a stand that is too small to be sold for lumber or house logs, so the remaining trees will grow faster.

**Predator:** An animal that lives by preying on other animals. Predators are at or near the tops of food chains.

**Prescribed fire:** Fire set intentionally in wildland fuels under prescribed conditions and circumstances. Prescribed fire can rejuvenate forage for livestock and wildlife or prepare sites for natural regeneration of trees.

**Prescription:** A planned series of treatments designed to change current stand structure to one that meets management goals taking in consideration ecological, economic and societal constraints.

**Process Group:** A combination of similar stream channel types based on major differences in landform, gradient, and channel shapes.

**Productive:** The ability of an area to provide goods and services and to sustain ecological values.

**Productive old growth (POG):** Old-growth stands capable of producing 20 cubic feet per acre per year with 8,000 or more board feet per acre.

**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 land:** Land for which title and control rests with a government: Federal, state, regional, county, or municipal.

**Qualitative:** Relating to or involving comparisons based on individual qualities.

**Ranger district:** The administrative sub-unit of a National Forest that is supervised by a District Ranger who reports directly to the Forest Supervisor.

**Raptor:** A bird of prey, such as an eagle or hawk.

**RARE II:** Roadless Area Review and Evaluation. The national inventory of roadless and undeveloped areas, within the National Forests and Grasslands.

**Recharge:** The addition of water to ground water by natural or artificial processes.

**Record of Decision (ROD):** federal land Management A public document separate from be associated with and environmental impact statement that identifies all alternatives, provides the agency's final decision, the rationale behind the decision, and the agency's commitments to monitoring and mitigating.

**Recreation Opportunity Spectrum (ROS):** A System for planning and managing recreation resources that categorizes recreation opportunities into seven 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, tranquility, 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.

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**Semi-Primitive Non-motorized:** A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located at least 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 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, tranquility, 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 1/2 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer that 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 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 here is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquility 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 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 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 onsite 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 that 20 group encounters per day.

**Urban:** Urbanized environment with dominant structures, traffic lights and paved streets. This class may have natural appearing backdrop. Recreation places maybe 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 in recreation activities. They may be beaches, streamside areas, roadside areas, trail corridors, hunting areas, or the immediate area surrounding a lake, cabin site, or campground.

**Recreation Site:** A specific site and/or facility occurring within a Recreation Place.

Examples of recreation sites include: recreation cabins, trailheads, picnic areas, and wildlife viewing blinds.

**Red pipes:** Passage barriers to various life stages of fish, generally culverts placed improperly.

**Reforestation:** The reestablishment of forest cover either naturally or artificially (by direct seeding or planting).

**Regeneration:** The renewal of a tree crop by either natural or artificial means. The term is also used to refer to the young crop itself.

**Regional Forester:** The official of the USDA Forest Service responsible for administering an entire region of the Forest Service.

**Reserve trees:** Live or dead trees that are retained for various resource objectives such as wildlife, structural diversity, etc.

**Resident fish:** Fish that are not migratory and complete their life cycles in fresh water.

**Responsible official:** The Forest Service employee who has been delegated authority to make a specific decision.

**Restoration (of ecosystems):** Actions taken to modify an ecosystem to achieve a desired, healthy, and functioning condition.

**Retention:** The amount of commercial forest land removed from the timber base to protect other resources.

**Riparian area:** The area including a stream channel, lake or estuary bed, the water itself, and the plants that grow in the water and on the land next to the water.

**Riparian Management area (RMA):** 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

**Road** – A motor vehicle route over 50 inches wide, unless identified and managed as a trail (36 CFR 212.1).

**Road Decommissioning:** Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1), (FSM 7703).

**Road Construction or Reconstruction:** Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road.

**Road density:** The number of road miles per square mile of land area (miles per square mile)

**Roadless area:** An area of undeveloped public land where there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.

**Road Maintenance:** The ongoing upkeep of a road, necessary to retain or restore the road to the approved road Management objective (FSM 7712.3).

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**Road maintenance level:** The level of service maintained 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 vehicle traffic. The closure period is one year or longer. Basic custodial maintenance is performed.

Maintenance Level 2 – Assigned to roads open for use by high clearance vehicles.

Maintenance Level 3 – Assigned to roads maintained for passenger car use but not for comfort and convenience.

Maintenance Level 4 – Assigned to roads that provide moderate comfort and convenience at moderate speeds. Maintenance Level 5 – Assigned to roads that provide a high degree of comfort and convenience. Normally roads are double-laned and paved or aggregate surfaced with dust abatement.

**Road Management Objective (RMO):** Defines the intended purpose of an individual road based on Management Area direction and access Management directives. Road Management objectives contain design criteria, operation criteria and maintenance criteria.

**ROD:** See record of decision

**ROS:** See recreation opportunity spectrum.

**Rotation:** The number of years required to establish and grow timber crops to a specified condition of maturity.

**Sawtimber (sawlog):** Trees that are 9 inches in diameter at breast height or larger that can be made into lumber.

**Scale:** In ecosystem Management, it refers to the degree of resolution at which ecosystems are observed and measured.

**Scoping:** The ongoing process to determine public opinion, the agency receives comments and suggestions, and determine issues during the environmental analysis process. It may involve public meetings, telephone conversations, or letters.

**Sedge:** A family of plants with solid stems found in marshy areas.

**Seen Landscape:** Those areas visible from the most frequently used travel ways (boat route, recreation road, or trail), or use area (recreation cabin or anchorage).

**Sensitive species:** Plant or animal species which are susceptible to habitat changes or impacts from activities. The official designation is made by the USDA Forest Service at the Regional level and is not part of the designation of Threatened or Endangered Species made by the US Fish and Wildlife Service.

**Seral:** The stage of succession of a plant or animal community that is transitional. If left alone, the seral stage will give way to another plant or animal community that represents a further stage of succession.

**Shell Midden:** A term referring to shell and bone that have been discarded after harvest and processing for subsistence use.

**Silviculture:** The art and science of controlling the establishment, growth, composition, health, and quality of forests to meet the diverse needs and values of landowners and society on a sustainable basis.

**Silvicultural System:** A planned series of treatments whereby forests are tended, harvested, and replaced resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the process.

**Size class:** One of the three intervals of tree stem diameters used to classify timber in the Forest Plan data base. The size classes are: Seedling/Sapling (less than 5 inches in diameter); Pole Timber (5 to 9 inches in diameter); Sawtimber (greater than 9 inches in diameter)

**Slash:** The residue left on the ground after timber cutting or left after a storm, fire, or other event. Slash includes unused logs, uprooted stumps, broken or uprooted sts, branches, bark, etc.

**Snag:** A standing dead tree. Snags are important as habitat for a variety of wildlife species and their prey.

**Soil compaction:** The reduction of soil volume. For instance, the weight of heavy equipment on soils can compact the soil and thereby change it in some ways, such as in its ability to absorb water.

**Soil productivity:** The capacity of a soil to produce a specific crop. Productivity depends on adequate moisture and soil nutrients, as well as favorable climate.

**Sortyard:** A location used to sort grades, types, and size of logs.

**Special use permit:** A permit issued to an individual or group by the USDA Forest Service for use of National Forest System land for a special purpose. Examples might be a Boy Scout Jamboree or a mountain bike race.

**Stand:** A group of trees that occupies a specific area and is similar in species, age, and condition.

**Standards and guidelines:** Standard: A course of action or level of attainment required by the forest plan to promote achievement of goals and objectives.

**State Historic Preservation Office (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.

**Storage (of a road)** – Remove or bypass all drainage structures to restore natural drainage patterns, add water bars as needed to control runoff, and revegetate. This is intended to be the primary maintenance strategy applied on intermittent use roads during their storage cycle. Bridges and culverts on streams are completely roved to restore natural drainage patterns in this strategy. Cross drains and ditch relief culverts will be bypassed with deep water bars but left in place to minimize the cost of reusing these roads in the future. Due to the isolated nature of the road System, which makes maintenance costly and difficult, and their infrequency of use, storage is the most appropriate strategy for these roads. Maintenance Level 1, storage and basic custodial maintenance, is assigned. Storage eliminates car and truck use, and discourages use by other motor vehicles.

**Stream classes:** A means to categorize stream channels based on their fish production values. There are four stream classes on the Tongass National Forest. They are:

**Class I:** Streams and lakes with anadromous or adfluvial fish habitat; or high quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

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**Class II:** Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.

**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. These streams generally have bank-full widths greater than 5 feet and are highly incised into the surrounding hill slope.

**Class IV:** Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hill slope.

**Non-streams:** Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incision into the surrounding hill slope, and with little or no evidence of scour.

**Stumpage:** The value of the timber as it stands uncut in terms of an amount per unit area: synonym stumpage value.

**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 non-edible 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.

**Succession:** The natural replacement, in time, of one plant community with another. Conditions of the prior plant community (or successional stage) create conditions that are favorable for the establishment of the next stage.

**Successional stage:** A stage of development of a plant community as it moves from bare ground to climax. The grass-forb stage of succession precedes the woody shrub stage.

**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, and for which there is reasonable assurance that such lands can be adequately restocked, and for which there is management direction that indicated that timber production is an appropriate use of that area.

**Surface resources:** Renewable resources that are on the surface of the earth, such as timber and forage, in contrast to ground water and minerals which are located beneath the surface.

**Sustainable:** The yield of a natural resource that can be produced continually at a given intensity of management is said to be sustainable.

**Sustained yield:** The amount of renewable resources that can be produced continuously at a given intensity of management.



**Temporary Road or Trail:** A road or trail necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not included in a forest transportation atlas (36 CFR 212.1)

**Terrestrial ecosystems:** Plant communities that are not dependent on a perpetual source of water to grow.

**Thinning:** The practice of removing some of the trees in a stand, in a manner that the remaining trees will grow faster. The remaining trees grow faster because of reduced competition for nutrients, water, and sunlight. Thinning may also be done to change the characteristics of a stand for wildlife or other purposes. Thinning may be done at two different stages:

Precommercial thinning – Removing trees that are too small to make a merchantable product to improve tree spacing and promote more rapid growth.

Commercial thinning – Removing trees that have reached sufficient size to be manufactured into a product to improve tree spacing and promote more rapid growth.

**Threatened species:** A listed 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.

**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.

**Nonforest:** 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 nonforest use.

**Suitable:** Land to be managed for timber production on a regulated basis.

**Unsuitable:** Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.

**Timber Stand Improvement (TSI):** All non-commercial intermediate cuttings and other treatments to improve composition, condition, and volume growth of a timber stand.

**Tongass Timber Reform Act (TTRA):** This act (1990) requires annual appropriations for timber Management on the Tongass National Forest, with a provision providing for the multiple use and sustained yield of all renewable resources.

**Tractor logging:** A logging method that uses tractors to carry or drag logs from the stump to a collection point.

**Trail:** A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail.

**TSI:** See Timber Stand Improvement

**TTRA:** See Tongass Timber Reform Act

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**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.

**Two-aged Management:** A silvicultural method in which the majority of the trees in a harvest unit are cut in one entry, and the rest (about 10-20 percent of the unit) are left as residual trees, either singly or in patches. The residual trees remain unharvested to provide structural diversity and older-aged trees within the second-growth stand.

**Unauthorized Road or Trail:** A road or trail that is not a forest road or trail; or a temporary road or trail; and is not included in a forest transportation atlas.

**Understory:** The trees and woody shrubs growing beneath the overstory in a stand of trees.

**Unsuitable lands:** Forest land that is not managed for timber production. Reasons may be matters of policy, ecology, technology, silviculture, or economics

**Utility volume:** Logs that do not meet minimum requirements for sawtimber but are suitable for the production of usable chips.

**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.

**Variety class:** A way to classify landscapes according to their visual features. This System is based on the premise that landscapes with the greatest variety or diversity have the greatest potential for scenic value.

**Vegetation Management:** Activities designed primarily to promote the health of forest vegetation for multiple-use purposes.

**Viable population:** The numbers of individuals of a species sufficient to ensure the long-term existence of the species in natural, self-sustaining populations that are adequately distributed throughout their range.

**Viewshed:** An expansive landscape or panoramic vista seen from a road, marine waterway, or specific viewpoint.

**Visual Absorption Capacity (VAC):** The capability of the landscape to visually absorb Management activities: Landscapes are rated with high, moderate 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 middle ground are typically given a low VAC rating.

**Visual resource:** A part of the landscape important for its scenic quality. It may include a composite of terrain, geologic features, or vegetation

**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.

**WAA:** See Wildlife Analysis Area

**Water table:** The upper surface of ground water or that level below which the soil is saturated with water.

**Water yield:** The runoff from a watershed, including groundwater outflow.

**Watershed:** The entire region drained by a waterway (or into a lake or reservoir. More specifically, a watershed is an area of land above a given point on a stream that contributes water to the stream flow at that point.

**Wetlands:** Those areas that are inundated or saturated by surface water or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.

**Wild and Scenic River:** 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 ANILCA and TTRA.

**Wildlife Analysis Area (WAA):** A division of land used by the Alaska Department of Fish and Game for wildlife analysis.

**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.

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**Winter Range:** An area, usually at lower elevation, used by big game during the winter months; usually smaller and better defined than summer ranges.

**Yarding:** Moving cut trees from where they fell to a centralized place (landing) for hauling away from the stand.

**Young-growth:** Forest growth that has regenerated naturally or has been planted after some drastic interference (for example, clearcut harvest, serious fire, or insect attack) with the previous forest growth.

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## List of DEIS Recipients

The following agencies, organizations, and individuals were provided a copy of the Logjam Timber Sale DEIS. These parties either provided comments on the project, requested a copy of the EIS during the scoping process, or at some other time in the NEPA process, are part of the Forest Service's mandatory mailing list (Forest Service Handbook 1909.15, Sections 23.2 and 63.1) or are recognized municipalities or IRA tribes potentially affected by, or interested in, the Logjam project.

### Agencies

AK DNR, Office of Program Management & Permitting

Alaska Dept. of Environmental Conservation

Alaska Dept. of Environmental Conservation/Division of Water

Alaska Dept. of Fish & Game, Division of Subsistence

Alaska Dept. of Fish & Game, Division of Wildlife Conservation

Alaska Dept. of Fish & Game, Sport Fishing Division

Alaska Dept. of Natural Resources - Division of Forestry

Alaska Dept. of Natural Resources - Division of Water

Alaska Dept. of Natural Resources, Office of Program Management & Permitting

Alaska Dept. of Transportation

Division of Coastal and Ocean Management (DCOM)

Environmental Protection Agency, EIS Filing Section

EPA-Alaska Operations Office

EPA, Region 10 - NEPA Review Unit

National Archives and Records Administration

National Marine Fisheries Service

U.S. Army Corps of Engineers

U.S. EPA, Office of Federal Activities

US Fish & Wildlife Service

U.S. Forest Service, Chugach NF

US House of Representatives

USDA Forest Service, Admiralty National Monument

USDA Forest Service, Alaska Region, various

USDA Forest Service, Chugach National Forest

USDA Forest Service, Craig Ranger District

USDA Forest Service, Dir. of Forest Management

USDA Forest Service, Hoonah Ranger District

USDA Forest Service, Juneau Ranger District

USDA Forest Service, Ketchikan-Misty Ranger District

USDA Forest Service, Ketchikan Supervisor's Office

USDA Forest Service, Petersburg Ranger District

USDA Forest Service, Petersburg Supervisor's Office

USDA Forest Service, Sitka Ranger District

USDA Forest Service, Sitka Supervisor's Office  
 USDA Forest Service, Supervisor's Office  
 USDA Forest Service, Thorne Bay Ranger District  
 USDA Forest Service, Wrangell Ranger District  
 USDA Forest Service, Yakutat Ranger District  
 USDA National Agricultural Library  
 USDA Forest Service, Washington Office  
 USDI Bureau of Land Management  
 USDI Fish and Wildlife Service  
 USDI Office of Environmental Policy and Compliance

**Individuals**

B. Sachau  
 Dick Artley  
 John Clifton  
 Susan Domenowske  
 Jim McFarland  
 Jeanette Brucker

**Libraries**

Colorado State University Library  
 Craig Public Library  
 Forestry Library, University of Minnesota  
 Haines Public Library  
 Hollis Public Library  
 Hyder Public Library  
 Juneau Public Library

Kake Community Library  
 Kasaan Community Library  
 Ketchikan Public Library  
 Kettleson Memorial Library  
 Pelican Public Library  
 Petersburg Public Library  
 Quinney Library  
 Sheldon Jackson Library  
 Skagway Public Library  
 Tenakee Springs Public Library  
 Thorne Bay Community Library  
 USDA National Agricultural Library  
 Wrangell Public Library

**Organizations and Businesses**

Alaska Center for the Environment  
 Cascadia Wildlands Project  
 Center for Biological Diversity  
 Citizen's Advisory Council on Federal Areas  
 Columbia Helicopters, Inc.  
 Committee for Conservation of Forests and Wildlife  
 Forest Dwellers  
 Glacier Grotto  
 High Drive Drilling & Blasting  
 National Audubon Society, Alaska  
 Natural Resource Defense Council  
 Nature Conservancy in Alaska  
 Sitka Conservation Society  
 Sierra Club-Juneau Group  
 Sierra Club, Alaska Field Office

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Silver Bay Logging  
Southeast Alaska Regional Advisory Council, various  
Southeast Conference  
Tongass Conservation Society  
Alaska Rainforest Campaign  
Greenpeace  
SE Alaska Conservation Council  
Wilderness Society  
Wilderness Watch

## **Public Officials, Tribal Organizations and Cities**

Senator Lisa Murkowski  
Senator Ted Stevens  
Alaska State Governor, Sarah Palin  
City of Petersburg  
City of Port Alexander  
Mayor of Kupreanof  
Univ. of Alaska Land Mgmt.  
Ketchikan Gateway Borough  
Honorable Bert Stedman  
Chamber of Commerce - Petersburg  
Alaska State Representative Peggy Wilson  
Sealaska Corporation  
Douglas Indian Association  
Kake Tribal Corporation  
Organized Village of Saxman

## **List of Draft EIS Notification**

The following agencies, organizations, and individuals were sent a letter notifying them of the website location of the Logjam Timber Sale Draft EIS.

Alaska Forest Association  
Federal Aviation Administration (USDOT)  
Federal Highway Administration (USDOT)  
Kake Tribal Corporation  
Meridian Environmental  
National Marine Fisheries Service (USDOC)  
NOAA Office of Policy and Strategic Planning  
Petersburg Indian Association  
US Advisory Council on Historic Preservation  
US Army Engineers  
US Coast Guard  
USDA APHIS PPD/EAD  
USDA Natural Resources Conservation Service  
Woodbury Enterprise  
Federal Aviation Administration  
Federal Highway Administration  
Office of NEPA Policy & Compliance  
Federal Energy Regulatory Commission  
USDI Office of Env. Policy & Compliance



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# Appendix A

## Reasons for Scheduling the Environmental Analysis of the Logjam Timber Sale

Coordinated timber sale planning is essential for meeting the goals of the Tongass Land and Resource Management Plan (Forest Plan) and to provide an orderly flow of timber to local industry. To determine the volume of timber to offer each year, the Forest Service can look to current market conditions and the level of industry operations. However, the planning process for timber harvest projects requires the Forest Service to rely on projections of future harvest levels to decide how many timber sale projects to begin each year. This document explains how the Forest Service uses information about future markets and past experience with timber sale planning to determine the volume of timber that needs to be started through this process each year. This appendix relies heavily on the current annual timber demand analysis and the most recent timber sale schedule.

The purpose of this appendix is two-fold: first, to explain why this project was selected for inclusion into the Tongass Timber Program and second, to explain the basis and components of the Tongass Timber program. To accomplish this, the following questions are answered:

- How does the Logjam Timber Sale project fit into the Tongass Timber Sale Program?
- Why is timber from the Tongass National Forest being offered for sale?
- How does the Forest Service develop forecasts about future timber market demand?
- What steps must be completed to prepare a sale for offer?
- How does the Forest Service maintain an orderly and predictable timber sale program?
- How does the Forest Service decide where timber sale projects should be located?

## How does the Logjam Timber Sale project fit into the Tongass Timber Sale Program?

This project is currently in Gate 2, Project Analysis and Design (See Forest Service Handbook 2409.18, Chapter 30 and subsequent discussion about the Gate System) and involves environmental analysis and public disclosure as required by the National Environmental Policy Act (NEPA). The amount of volume considered for harvest under the action alternatives for the Logjam Timber Sale project ranges from 38 MMBF to 75 MMBF, with harvest potentially beginning in 2009. This volume would contribute to the Tongass timber sale program. A no-action alternative is also analyzed in this EIS. If an action alternative is selected in the decision for this project, this volume will be added to the volume available for sale. As displayed in Table 81, the goal for volume under analysis on the Tongass National Forest is 299 MMBF. Currently, the forest-wide volume under analysis is about 300 MMBF and includes the volume for this project.

# A Reasons for Scheduling

This project contributes to the timber sale program planning objective of providing an orderly flow of timber from planning through harvest to meet timber supply requirements. A position statement (Gate 1) was completed to document that this project warrants additional investment of funds and personnel. Therefore, it is reasonable to be conducting the environmental analysis for this project at this time.

This project meets all laws and regulations governing the removal of timber from National Forest System lands, including Forest Service policies as described in Forest Service manuals and handbooks, and the Forest Plan and Record of Decision. Based on current year and anticipated future timber demand, and the timber supply provisions of the Tongass Timber Reform Act, the Logjam Timber Sale project is needed at this time to meet timber sale needs identified on the approved multiple-year timber sale plan. Anticipated budget allocations and resources are sufficient to prepare and offer this project for sale as scheduled.

## Why is This Project Occurring in This Location?

Areas are selected for environmental analysis for timber harvest projects for a variety of reasons. The reasons this project was considered in this area include:

- The Logjam interdisciplinary team found from analysis of the existing condition in the Logjam project area that the area's roaded landscape, and tree species composition, and general tree quality provides opportunity for economic timber harvest.
- From this project area, a large amount of the available timber can be harvested using shovel or cable yarding systems without requiring extensive road construction.
- The entire project area is within 60 road miles of most Prince of Wales Island mills including those in Goose Creek Industrial Area in Thorne Bay, and the Viking Mill in Klawock.
- The project area is within reasonable access to Marine Access Facilities for any potential bidder in Southeast Alaska. This makes the area well suited to contribute to a reliable flow of timber to the forest products industry.
- Southeast Alaska and more locally the Prince of Wales Island area have experienced a significant decline in manufacturing and natural resource employment. This decline has been mirrored by a decline in sawmill industry production and harvest levels. Therefore, a need exists for a reliable economic supply of sawtimber for Southeast Alaska mills to prevent current levels of industry and employment from further decline.
- Alaska mills support timber industry, employment, and contribute to the local and regional economies of Prince of Wales Island and Southeast Alaska. The underlying need for the project comes from the Forest Service need to meet demand from industry annually and during the planning cycles; the timber industry includes large and small timber purchasers, mill operators, and the value-added wood product industries in Southeast Alaska who are dependant upon a reliable supply of sawtimber in the region and on Prince of Wales Island.

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- The Tongass Forest Plan has multiple-resource goals and objectives including timber management for commercial use.
- The Logjam project area, 56,130 acres, has approximately 40,000 acres of development Land Use Designations (LUDs) where timber harvest is allowed and 21,000 acres where timber management is the goal and objective of the Management Prescription. Within these development LUDs, there are 12,730 suitable acres.
- The project area is connected by road system to eight communities with sawmills. Most of these communities have historically had timber harvesting and manufacturing as part of their economy. Many of these mills, though small, represent substantial amount of income for the community.
- Three existing LTFs, Coffman Cove, Naukati, and Thorne Bay, are available to transport logs to saltwater for off island purchasers.
- Up to 125 miles of road would receive road maintenance through the timber sale contracts.

Although two Inventoried Roadless Areas (IRAs) are partially within the project area, these IRAs were identified as part of Phase 1 of the Tongass Adaptive Management Strategy in the 2008 Forest Plan Amendment decision. Timber harvest can occur in these at this time if allowed by the Forest Plan LUD.

The small Old-growth LUDs were reviewed by the interagency biologists during with the Forest Plan Amendment process and the decision was made on the size and location. No further reviews are required (Forest Plan, Appendix K).

No logging camp will be necessary because of the proximity to established communities.

The forest products industry has been a vital part of the economy of Southeast Alaska since the 1950s. The Forest Service timber sale program endeavors to provide a continued flow of timber to the forest product industry. Coordinated timber sale planning is essential for meeting the goals of the Forest Plan and to provide an orderly flow of timber to local industry. Seeking to meet timber demand for the Tongass National Forest is required by Section 101 of the 1990 Tongass Timber Reform Act (TTRA) which states that, "...to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle." The determination of market demand and implementation of TTRA is measured periodically.

In conclusion, this project area can provide a mixture of uses in compliance with the laws that govern National Forest management and be consistent with current Forest Direction.

# **A** Reasons for Scheduling

## **Why is Timber from the Tongass National Forest Being Offered for Sale?**

### **National Legislation**

On a national level, the legislative record is clear about the role of the timber program in the multiple-use mandate of the national forests. One of the original objectives for creation of national forests was to provide natural resources, including timber, for the American public. The Organic Administration Act of 1897 (partially repealed in 1976) directed the agency to manage the forests in order to "improve and protect the forest ... [and] for the purpose of securing favorable conditions of water flows, *and to furnish a continuous supply of timber* for the use and necessities of the citizens of the United States" (emphasis added). The Multiple-Use Sustained Yield Act of 1960 directs the Forest Service to administer federal lands for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes."

The National Forest Management Act (NFMA) of 1976 states that "the Secretary of Agriculture...may sell, at not less than appraised value, trees, portions of trees, or forest products located on National Forest System Lands." Although the heart of the Act is the land management planning process for national forests, the Act also sets policy direction for timber management and public participation in Forest Service decision making. Under NFMA, the Forest Service was directed to "limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis."

The NFMA directs the Forest Service to complete land management plans for all units of the National Forest System. Forest plans are developed by an interdisciplinary team to provide for the coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. Forest plans designate areas of national forest where different management activities and uses are considered appropriate including those areas suitable for timber harvest.

### **Alaska-Specific Legislation**

Timber from the Tongass National Forest is being offered for sale as part of the multiple-use mission of the Forest Service identified in the public laws guiding the agency. In addition, Alaska-specific legislation and the Tongass Forest Plan direct the Forest Service to seek to provide timber to meet market demand, subject to certain limitations.

The Alaska National Interest Lands Conservation Act (ANILCA) and the Tongass Timber Reform Act (TTRA) provide direction on the issue of Tongass timber supply. Section 101 of TTRA amended the ANILCA timber supply mandate and fixed budget appropriations and replaced them with the following text in Section 705 (a):

"Sec. 705. (a) Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act of 1976 (P.L. 94-588); except as provided in subsection (d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from



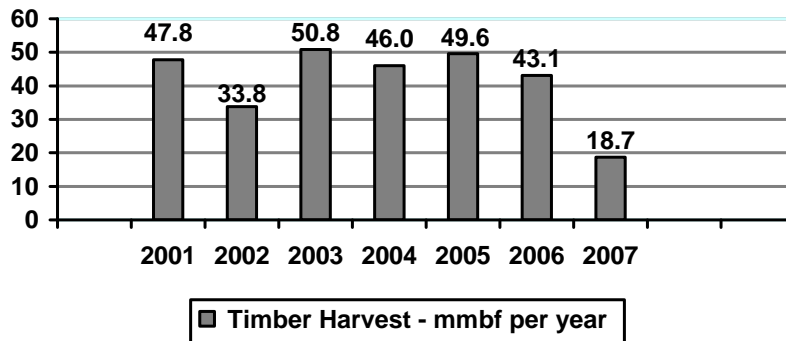
the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle.”

## Tongass National Forest Land and Resource Management Plan (Forest Plan, as amended)

The Tongass Land Management Plan was completed in 1979 and revised in 1997. The Record of Decision (ROD) for the 2008 Tongass Land Management Plan Amendment (Forest Plan) was signed by the Alaska Regional Forester January 23, 2008. The Forest Plan incorporates new resource information and scientific studies and reflects an extensive public involvement process. The 2008 Forest Plan defines appropriate activities within each of 19 land use designations (LUDs). Approximately 79 percent of the Tongass was allocated to LUDs where scheduled commercial timber harvest is not allowed. The 2008 Forest Plan establishes the annual average Allowable Sale Quantity (ASQ, the maximum amount of timber that may be offered for sale) at 267 million board feet (MMBF). This is the same as the ASQ established for the previous Forest Plan in 1997. While technically a limit on sale volume, in effect the ASQ also limits the amount of timber that may be harvested on the Tongass National Forest.

The environmental effects analysis in the Final EIS for the 2008 Forest Plan assumed the maximum timber harvest allowed under each alternative would occur annually over the next 100 to 150 years. In that way, the Forest Plan analysis displayed the maximum environmental effects that could be reasonably foreseen. However, substantially less timber volume and acres have actually been harvested over the last several years than the maximum level allowed under the 1997 Forest Plan (see Figure 4). Thus, the effects on resources are expected to be less than projected in the 2008 Final EIS for the Forest Plan Amendment.

Figure 4  
Tongass Timber Harvest, 2001-2007



The Record of Decision for the 2008 Forest Plan Amendment includes transition language for projects that were being planned when the Forest Plan was completed. That language identifies three different categories of projects, depending on how far along they were in the project planning process when the Forest Plan Amendment was completed, and specifies the extent to which projects in each category must comply with the amended Forest Plan. The transition language lists this project as being in Category 2, which requires the Forest Supervisor to review the project and incorporate the new direction in the amended Forest Plan

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to the extent this can be done without causing major disruptions in the implementation of the project. Information on the inclusion of the 2008 direction is included as appropriate in the Logjam Timber Sale Final EIS and will be included in the decision.

## **Timber Sale Program Adaptive Management Strategy**

To further balance the competing demands and respond to requests for additional protection of roadless areas, the Record of Decision for the 2008 Forest Plan Amendment also approved the Timber Sale Program Adaptive Management Strategy. The Strategy is based on three critical factors:

The long-term demand for timber from the Tongass is inherently very uncertain, and is influenced by the ability of all interested parties to work together to stabilize the timber supply.

The annual average ASQ of 267 MMBF is considerably higher than the current level of timber harvest on the Tongass.

The land base associated with the ASQ includes roadless areas, many of which are highly valued by substantial portions of the public.

Under the Timber Sale Program Adaptive Management Strategy, actual operation of the timber sale program will be implemented in three phases, as determined by actual timber harvest levels.

In Phase 1, the timber program will be restricted to a portion of the suitable land base focusing on the roaded portion and some lower-value roadless areas and excludes moderate and higher-value roadless areas.

The Phase 1 portion includes approximately 537,000 suitable acres, or 69 percent of the total suitable land base. Should the actual level of timber harvest reach 100 MMBF for 2 consecutive fiscal years, the Tongass could then plan for timber projects in the Phase 2 portion of the approved suitable land base, resulting in a program that operates on 680,000 acres of suitable lands, including some moderate-value roadless areas. Not all of these suitable acres are scheduled for timber harvest during the life of this Forest Plan. If timber harvest reaches 150 MMBF for 2 consecutive fiscal years, the Tongass could then plan for timber projects in Phase 3, which includes the entire suitable land base. The Logjam Timber Sale project is located in the Phase 1 portion of the suitable land base; accordingly, planning and implementation of it may proceed under the Timber Sale Program Adaptive Management Strategy.

## **Roadless Area Conservation Rule**

The January 2001 Roadless Area Conservation Rule prohibited most timber harvest and road construction in inventoried roadless areas on National Forest System lands. The Roadless Rule has been the subject of several lawsuits. In the most recent court ruling (9/20/06), the court re-instituted the 2004 version of the Roadless Rule, including 36 CFR Part 294.14(d): "this subpart does not apply to road construction, road reconstruction, or the cutting, sale or removal of timber in inventoried roadless areas on the Tongass National Forest". Accordingly, the Tongass National Forest is exempt from the Roadless Rule's prohibitions against timber

harvest, road construction, and reconstruction in inventoried roadless areas. Such activities may occur on the Tongass where allowed by the 2008 Forest Plan.

An analysis of the effects to roadless areas within the project area has been included as part of the analysis for this project. This project is consistent with agency policy and procedures and has been designed to meet the management direction, goals and objectives, and standards and guidelines in the Forest Plan.

### **How Does the Forest Service Develop Forecasts about Future Timber Market Demand?**

Consistent with the provisions of the Tongass Timber Reform Act, the Forest Service makes two types of forecasts of market demand for timber from the Tongass National Forest. The first, “planning cycle market demand,” forecasts the long-term demand for timber from the Tongass over the life of the Forest Plan, derived from trends in international demand for end products manufactured from such timber. Based on these long-term projections, the Forest Service also estimates annual market demand in order to determine how much timber to plan to offer for sale.

#### **Market Demand for the Planning Cycle**

Research economists with the Forest Service’s Pacific Northwest (PNW) Research Station have prepared several studies of “planning cycle market demand” for Tongass timber, including three General Technical Reports by Brooks and Haynes (1990, 1994, and 1997). In 2006, the PNW Research Station published new harvest projections (Brackley et al. 2006). This report and an addendum to it (Brackley and Haynes, in press) provided key information for the 2008 Forest Plan Amendment.

The Brackley et al. 2006 projections include four scenarios: 1) limited lumber production, which represents the situation the timber industry in Southeast Alaska has faced over the last several years; 2) expanded lumber production, which assumes some form of demand stimulus occurs; 3) medium integrated industry, which assumes sufficient demand stimulus occurs to cause an expansion of the current industry capacity and better utilization of forest products removed from public timber sales; and 4) high integrated industry, assumes some kind of additional demand stimulation to result in full utilization of all types of forest products available from the Tongass. More detailed information about these scenarios and their assumptions is in the Forest Plan Amendment Final EIS and ROD (January 2008), and in Brackley and Haynes (in press).

The Brackley et al. 2006 study displays alternative projections of derived demand for timber from the Tongass National Forest. For the first two scenarios, which assume no market for low-grade sawlogs and utility volume, the figures in that table includes sawtimber only. For the two integrated industry scenarios, the projections include total volume, including both sawlogs and utility. Utility volume must be cut down along with higher-quality timber even if there is no demand for it. It is the total volume of timber cut on the Tongass that is of most interest, in part because environmental effects result from total volume cut. In addition, any

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comparison of scenarios must be based on comparable figures. Accordingly, the table below shows Brackley et al. 2006 projections for all four scenarios in terms of total volume:

Table 80—Tongass National Forest Timber Sale Volume Necessary to Supply Derived Demand for Decked Log Volume and Chips, in Million Board Feet (MMBF); (Alexander, 2008)

Year	Scenario 1 Limited lumber	Scenario 2 Expanded lumber	Scenario 3 Medium integrated	Scenario 4 High integrated
2007	49.8	61.9	67	67
2008	49.8	66.4	139	139
2009	51.3	72.4	151	151
2010	52.8	78.5	166	166
2011	52.8	84.5	184	184
2012	54.3	90.5	204	286
2013	55.8	98.1	204	291
2014	57.3	105.6	204	295
2015	58.9	113.2	204	299
2016	58.9	122.2	204	303
2017	60.4	131.3	204	308
2018	61.9	140.3	204	312
2019	63.4	150.1	204	317
2020	64.9	163.0	204	325
2021	66.4	175.0	204	333
2022	67.9	187.1	204	342
2023	69.4	200.7	204	351
2024	70.9	215.8	204	360

<sup>a</sup> Annualized calculation to fulfill derived demand scenarios from Brackley et al. (2006). This table was created using annualized values provided by Dr. Allen Brackley (personal communication, Nov 29 2006) from the model used to develop derived demand estimates in Brackley et al. (2006). The values for Limited Lumber Scenario and Expanded Lumber scenarios reported in this table have been adjusted to include low quality material not included in the demand projections and include saw logs, cedar export, and utility (chip) volumes available from sawmill production. The Medium and High Integrated Scenarios are not adjusted and include saw logs, cedar exports, chip volumes, low-grade material, and utility in Brackley et al. (2006).

After the Brackley et al. 2006 study was published, the Regional Forester approved a policy under which timber purchasers may ship to the lower 48 states unprocessed certain small-diameter and low-quality logs harvested from the Tongass, up to 50 percent of the volume harvested on each sale. This policy creates a market opportunity for low-quality material that the Brackley et al. 2006 study assumed would not be utilized under scenarios 1 and 2. In response to the new interstate shipment policy and other recent events, the Brackley and Haynes addendum to the 2006 study concludes that “[D]emand for national forest timber in Alaska is on a trajectory more similar to the scenario 2 (expanded lumber production).”

## Annual Market Demand

The annual market demand forecast is a methodology used to set the short-term goals for the Tongass timber sale program –the volume the Forest plans to offer for sale in the current year pending sufficient funding.

The formulas and procedures used in forecasting annual market demand are described in a Forest Service report titled *Responding to the Market Demand for Tongass Timber* (Morse, 2000). These procedures, which have become known as the “Morse methodology,” are based on the premise that:

Forest product markets are volatile, especially in the short run.

Timber purchasers in Southeast Alaska have few alternative suppliers of timber if they cannot obtain it from the Tongass National Forest. Oversupplying this market has relatively few adverse economic effects; undersupplying it can have much greater negative economic consequences.

- It takes years to prepare National Forest timber for sale, including completion of environmental impact statements.
- It is difficult to estimate demand for timber from the Tongass, even a year or two in advance.
- Industry must be able to respond to rapidly changing market conditions in order to remain competitive.

Accordingly, the Morse methodology establishes a system that considers factors such as mill capacity and utilization of that capacity, and seeks to build and maintain sufficient volume of timber under contract (i.e., timber purchased but not yet harvested) to allow the industry to react promptly to market fluctuations. Industry actions such as annual harvest levels are monitored and timber program targets are developed by estimating the amount of timber needed to replace volume harvested from year to year. The methodology is adaptive, because if harvest level drop below expectations and other factors remain constant, future timber sale offerings would also be reduced to levels needed to maintain the target level of volume under contract. Conversely, if harvest levels rise unexpectedly, future timber sale targets would also increase sufficiently to ensure that the inventory of volume under contract is not exhausted. By dealing with uncertainty in a flexible, science-based fashion, the Morse methodology is an example of adaptive management.

The Morse methodology originally used the projected harvest from the final 1997 Brooks and Haynes report. These procedures were recently updated (Alexander, 2008) to use the annual projected harvest figures from Brackley et al. 2006 in calculations of annual timber offer targets. No further changes to the Morse methodology were required as a result of the updated long-term demand projections contained in the Brackley et al. study.

Using the updated annual market demand procedures, the Forest Service has set a goal for volume to be offered in FY 2008 of 124 MMBF. This figure was calculated using the Brackley et al. 2006 “expanded lumber scenario.” The actual volume of timber offered for sale reflects a combination of factors, such as final budget appropriations, completing the NEPA process; the practice of offering smaller sales for smaller operators rather than all the

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volume from a NEPA decision, the statutory requirement that timber sales offered in the Alaska Region appraise positive, and volume enjoined from being offered because of litigation. The spreadsheet displaying the annual demand calculation and a summary of the factors used in these calculations are in the project record.

The planned annual timber volume offer could include a combination of new, previously offered, and reconfigured timber sales. Both green timber and salvage will be components of the program. Offerings will consist of those targeted for Small Business qualified firms, as well as a portion of the volume being made available for the open market.

For planning and scheduling purposes, the Tongass uses a 5-year timber sale plan, which is consistent with Forest Service Manual 2430. This 5-year plan is based on completed and ongoing environmental analyses and contains information to purchasers and other interested parties, and provides a plan that can be adjusted in response to changing market conditions.

Both the “annual market demand” and the “planning cycle market demand” projections are important for timber sale program planning purposes. They provide guidance to the Forest Service to request budgets, to make decisions about workforce and facilities, and to indicate the need to begin new environmental analysis for future program offerings. They also provide a basis for expectations regarding future harvest, and thus provide an important source of information for establishing the schedule of probable future sale offerings. The weight given to the projections will vary depending on a number of factors, such as how recently they were done and how well they appear to have accounted for recent, site-specific events in the timber market.

## **What Steps Must Be Completed to Prepare a Sale for Offer?**

The Tongass National Forest’s timber sale program is complex. A number of projects are underway at any given point in time, each of which may be in a different stage of planning and preparation. A system of checkpoints, or “gates”, helps the Forest Service track the accomplishments of each stage of a project from inception to contract termination.

### **Gate 1 – Initial Planning of Timber Sale Project**

A Timber Sale Project Plan, often referred to as a Position Statement, is a brief analysis of the project area with the intent of determining the feasibility of a potential timber sale. After the Position Statement is developed, the Forest Service decides whether the project area merits continued investment of time and funds in sale planning.

### **Gate 2 – Project Analysis, Sale Area Design, and Decision**

This step is commonly referred to as the “NEPA” phase and includes field work, public scoping, analysis, draft disclosure of the effects of the project on the environment, public comment, final analysis and disclosure, decision, and potentially administrative appeals and litigation. Gate 2 activities must be completed before a sale is awarded. Legislation, policy changes, and appeals and litigation have recently extended completion of some projects for a much longer timeframe, often doubling the desired time frame.

## **Gate 3 – Preparation of a Timber Sale**

During this step, the information and direction included in the decision document from Gate 2 is used to layout units and design roads on the ground. Additional site-specific information is collected at this time. In order to maintain an orderly flow of sales, Gate 3 activities need to be complete before a sale is advertised.

## **Gate 4 – Advertise a Timber Sale**

The costs and value associated with the timber sale designed in Gate 3 are appraised and packaged in a timber sale contract. The contract is a legally binding document that tells a prospective timber sale purchaser how the sale must be harvested to conform to the project decision document. This step occurs during the final year of the project development and culminates with the advertisement of the project for sale.

## **Gate 5 – Bid Opening**

Gate 5 is completed with the opening of bids for the project. If a bid is submitted, contractual provisions govern when the award of the sale takes place, when the sale will be completed (contract length and operation season), and how timber removal is to occur.

## **Gate 6 – Award a Timber Sale Contract**

Gate 6 is the formal designation of a contract between a bidder and the Forest Service.

## **How Does the Forest Service Maintain an Orderly and Predictable Timber Sale Program?**

### **Pools of Timber (Pipeline Volume)**

As discussed earlier, the Forest Service tracks the accomplishment of the different steps of development of each timber sale with the Gate System (Forest Service Handbook 2409.18). From a timber sale program standpoint, it is also necessary to track and manage multiple projects as they move through the Gate System. Because of the timeframes needed to accomplish a given timber sale and the complexities inherent in timber sale project and program development, it is necessary to track various timber sale program volumes from Gate 1 through Gate 6.

The goal of the Tongass National Forest is to provide an even flow of timber sale offerings on a sustained-yield basis to meet market demand. In recent years, this has been difficult to accomplish due to a combination of uncertainties such as delays related to appeals and litigation; changing economic factors, such as rapid market fluctuations; and industry-related factors, such as changes in timber industry processing capabilities. To achieve an even flow of timber sale offerings, ‘pools’ of volume in various stages of the Gate System are maintained so volume offered can be balanced against current year demand and market cycle projections.

Today, upward trends in demand are resolved by moving out-year timber projects forward, which may leave later years not capable of meeting the needs of the industry. In other instances, a number of new projects are started based on today’s market but will not be

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available for a number of years. By the time the added projects are ready for offer, the market and demand for this volume may have changed. Three pools of timber volume are tracked to achieve an even flow of timber sale offerings.

The objective of the timber pools concept is to maintain sufficient volume in preparation and under contract to be able to respond to yearly fluctuations in a timely manner. Refer to Table 81, which displays the current estimated volume in each pool, as well as the goal for volume to be maintained in each pool, based on historic patterns. Based on historic patterns, the Tongass has established a goal for the volume to be maintained in each of the timber pools. Appeals and litigation can cause timber sale projects to be reevaluated to ensure they meet current standards and direction, which can cause delays in making projects available to move through the pools, thereby not fully meeting the goals for volumes in each pool.

## **Pool 1 - Timber Volume under Analysis (Gate 1 and Gate 2)**

Volume in Gate 1, the initial planning step, represents a large amount of volume, but represents a relatively low investment in each project. This relatively low investment level offers the timber program manager a higher degree of flexibility and thus, does not greatly influence the flow of volume through the pipeline. A signed Project Plan (FSH 2409.18, Chapter 20) is the completion of this gate.

Gate 2, timber volume under environmental analysis, includes sales being analyzed and undergoing public comment through the NEPA process. This pool includes any project that has started the scoping process through those projects ready to have a decision issued. In addition, tracking how much volume is involved in appeals or litigation may be necessary to determine possible effects on the flow of potential timber sales. A signed NEPA decision (FSH 2409.18, Chapter 30) is the completion of this gate. Volume affected by appeals and litigation is tracked as a subset of this pool (Table 82).

## **Pool 2 - Timber Volume Available for Sale (Gates 3, 4 and 5)**

Timber volume available for sale includes sales for which environmental analysis has been completed, and have had any administrative appeals and litigation resolved. Enough volume in this pool is needed to be maintained to be able to schedule future sale offerings of the size and configuration that best meets market needs in an orderly manner.

As a matter of policy and sound business practice, the Forest Service announces probable future sale offerings through the Periodic Timber Sale Announcement. Delays at Gate 2 have affected sale preparation (Gate 3) and have made scheduling of sales uncertain. At Gate 4, sales have been fully prepared and appraised, and are available to managers to advertise for sale. This allows potential purchasers an opportunity to do their own evaluations of these offerings to determine whether to bid, and if so, at what level.

Timber in this pool can include a combination of new sales, previously offered unsold sales, and remaining volume from cancelled sales. The goal is to maintain Pool 2 at approximately 1.3 times the amount of the projected harvest to allow flexibility in offering sales.

## **Pool 3 - Timber Volume Under Contract (Gate 6)**

Timber volume under contract contains sales that have been sold and a contract awarded to a purchaser, but which have not yet been fully harvested. Contract length is based on the



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amount of timber in the sale, the current timber demand, and the accessibility of the area for mobilization. The longer the contract period, the more flexibility the operator has to remove the timber based on market fluctuations. Timber contracts typically initially give the purchaser 3 years to harvest and remove the timber purchased; however, they can be extended under certain circumstances, such as inoperable periods of weather, injunctions, and other contractual delays.

The Tongass attempts to maintain roughly 3 years of unharvested volume under contract to the industry as a whole. This volume of timber is the industry's dependable timber supply, which allows adaptability for business decisions. This practice is not limited to the Alaska Region, but is particularly pertinent to Alaska because of the nature of the land base. The relative absence of roads, the island geography, the steep terrain, and the consequent isolation of much of the timber land means that timber purchasers need longer-than-average lead times to plan operations, stage equipment, set up camps, and construct roads prior to beginning harvest.

A combination of projected harvest and projected demand is used to estimate the volume needed to maintain an even-flow timber sale program. As purchasers harvest timber, they deplete the volume under contract. Timber harvest is then planned and offered by the agency as sales that give the industry the opportunity to replace this volume and build or maintain their working inventory. Although there will be variation for practical reasons from year to year, in the long-run over both the high points and low points of the market cycle, the volume harvested will equal the timber volume sold, excluding cancelled sales.

The goal for Pool 3, volume under contract, is to maintain timber volume at approximately three times the amount of annual projected harvest. This allows the purchasers to have a continuous supply of timber volume available for harvest so they can plan their operations and be flexible to allow for weather conditions and market fluctuations.

**Table 81**  
**Accomplishments in Gate System and Timber Pools (MMBF)**

Pipeline Pool Volume	2008 Goal	FY 08 (as of 01/23/08)
Pool 1 Volume Under Analysis (Gate 1 and 2)	299 <sup>a</sup>	300
Pool 2 Volume Available for Sale (Gate 3, Gate 4 and Gate 5)	86 <sup>b</sup>	142 <sup>c</sup>
Pool 3 Volume Under Contract (Gate 6)	199 <sup>d</sup>	108 <sup>e</sup>

<sup>a</sup> The goal for volume under analysis is approximately 4.5 times the projected harvest for the current year (66.4 MMBF for 2008 based on expanded lumber scenario). Volume under analysis includes all volume in projects from the Notice of Intent through completion of the environmental analysis for sales planned.

<sup>b</sup> The goal for volume available for sale is to have at least 1.3 times the projected harvest for the current year (66.4 MMBF) in sales that have approved NEPA and completion of timber sale preparation.

<sup>c</sup> As of the date in the table, it is estimated about half of this volume can not be offered since it currently appraises deficit (2008 Appropriations Bill P.L. 110-161, H. Rept. 110-497, Sec. 411). Also, about a quarter of the projects are designed to provide volume for small sales over a period of time and would affect the volume available for offer. About 14 percent of the volume is in settlement agreements. As a result, less than half of the Pool 2 volume is readily available for sale. This figure

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also does not include volume under litigation – see Table A-3.

<sup>d</sup> The goal for volume under contract is for purchasers to have 3 times the volume under contract as projected for harvest for the current year (66.4 MMBF).

<sup>e</sup> Estimated volume under contract available for harvest (not including timber enjoined from harvest or sales that have had mutual cancellation requests granted).

## How Appeals and Litigation Affect the Timber Sale

Timber harvest projects require site-specific environmental analysis that usually is documented in an environmental assessment (EA) or an environmental impact statement (EIS). The public is notified of the analysis and is provided the opportunity to comment on proposals and file an appeal on decisions. The administrative appeal process for most timber harvest projects takes up to 105 days before implementation to occur.

When decisions are appealed and affirmed through the administrative appeal process, the project can still be litigated. Litigation can be a lengthy process. Although litigation does not preclude offering timber for sale, the Forest Service and potential purchasers are often reluctant to enter into a contract where the outcome is uncertain. Recently, sales were enjoined from harvest after the contracts were awarded. The outcome of litigation affects the Forest's ability to provide a reliable timber supply.

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Table 82  
Timber Volume Involved in Appeals and/or Litigation <sup>a</sup>

Timber volume with decision reversed on appeals <sup>b</sup>	0 MMBF
Timber volume involved with litigation	24 MMBF

<sup>a</sup> As of January 23, 2008.

<sup>b</sup> Decision overturned during internal review. Does not include volume in decisions currently in the appeal period or undergoing an appeal review.

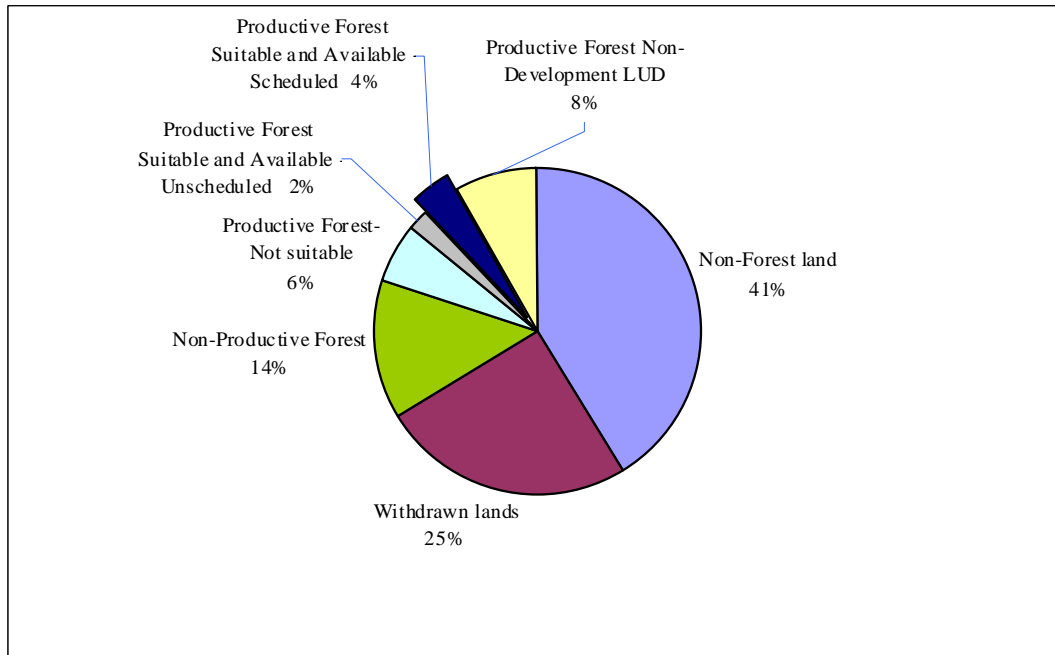
## How Does The Forest Service Decide Where Timber Harvest Projects Should Be Located?

The location of timber sale projects is based first on the land allocation decisions in the Forest Plan. Under the 1997 Forest Plan, lands designated for possible timber harvest are in the development land use designations (LUDs), primarily the Timber Production, Modified Landscape, and Scenic Viewshed LUDs.

### Timber Resource Land Suitability

The second consideration is the suitability of the land for timber production. Many acres within the development LUDs are not suitable for timber production due to poor soils or steep slopes. The process for determining the suitability of the land is found in the 2008 Forest Plan Amendment, Appendix A. Figure 5 depicts the classification of all the lands within the Tongass National Forest. Four percent of the Tongass land base, the suitable, available and scheduled forest land, provides the land base for the Allowable Sale Quantity of 267 MMBF per year. Under the 2008 Forest Plan, the remainder of the land, approximately 96 percent or 663,000 acres, is not physically suitable, does not allow timber harvest, or is not scheduled.

**Figure 5**  
2008 Forest Plan Timber Resource Suitability Analysis



Non-Forest land – Land that has never supported forests, e.g. muskeg, rock, ice, etc.

Withdrawn Lands – Lands designated by Congress, the Secretary of Agriculture, or Chief for purposes that preclude timber harvest, e.g. Wilderness Areas.

Non-productive Forest – Forest land not capable of producing commercial wood on a sustained yield basis.

Productive Forest, Not suitable, Physical Attributes – Forest land unsuitable for timber due to physical attributes (steep slopes, soils, etc.) and/or inadequate information to ensure restocking of trees within five years of final harvest.

Productive Forest, Not Suitable, Non-development LUD – Productive forest lands where timber production is not allowed due to Forest Plan land use designation, e.g. Semi-Remote Recreation, Old-growth Habitat, etc.

Productive Forest, Suitable and Available, Scheduled – Forest land that meets all the criteria for timber production suitability and is available and is scheduled by the Forest Plan over the planning horizon.

Productive Forest Suitable and Available Unscheduled – Forest land that meets all the criteria for timber production suitability, is available for harvest, however was not scheduled in the Forest Plan model for harvest includes the model implementation reduction factor (MIRF) acreage of 226, 000 acres.

## District-Level Planning

The Tongass National Forest is divided into ten ranger districts. As described in the 2008 Forest Plan Amendment ROD, under the Timber Sale Program Adaptive Management Strategy, the timber sale program will be implemented in three phases as determined by actual timber harvest levels. For current planning and scheduling purposes, the Forest will operate on the Phase 1 portion of the suitable land base, capable of supporting a sustained harvest of 150 MMBF annually. Personal use of timber, micro sales, salvage sales, small commercial timber sales generally less than one MMBF, young-growth management projects, and the roads associated with these activities, would be allowed in development LUDs outside of the Phase 1 portion of the ASQ land base.

The Forest Supervisor for the Tongass National Forest is responsible for the overall management of the Forest’s timber sale program. Included within these responsibilities is

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making the determination on the amount of timber volume to be made available to industry. Whether or not sufficient funding is appropriated to attain the program is the responsibility of the Congress and the President.

District Rangers develop a timber sale plan of potential timber harvest projects. The goal of the plan is to attain the targeted offer level for the current year, based on the estimated annual market demand, and to develop a timber program for several years of the planning cycle. The offer level for the current year is based, to the extent possible, on the forecasted annual market demand. Actual demand may fluctuate from year to year due to short-term market fluctuations. Actual offer levels vary year to year depending on several factors, including volume in Gates 3 through 5, and current market conditions.

The District Ranger is responsible for identifying and recommending the project areas for the 5-Year Timber Sale Plan. The Ranger's role is to develop and recommend to the Forest Supervisor timber harvest projects that meet Forest Plan goals and objectives. Districts work on various timber sale projects simultaneously, resulting in continual movement of projects through the stages of the timber program pipeline. This schedule allows the necessary time to complete preliminary analysis, resource inventories, environmental documentation, field layout preparations and permit acquisition, appraisal of timber resource values, advertisement of sale characteristics for potential bidders, bid opening, and physical award of the timber sale. Project delays through the completion of Gate 2 attributable to legal injunctions and litigation have affected the offer level in recent years. Once all of the Rangers' recommendations are made and compiled into a consolidated schedule, the Forest Supervisor is responsible for the review and approval of the final timber sale plan and prioritization of projects as necessary.

Considerations the District Ranger takes into account for each project include:

- If the project area contains a sufficient number of suitable timber production acres allocated to development Land Use Designations. Consideration includes if the timber volume being considered for harvest can be achieved while meeting Forest Plan goals, objectives, and standards and guidelines.
- Other resource uses and potential future uses of the area and of adjacent areas and of non-National Forest System lands.
- Areas where the investment necessary for project infrastructure (roads, bridges, etc) is achievable with the estimated value of timber volume in the project area. Where infrastructure already exists, the project would allow any maintenance and upgrade of the facilities necessary for removal of timber volume.
- Areas where investments for the project coincide with long-term management based on Forest Plan direction.

The implementation of the sales on the timber sale plan depends in part on the final budget appropriation to the agency. In the event insufficient budget is allocated, or resolution of pending litigation or other factors delay planned sales, timber sale projects are selected and implemented on a priority basis. Generally, the higher-priority projects include sales where investments such as road networks, camps or log transfer facilities have already been established or where land management status is not under dispute. The distribution of sales

across the Tongass is also taken into account to distribute the effects of sales and to provide sales in proximity to timber processing facilities. Timber sale projects scheduled for the current year that are not implemented, or the remaining volume of projects that are only partially implemented, are shifted to future years in the plan. The sale plan becomes very dynamic in nature due to the number of influences on each district.

### **Conclusion**

There is a long legislative recognition that timber harvest is one of the appropriate activities on national forests, starting with the founding legislation for national forests in 1897. The Organic Administration Act provides that national forests may be established “*to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States.*”

Congress’s policy for national forests, as stated in the Multiple-Use Sustained Yield Act of 1960, is “the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes.” Accordingly, Congress has authorized the Secretary of Agriculture to sell trees and forest products from the national forests “at no less than appraised value.” The National Forest Management Act directs that forest plans shall “provide for multiple use and sustained yield, and in particular, include coordination of outdoor recreation, range, timber, watershed, wildlife, fish and wilderness.” ANLICA provided for timber harvest from the Tongass as well as other uses such as subsistence. Effects on subsistence resources from timber harvest Tongass-wide are projected to have few differences based on the sequence in which areas are harvested. Because of the multiple use mandate and other requirements of the laws, these effects to subsistence are necessary, consistent with sound management of public lands.

In addition to nationwide statutes, Section 101 of the Tongass Timber Reform Act directs the Forest Service to seek to meet market demand for timber from the Tongass, subject to certain qualifications. It is the goal of the Tongass National Forest to provide an even-flow of timber on a sustained-yield basis and in an economically efficient manner. The amount of timber offered for sale each year is based on the objective of offering enough volume for sale to meet the projected annual demand. That annual demand projection starts with installed mill capacity, and then looks to industry rate of capacity utilization under different market scenarios, the volume under contract, and a number of other factors, including anticipated harvest and the range of expected timber purchases.

As described by Morse (April 2000), in terms of short-term economic consequences, oversupplying the market is less damaging than undersupplying it. If more timber is offered than purchased in a given year, the unsold volume is still available for re-offer in future years. The unsold volume would have no environmental effects because it would not be harvested. Conversely, a short fall in the supply of timber can be financially devastating to the industry.

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